THE AWARDS OF IOTA SIGMA PI

You need to strike a balance in science; you need to present and relate to people-that comes from my liberal arts education, and I think it's very important.....Being in academia is a lot of work. You have to balance your lifestyle.

Julia Y. Chan

Assistant professor of chemistry
Louisiana State University

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Iota Sigma Pi began its award program with the National Honorary Membership Program in 1921. The first **National Honorary Member** was Marie Sklowdowska Curie. Since that time the awards program has increased so that in 2004 there are six awards given by Iota Sigma Pi.

The first Research Award was granted in 1951 to Charlotte Roderuck, of Aurum Chapter. After the death of Agnes Fay Morgan in 1968, the name of the Research Award was changed to the **Agnes Fay Morgan Research Award** by action of the National Council in the winter of 1968-69. In 1974 National Council approved the awarding of the **Undergraduate Award for Excellence in Chemistry** and the first award was granted to Lynne Shapiro Garone from Brooklyn Institute of Technology in 1975.

In 1977 National Council authorized the **Anna Louise Hoffman Award for Outstanding Achievement in Graduate Research.** Anna Louise Hoffman was a past National Secretary of Iota Sigma Pi and served for many years up to her death in 1974 as Regional Director for Region V. The first recipient of the Anna Louise Hoffman Award was Irene Gennich.

In 1979 National Council approved the establishment of the **Award for Professional Excellence in Chemistry.** In 1984 the award was first presented to Joan Lambros from Fluorine Chapter and Past National President.

The first **Gladys Anderson Emerson Scholarship** was presented in 1987 to Jean Huang of Aurum Chapter. Iota Sigma Pi was the recipient of a generous bequest to establish scholarships for undergraduate women. In establishing these scholarships for Iota Sigma Pi, she expressed her belief in the necessity for women to be full participants in scientific education. Dr. Emerson was National President of Iota Sigma Pi from 1951 to 1957 and was made a National Honorary Member in 1966. Dr. Emerson received the Garvan Medal from the American Chemical Society in 1952. Dr. Emerson was the co-isolator of vitamin E in 1936 and enjoyed a long and fruitful career in nutrition research.

In 2002 National Council approved the establishment of the **Centennial Award for Excellence in Teaching** with a gift from Lily Ng. In 2003 the award was first presented to Esther Gibbs of Goucher College. In all of the Awards, Iota Sigma Pi is promoting the advancement of women in chemistry by recognizing outstanding women in chemistry.

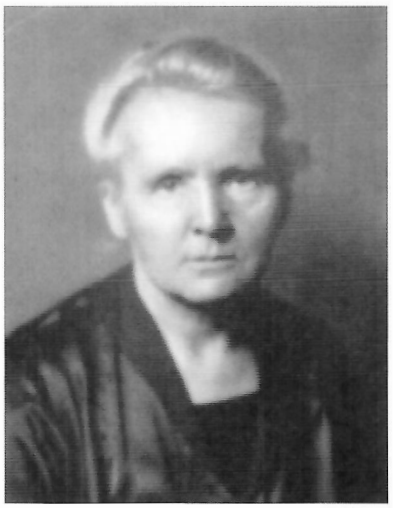
National Honorary Members

1921 Marie S. Curie, Ytterbium*†
1929 Ellen Gleditsch*
1935 Florence Rena Sabin, Tungsten*
1940 Mary Pennington*
1942 Florence Seibert, Ytterbium *
1945 Emma Perry Carr, Aurum*
1949 Icie Macy Hoobler, Tungsten*
1949 Gerti T. Cori, Hydrogen*†
1954 Agnes Fay Morgan, Oxygen*
1966 Gladys A. Emerson, Carbon*
1966 Dorothy Crowfoot Hodgkin*†
1969 Gertrude Perlmann, Columbium*
1972 Helen M. Dyer, Polonium*
1972 Betty Sullivan, Mercury*
1975 Ruth R. Benerito, Chlorine
1978 Helen Free, Samarium
1979 Ines Mandl, Vanadium
1981 Elizabeth Weisburger, Curium
1982 Rosalind Franklin* (posthumous)
1983 Mary L. Good, Aurum Iodide
1984 Jean'ne Shreeve, Member-at-Large
1985 Marjorie G. Horning, Neptunium
1986 Edith M. Flanigen, Vanadium
1987 Jeanette G. Grasselli, Fluorine
1988 Mildred Cohn, Member-at-Large
1989 Clara D. Craver, Member-at-Large
1990 Janet Osteryoung, Member-at-Large
1993 Darleane C. Hoffman, Hydrogen
1996 Lidia Vallarino, Argentum
1999 Bridgette Barry, Mercury
2002 Janet E. Del Bene, Member-at-Large
† Nobel Laureates *Deceased

NATIONAL HONORARY MEMBER AWARD

The National Honorary Member is the highest honor that Iota Sigma Pi bestows on outstanding women chemists. The award is for exceptional and significant achievement in chemistry or an allied field of such nature as to merit international recognition.

THE NATIONAL HONORARY MEMBERS OF IOTA SIGMA PI



MARIE SKLOWDOWSKA CURIE
First National Honorary Member

MARIE SKLOWDOWSKA CURIE, 1921. The first national honorary member was the late famous Madame Curie. Her achievements are so well known to all students of science that they need not be enumerated here. In the course of a brief visit to America in 1921, she accepted the membership which was conferred at New Haven, Connecticut on June 21, 1921. Glenola Behling Rose, Oxygen, made the original contact and Helen S. Mitchell, Ytterbium, and Zalia Jencks Gailey, Oxygen, took part in the ceremony. The ceremony and the award of membership were approved by all chapters. Mrs. Rose presented Mme. Curie with a pin. When Mme. Curie visited America again in 1929, Sybil Woodruff, Kalium, then national president, tendered formal greetings in the name of the society. In 1934 our first honorary member died in France, in her seventy-sixth year.

ELLEN GLEDITSCH
Second National Honorary Member

ELLEN GLEDITSCH, 1929. The second national honorary member was Ellen Gleditsch, professor of chemistry at the University of Oslo, Norway. She made a visit to this country under the auspices of the American Association of University Women in April 1929 and was invited by President Sybil Woodruff to become an honorary member.

Dr. Gleditsch was a former student under Mme. Curie. She worked for five years in her laboratory and during these years also took her degree as Licenciée ès Science á la Sorbonne. In 1913-14, she studied with Professor Boltwood at Yale and in 1914 received an honorary doctors degree from Smith College. From 1916, she was a lecturer (docent) at the University of Oslo and, from 1929, a full professor in inorganic chemistry at the same University. She retired from her professorship in 1946.

Her scientific publications are mostly in radioactivity, later also in the history of chemistry. She was a member of the Academy of Sciences in Oslo and received the Nansen Prize of the Academy in 1920. In 1948 she received an honorary doctors degree in Strasbourg. She received the French orders: Officer des Palmes Academiques et Officer de la legion d'Honneur, and the Norwegian order: Chevalier de St. Olaf.

She was president of the International Federation of University Women from 1926 to 1929 and an honorary member of the French Association of University Women.

I believe that science is a powerful vehicle to make people think of the future in a positive way.

Ahmed H. Zewail

Professor of Chemistry
and Physics
California Institute of
Technology
Nobel Prize 2000

FLORENCE RENA SABIN
Third National Honorary Member

FLORENCE RENA SABIN, 1935. The third honorary member and the first American to receive this honor was born in Colorado in 1871, and Tungsten chapter had the honor of proposing her name for honorary membership in 1935. The 1936 convention confirmed the invitation and the membership was graciously accepted by Dr. Sabin. Dr. Sabin's research dealt mainly with the cellular changes involved in blood making, cancer, and tuberculosis. She was elected in 1925 to the National Academy of Sciences, the first woman to be thus honored! She was the first woman to receive the professorship from Johns Hopkins University and later full membership in the Rockefeller Institute for Medical Research. She retired from active service in 1938, but maintained her scientific activity in the work of various national committees, particularly the Research Committee of the American Cancer Society. In 1944, Dr. Sabin took over the reorganization of the Colorado Public Health Department and continued active interest in this service until her death on October 3, 1953.

Dr. Sabin received fifteen honorary degrees and numerous prizes, medals, citations and awards. An heroic bronze statue of her has been placed in Statuary Hall of the National Capitol in Washington and a smaller replica in the new state public health building in Denver. She was indeed Teacher-Scientist-Humanitarian, the words engraved on this statue.

MARY PENNINGTON
Fourth National Honorary Member

MARY E. PENNINGTON, 1940. The fourth national honorary member was Dr. Mary E. Pennington of New York, to whom was awarded the Francis P. Garvan Gold Medal at the 100th meeting of the American Chemical Society in Detroit in September 1940. This medal is awarded by the ACS "to honor an American woman for distinguished service in chemistry." The presentation of national honorary membership was made in Detroit on September 11, 1940, by Dr. Nellie M. Naylor, national Vice President, and Dr. Icie Macy Hoobler, national secretary.

Dr. Pennington studied at the University of Pennsylvania and Yale University, where she specialized in chemistry and bacteriology. She held positions in the Philadelphia Department of Health, was director of chemistry at the Women's Medical College of Pennsylvania, and in the Bureau of Chemistry, USDA, from 1905 to 1919. Here she made notable progress in the chemistry and engineering of refrigeration of foods. Beginning in 1922 she had an independent consulting and research business dealing with the transportation and storage of perishables. She published a long list of bulletins and research reports as well as several practical popular treatises on refrigeration, eggs, and care of food aboard ships. From 1943 on, Dr. Pennington was a consultant of the Quartermaster General, Subsistence Research Laboratory in Chicago, on the handling of perishable foods for the Army. Dr. Pennington died in 1952.

FLORENCE B. SEIBERT
Fifth National Honorary Member

FLORENCE B. SEIBERT, 1942. The fifth national honorary member was Dr. Florence Seibert. Dr. Seibert was given the Garvan Medal in September 1942, at the American Chemical Society meeting in Buffalo, New York. At a breakfast on September 8, 1942, the honorary membership in Iota Sigma Pi was bestowed upon Dr. Seibert. Elsie Kilburn Mitchell and the national secretary, H. Marjorie Crawford, carried out the ceremony.

Dr. Seibert received the Ph.D. from Yale University and was a member of the Henry Phipps Institute of the University of Pennsylvania for twenty-six years, after which she became Emeritus Professor of Biochemistry. She was Special Consultant for the United States Public Health Service.

Her research has dealt with biochemical problems of tuberculosis. She isolated the proteins which constitute the specific principle of tuberculin responsible for the skin reaction in tuberculous subjects.

She was awarded the Ricketts Prize in Chicago, the John Scott Award in Philadelphia, and was the first woman to receive the Trudeau Medal of the National Tuberculosis Association, as well as the First Recipient of the Achievement Award of the American Association of University Women.

EMMA PERRY CARR
Sixth National Honorary Member

EMMA PERRY CARR, 1945. The sixth national honorary member was Emma Perry Carr, the first recipient of the Garvan Medal of the American Chemical Society in 1937. Dr. Carr received the B.S. and Ph.D. degrees in Chemistry at the University of Chicago. Nearly all of her long and distinguished teaching and research career was spent at Mount Holyoke College where she was head of the Chemistry Department from 1913 until her retirement in 1946. Her research was chiefly in the field of physical chemistry, especially in absorption spectra of organic compounds. She undertook a purely theoretical study of the absorption spectra of highly purified hydrocarbons which led to important applications by petroleum chemists.

Dr. Carr carried on study and research at various intervals at Queen's University in Belfast in 1919, at the University of Zurich in 1929, and at the University of Mexico in 1944. She was an official delegate to the meetings of the International Union of Chemistry in 1925, 1926, and 1936. She received many honors, including four honorary degrees, the Norris Award of the Northeastern section of the American Chemical Society in 1957, as well as the first award of the Garvan Medal in 1937.

Keep yourself above any tactics used against you.

Carol Crosthwaite

Upon graduation from Yale in 1920 Icie Macy's first job was an assistant biochemist at a Pittsburgh hospital. Only restrooms for men were provided in the laboratory complex, and she had to use a public restroom in a building some distance away. Her attempts to minimize the number of journeys caused her to develop acute nephritis.

ICIE MACY HOOBLER
Seventh Honorary Member

ICIE MACY HOOBLER, 1949. The seventh honorary member has long been known for her research in the nutrition of children. She did her undergraduate work in Central College for Women and the University of Chicago and graduate work in physiological chemistry at the University of Colorado and Yale University. Most of her professional life was spent in Detroit in affiliation with the Merrill-Palmer School and Children's Hospital as director of nutrition research, 1923-1930, and the Children's Fund of Michigan as director of the research laboratory from 1930 to her retirement in 1954. She was married to the late Dr. B. Raymond Hoobler in 1938. Her research has dealt with a great variety of problems concerning nutritional processes in childhood, some of which have been described in the three-volume series under the title "Chemical Growth in Childhood." Many journal articles have also reported the researches done under her direction, as well as fifteen monographs.

Dr. Hoobler has been the recipient of many honors. She was at one time secretary and later chairman of the Division of Biological Chemistry of the American Chemical Society, secretary and later president of the American Institute of Nutrition, member of the Food and Nutrition Board of the National Research Council, and member of many professional and scientific organizations.

She received the Borden Award in 1939 on nomination of the American Home Economics Association, the Norlin Achievement Award in 1938 from the Associated Alumni of the University of Colorado, the Francis P. Garvan medal from the American Chemical Society in 1946, and an honorary Sc.D. from Wayne University in 1945. Dr. Hoobler was further honored in 1952 as the recipient of the Osborne and Mendel Award from the American Institute of Nutrition and was elected a fellow of the Institute in 1960.

Dr. Hoobler has been a loyal and valuable member of Iota Sigma Pi since 1915, when she was elected to Tungsten Chapter at the University of Colorado. She was the first president of Tungsten in 1918, national treasurer 1918-1924, and national secretary, 1939-1942. In all these capacities she served Iota Sigma Pi well.

GERTY T. CORI
Eighth Honorary Member

GERTY T. CORI, 1949. The eighth honorary member, co- winner of the Nobel Prize in Medicine and Physiology (along with her husband, Carl F. Cori and B.A. Houssay), had a distinguished research record, dealing chiefly with carbohydrate metabolism. Up to 1931 her work was done with intact animals in an effort to learn the fate of different sugars in the animal body and the effects of hormones thereon. After 1931 she and her husband began to work with intracellular enzymes. They isolated glucose 1-phosphoric acid in 1936, and by 1942, had isolated and crystallized the enzyme phosphorylase which leads to the formation of this substance in muscle. Another enzyme was found which converts glucose 1-phosphoric acid to glucose 6-phosphoric acid. Blood sugar formation in the liver, and amylose and glycogen production, with the assistance of a second enzyme, were shown to be dependent upon these enzymes. In 1945, Dr. Cori, with others, crystallized from muscle another enzyme, glyceraldehyde phosphate dehydrogenase. These fundamental studies of muscle metabolism form the basis of modern theories of carbohydrate metabolism.

Dr. Cori was born in Prague when it was part of Austria and received her medical education in the famous German University of Prague (then in Czechoslovakia). She was married to Dr. C.F. Cori shortly after their graduation in 1920. She was an

Women in Chemistry Their Changing Roles from Alchemical Times to the Mid-Twentieth Century
Marlene and Geoffrey Rayner-Canham
Sir Wilfred Grenfell College
History of Modern Chemical Sciences
American Chemical Society and the Chemical Heritage Foundation

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assistant in the Children's Hospital in Vienna, 1920-1922. She and her husband came to the United States in 1922. They did biochemical research at the State Institute for the Study of Malignant Diseases in Buffalo, New York from 1922 to 1931, when they went to Washington University Medical School in St. Louis. Most of their well-known research was done at this medical school. Gerty Cori was first research associate and later professor of biochemistry at Washington University. She collaborated with her husband and others in the research discoveries for which she was given co-award of the Nobel Prize in 1947.

She and Dr. C.F. Cori received the Midwest Award of the St. Louis section of the American Chemical Society in 1946, the Squibb Award of the Society of American Endocrinologists, and a $5,000 prize of the National Science Fund of the National Academy of Sciences. In 1948 she received the Garvan Medal from the American Chemical Society. She was awarded the honorary D.Sc. by Boston University, Smith College, Yale and Columbia Universities.

1n 1934, when the Coris spent a few months as guest researchers at the University of California, Gerty Cori was elected to honorary membership in Hydrogen Chapter. In 1949, she was elected the eighth national honorary member of Iota Sigma Pi.

Dr. Cori died on October 27, 1957. Iota Sigma Pi will always be proud of this great scientist.

AGNES FAY MORGAN
Ninth Honorary Member

AGNES FAY MORGAN, 1954. The ninth honorary member of Iota Sigma Pi is Agnes Fay Morgan, historian of the organization and one of its founders. She earned the B.S., M.S., and Ph.D. degrees in chemistry at the University of Chicago and spent most of her professional life at the University of California at Berkeley, from 1915 until her retirement in 1954. She organized there the first department of Home Economics and remained its chairman from 1918 to 1954. Her teaching and research dealt with the chemistry of foods and nutrition, particularly with the distribution and functions of vitamins and their interrelationships with hormones. The effect of heat and other denaturing processes on proteins was first reported by her, as well as the relationship of pantothenic acid to adrenal function. She was long concerned with the development of food and nutrition research in the Agricultural Experiment Stations and was one of the organizers of the regional cooperative research projects. In 1959 she prepared a bulletin on these regional researches on nutritional status, covering all the publications arising from these projects in all parts of the United States.

Dr. Morgan received the Garvan Medal in 1949, the Borden Award from the American Institute of Nutrition in 1954, and Fellowship in that Institute in 1959. She was elected Faculty Research Lecturer on the Berkeley campus in 1951 and received the LL.D. degree from the University of California in 1959. In 1961 the Regents of the University of California named the Nutritional Sciences laboratory at Berkeley the Agnes Fay Morgan Hall. She died in 1968.

GLADYS A. EMERSON
Tenth National Honorary Member

GLADYS A. EMERSON, 1966. The tenth honorary member of Iota Sigma Pi was Gladys A. Emerson, Chairman of the Department of Home Economics and Nutrition at the University of California at Los Angeles. She received the A.B. and B.S. degrees from Oklahoma College for Women, the A.M. degree from Stanford University, and the Ph.D. degree from the University of California.

Dr. Emerson was a member of Carbon Chapter, later Hydrogen, Aurum, and Sulfur Chapters. She received the Garvan Medal in 1952, for her research on Vitamin E, nitrogen metabolism, and nutrition.

Dr. Emerson served two terms as national Vice

A few of these women had such strong drive and motivation that they were able to continue their scientific work without any academic position, as was Maria-Goeppart-Mayer....and Gerty Cori at Washington University in St. Louis from 1931 to 1944. Since both these women later won Nobel Prizes for work done under these conditions, one wonders what they might have achieved with proper faculty support.

Women Scientists in America - Struggles and Strategies to 1940, Margaret W. Rossiter, The Johns Hopkins University Press, 1982, p 196.

This community, both men and women, has welcomed new talent, and it has a reputation for going out of its way to encourage young people into the field.

Marcetta Y. Darensbourg

Professor of Chemistry
Texas A & M University

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President of Iota Sigma Pi 1945-48 and 1948-1951; two terms as national president 1951-1954 and 1954-1957, and two terms as national past-president 1957-1960 and 1960-1963.

In 1984 she died in California and left a considerable sum of money in her estate to establish the Gladys Anderson Emerson Undergraduate Scholarship.

DOROTHY CROWFOOT HODGKIN
Eleventh National Honorary Member

DOROTHY CROWFOOT HODGKIN, 1966. The eleventh honorary member of Iota Sigma Pi was Dorothy Crowfoot Hodgkin. Dr. Hodgkin received world recognition when she was awarded the Nobel Prize in Chemistry in 1964. Following Marie Curie and Irene Joliet-Curie, she was the third woman, and the first English woman to be so honored.

Dr. Hodgkin was born in Cairo, Egypt. She received the B.S. degree from Sommerville College, Oxford in 1932, and her Ph.D. degree from Cambridge in 1937. She returned to Sommerville College where she became the Wolfson Research Professor of the Royal Society and Professorial Fellow.

Dr. Hodgkin was recognized as an authority in x-ray crystallography. She was especially known for the structural determination by x-ray analysis of vitamin B_1. She died in 1994.

GERTRUDE E. PERLMANN
Twelfth National Honorary Member

GERTRUDE E. PERLMANN, 1969. The twelfth honorary member of Iota Sigma Pi was Gertrude E. Perlmann, who received the Garvan Medal in 1965.

Dr. Perlmann received the D.Sc. degree from the German University at Prague. From 1937-1939, she worked at the Biological Institute of the Carlsberg Foundation in Copenhagen in close collaboration with Fritz Lippman. She joined the Department of Physical Chemistry of the Harvard Medical School in 1939, and from 1941 to 1946, held a joint appointment as a research fellow of the Massachusetts General Hospital and Harvard. She went to Rockefeller University as a guest investigator under a Commonwealth Fund Fellowship. She was appointed research associate in 1947, assistant professor in 1951, associate professor in 1958, and full professor in 1973, a position she retained until her death in 1974.

Dr. Perlmann's major contribution was in research on the structure of pepsin, an enzyme that speeds food digestion. She showed the arrangement of the atoms in the pepsin molecule, how it breaks down food, and the structural changes that occur when pepsinogen, the inactive form of pepsin, is activated.

Dr. Perlmann was a member of the American Chemical Society, the American Society of Biological Chemists, the Biophysical Society, the British Biochemical Society, Harvey Society, and Columbian Chapter of Iota Sigma Pi.

During the 1963-1966 triennium, Dr. Perlmann was national Vice President of Iota Sigma Pi. Dr. Perlmann died September 9, 1974.

HELEN M. DYER
Thirteenth National Honorary Member

HELEN M. DYER, 1972. The thirteenth honorary member of Iota Sigma Pi was Helen M. Dyer. Dr. Carl Voegtlin, the first National Cancer Institute Director, recruited Dr. Helen Dyer as a Research Fellow for the NCI in 1942, where she remained until her retirement in 1965.

Dr. Dyer was awarded the Garvan Medal by the American Chemical Society in 1962, in recognition of her pioneering work in cancer related biochemistry.

Her contributions to nutrition as a science, cancer therapy, and enzyme chemistry are invaluable. She was considered an inspirational professor of biochemistry, as well as a tireless and dedicated research scientist who could work with little or no laboratory assistance or with a team with equal ease. Her pioneering work on the effects of ethionine in the diets of rats opened a way to the modern understanding of antibiotics.

Her work led to more than sixty scientific publications besides the first comprehensive index of tumor chemotherapy, published in 1949.

After nearly six decades of outstanding and diversified research Dr. Dyer was active in furthering the knowledge of cancer causation and mechanism. She worked as a much sought after consultant by more than one company in the Washington Metropolitan area.

Dr. Dyer was a member of Polonium Chapter, Iota Sigma Pi, Delta Epsilon, Sigma Xi, Sigma Delta Epsilon, a Fellow in the American Association for the Advancement of Science, and a member of other societies.

BETTY SULLIVAN
Fourteenth National Honorary Member

BETTY SULLIVAN, 1972. The fourteenth honorary member of Iota Sigma Pi was Betty Sullivan. Dr. Sullivan was Vice President and Director of the Russell-Miller Milling Company, Minneapolis, at the time she received the Garvan Medal in 1954. She was cited for her outstanding authority on the chemistry of wheat proteins, and the chemistry and biochemistry of the technology of baking. She published over sixty articles in scientific journals.

Among her many other honors is the distinction of being the first woman to receive the Osborne Medal of the American Association of Cereal Chemists. Dr. Sullivan served on the advisory board of the Journal of Agricultural and Food Chemistry and on the editorial board of Cereal Chemical Journal. She is Vice Chairman of the Board of Experience, Incorporated.

A sense of pleasant satifaction. It is good to be appreciated by your peers. Perhaps helps in my vita for qualifying as an expert for legal disputes.

Clara D. Carver

National Honorary
Member Iota Sigma Pi 1989

Knowledge itself is power.

Francis Bacon 1561-1626

The Oxford Dictionary of Quotations, 3rd ed., Oxford University Press (1979)

RUTH R. BENERITO
Fifteenth National Honorary Member

RUTH R. BENERITO, 1975. The fifteenth honorary member of Iota Sigma Pi was Ruth R. Benerito, a member of Chlorine Chapter. Dr. Benerito received a B.S. degree in chemistry from Newcomb College, did graduate work at Bryn Mawr, and received an M.S. degree in physics at Tulane and a Ph.D. degree in physical chemistry at the University of Chicago. She taught at Newcomb College and Tulane University before she joined the USDA staff, where she became head of physical chemical investigations at the Cotton Chemical Reactions Laboratory.

Dr. Benerito was the recipient of the Southern Chemists Award in 1968, and the Garvan Medal in 1970. She has done outstanding research in the physical chemistry of fat emulsions, epoxides, metallic salts, and diepoxy compounds. She is author or co-author of about one hundred publications.

Dr. Benerito is a member of the American Chemical Society, American Oil Chemists' Society, Sigma Xi, American Association of Textile Chemists and Colorists, Research Society of America, and a fellow of the American Institute of Chemists.

HELEN FREE
Sixteenth National Honorary Member

HELEN FREE, 1978. The sixteenth honorary member of Iota Sigma Pi was Helen Free, who is a member of Samarium Chapter. Helen Free joined Miles Laboratories as a control chemist in 1944, after receiving her A.B. degree in chemistry from the College of Wooster. For more than twenty years, she worked in the laboratory, where her work in research and development of convenient diagnostic test systems involving chemical reagents led to a long list of publications and patents.

In 1968, she was appointed new products manager. Under her direction, more than forty new chemical and microbiological reagents and instruments for blood and urine chemistry, histology, and cytology were introduced.

1n 1976, she was named director of specialty tests systems for the Ames Company division.

She has been a co-recipient of the Honor Scroll Award of the Chicago Chapter of the American Institute of Chemists and in 1976, received the Professional Achievement Award in Nuclear Medicine from the American Society for Medical Technology. The Garvan Medal recipient in 1980 was Helen Free. Helen Free was a member of Samarium Chapter of Iota Sigma Pi and National President of the American Chemical Society in 1993.

INES MANDL
Seventeenth National Honorary Member

INES MANDL, 1979. The seventeenth honorary member of Iota Sigma Pi was Ines Mandl. Dr. Mandl was born in Vienna, Austria and became a United States citizen in 1950. She received her early education in Vienna and Cork, Eire. In 1944, she received her Dip. Chem. Natl. from the University of Ireland, and in 1948 and 1949, she received her M.S. and Ph.D. from the Polytechnic Institute of Brooklyn.

Dr. Mandl was Assistant to Professor Carl Newberg at the New York University for several years and was with Columbia University College of Physicians and Surgeons from 1949, where she has held the following positions: Research Associate in Surgery, Associate in Biochemistry, assigned to Microbiology, Assistant Professor of Biochemistry, Director of GYN Laboratories at Delafield Hospital, Associate Professor of Reproductive Biochemistry, and Professor of Reproductive Biochemistry.

She was Editor-in-Chief of **Connective Tissue Research, An International Journal** for many years beginning in 1972.

Dr. Mandl received a number of honors: Distinguished Alumnus Award, Polytechnic Institute of Brooklyn, 1972; Carl Newberg Medal, 1977; Fellow of the New York Academy of Sciences, 1979; of the Gerontological Society, 1980; Francis P. Garvan Medal,1983.

Her research interests include Biochemistry of Connective Tissue Proteins, Collagen, Elastin, Proteolytic Enzymes, Collagenase, Elastase, Proteinase Inhibitors, Alpha-antitrypsin, Age-associated Changes in Connective Tissue Proteins, Pulmonary Emphysema, and Respiratory Distress Syndrome.

Dr. Mandl is a member of a number of scientific societies some of which are American Chemical Society, Biochemical Society (England), American Association of Cancer Research, Gerontology Society, Society of Complex Carbohydrates, American Heart Association Basic Science Council and Cardiopulmonary Council, Sigma Xi, and Virchow-Pirquet Medical Society.

ELIZABETH K. WEISBURGER
Eighteenth National Honorary Member

ELIZABETH WEISBURGER, 1981. The eighteenth National Honorary Member was Chief of the Laboratory of Carcinogen Metabolism at the National Cancer Institute, NIH. Dr. Weisburger was also the recipient of the 1981 Garvan Medal. The year 1981 was a memorable one for Elizabeth Weisburger for two other reasons: she was chosen for the Hildebrand Award of the Washington, D.C., Section of the American Chemical Society and was conferred with an Honorary Degree of Doctor of Science from her alma mater, the University of Cincinnati. The citation reads in part: "Since receiving your doctorate from the University of Cincinnati in 1947, you have devoted your energies toward the conquest of cancer, the most feared of the diseases which afflict mankind. Your research has greatly enhanced and emphasized the role of chemistry in the search to eliminate the causes of this dread disease. You were among the first to point out the potential dangers of some of the principal drugs used in clinical cancer therapy, and your development of improved test systems for assessing cancer risks has been most impressive." "In addition to an extremely productive career as a scientist, you have served the public well through your activities in professional and academic institutions, the U.S. Public Health Service and other government agencies, the National Academy of Science, and the American Chemical Society, which recently present you the prestigious Garvan Medal." "Throughout your distinguished career, you have maintained your affiliation with the University of Cincinnati chapter of Iota Sigma Pi, national honor society for women in chemistry, to which you have been named a life member." Dr. Violet M. Diller, Professor of Biophysics at UC and a past

I liked the lab part and I liked the idea that you could do things and try to figure out stuff and make different things happen that nobody had made happened before.

Helen Free

President
American Chemical Society
1993

...but receiving external acknowledgment of my work through Iota Sigma Pi's award program was a huge boost.

Kate Queeney

Assistant Professor of Chemistry
Smith College

National President of Iota Sigma Pi (75-78), served as Dr. Weisburger's faculty escort for the commencement ceremonies.

Dr. Elizabeth Weisburger was one of the pioneers in the study of the relationship between carcinogenesis and the metabolism of specific chemical entities. Her research has centered on the in vivo metabolism and metabolic activation of chemical carcinogen, particularly of aromatic amines. Her work on the metabolism of 2.4 diaminoanisole and 2, 4-toluenediamine in the rat and hamster, of N-2-flurenylacetamide in X/Gf mice, and of 6-aminochrysene and 2,4-diaminoanisole in the rat, are just some examples of her outstanding contribution in this field. She also studied the relationship between mutagenesis and carcinogenesis, as well as the assessment of human risks. Her investigations of the carcinogenic properties of principal drugs used in clinical cancer chemotherapy were among the most comprehensive done. She has been an active and valuable member of most important national and international committees on cancer research. Dr. Weisburger is devoted to education, committed to science, family life and the outdoors. She has impacted areas of science that were not only intellectually challenging, but also had immense human impact. She shared her knowledge and enthusiasm worldwide and did not loose hold of a well-rounded personal life.

ROSALIND FRANKLIN (posthumous) Nineteenth National Honorary Member

ROSALIND FRANKLIN, 1982. The Nineteenth National Honorary member of Iota Sigma Pi was the first posthumous award. Dr. Franklin made significant contributions to the understanding of the DNA molecule. Rosalind Franklin was born July 20, 1920, in London, England, second child and first daughter of Ellis and Muriel (Waley) Franklin. She was educated at St. Paul's Girls' School, where she early discovered the absorbing interest in chemistry which she subsequently pursued with remarkable productivity, and at Newnham College, Cambridge University, which she entered in 1938. It is perhaps an interesting social comment that although Rosalind Franklin came of a wealthy family with strong and varied intellectual interests, she had considerable difficulty in persuading her father to permit her to enter Cambridge. Advanced education was considered even at that late date as unnecessary for young women of good family who were not required to earn a living, and for whom a career outside volunteer work for worthy charitable causes was "unsuitable". As an undergraduate she specialized in physical chemistry, in which she received her bachelor's degree in 1941. Britain was at war, and in view of the value of scientific research in wartime, parental opposition to her pursuit of graduate work was withdrawn. Rosalind did graduate work for a year at Cambridge under the direction of R. G. W. Norrish before leaving to work in research at the British Coal Utilization Research Association. She was permitted to submit a portion of her work at BCURA as a doctoral thesis ("The Physical Chemistry of Solid Organic Colloids with Special Relation to Coal and Related Materials") and was awarded a Ph.D. by Cambridge in 1944.

Rosalind Franklin's work falls into three divisions, or phases, successively undertaken. The first phase concentrated upon the physical chemistry of carbons, especially coal, and is represented by a series of papers still regarded as remarkable. According to Dr. Peter Hirsh, Professor of Metallurgy at Oxford University, "she brought order to a field previously in chaos." The second phase, although still concerned with the structure of carbons, is characterized by a shift in Franklin's interest to the application of the methods of X-ray crystallography, a technique which she learned, and brought to a very high degree of perfection, while working in Paris at the Laboratoire Central des Services Chimiques de I'Etat in the period between 1947 and 1950. There she worked chiefly upon materials resistant to structural analysis, owing to their amorphous, sub-crystalline nature, such as graphite.

Her special talent lay in an ability to recognize similarities between apparently unlike substances. She was, therefore, the first to divide coals, plastics, and some other solid organic materials into principal categories: those which upon heating, yield non-graphitizing carbons (low-rank coals, substances rich in oxygen or poor in hydrogen, polyvinylidine chloride: these carbons have low density, large fine-structure porosity, and are very hard) and those whlch convert readily to graphite (coking coals, substances rich In hydrogen, polyvinyl chloride: these form carbons which are soft, compact, and of high density). The discovery of non-graphitizing carbons has had important industrial applications in polymer carbons, known as glassy or vitreous carbons.

The third phase of Franklin's work concerned biological substances. In this area her best-known achievements dealt with the structures of DNA and tobacco mosaic virus (TMV). The shift from carbons to biological substances is less great than it may appear. The carbons which Franklin handled so productively while working in Paris shared with the biological materials upon which she later worked typically subcrystalline amorphous properties, ill-suited (in fact) to normal techniques of X-ray crystallography, and therefore, requiring not only an extremely high degree of experimental skill, but a very great familiarity with physical chemistry in order to make accurate and extensive interpretations of experimental data. Franklin's contribution to the elucidation of the structure of DNA was immense. It was she who discovered the hydrated B form of DNA. It was she who determined the water content of the molecule, who established the location of the sugar-phosphate "backbone" on the exterior of the structure, and who postulated as early as the autumn of 1951, the helical nature of the structure. Not only her experimental data but much of her work in interpretation of these experiments were "subsumed" into the description of the DNA structure published by J. D. Watson and F. H. C. Crick in April 1953. The extent to which these other researchers based In Cambridge had access to her diffraction pictures and notes prepared at King's College, London, was by no means fully known to her, nor indeed was it known to anyone prior to the publication of Watson's book "The Double Helix," apart from Watson himself, Crick, and M. H. F. Wilkins, a colleague of Franklin's at King's College. The three men shared the 1962 Nobel Prize for Medicine and Physiology. Franklin worked at King's College, London, from January 1951 to the spring of 1953, at which time she moved to Birkbeck College, London, where she embarked upon a detailed study of TMV and other viruses. Between 1953 and 1958 she published 17 papers covering virus studies: a staggering rate of production in view not only of the vast complexities of the work itself but of her state of health. In late 1956 Franklin underwent surgery for an abdominal growth which proved to be malignant. From that time to the end of her life, she fought a bitter and often agonizing battle against cancer, which ended with her death in April 1958, three months before her 38th birthday. When the detailed structure of TMV was finally announced 12 years after her death, its relationship to her fundamental work on it was so clear that she is generally credited with a primary role in the completed work. This was summed up by the late J. D. Bernal in an article for Nature: "Using the method of isomorphous replacement, (Franklin) showed that the virus particle was not solid, as previously had been thought, but actually a hollow tube... The combined methods of chemical preparation and X-ray examination in the hands of Miss Franklin and her associates was a valuable, and indeed a decisive, weapon in the analysis of these complex structures." To this Bernal added the following general judgment: "As a scientist Miss Franklin was distinguished by extreme clarity and perfection in everything she undertook. Her photographs are among the most beautiful X-ray photographs of any substance ever taken... She did nearly all this work with her own hands. At the same time she proved to be an admirable director of a research team and inspired those who worked with her to reach the same high standard." The New York Times recognized this foreign scientist after her death with an obituary notice which saluted her as one of "a select band of pioneers." And so she was.

MARY L. GOOD
Twentieth National Honorary Member

MARY L. GOOD, 1983. The twentieth National Honorary Member was Vice President and Director of Research at UOP, Inc., in Des Plaines, Illinois in 1983. The award was presented on May 14 at a regular meeting of the Aurum Iodide Chapter held at North Central College by Dr. Anne T. Sherren, Past National President of Iota Sigma Pi. Dr. Good spoke on "The New High Tech Era: Opportunity or Threat for Chemistry." The lecture was followed by the initiation of new members of the chapter and a reception. Dr. Good has been the recipient of numerous awards, including the 1973 Garvan Medal, the 1997 Priestley Medal of the American Chemical Society, and the 1969 Agnes Fay Morgan Research Award of Iota Sigma Pi. She was honored as the 1982 Industrial Research and Development Scientist of the Year at a banquet in Washington D.C. In accepting that award she challenged chemists to interdisciplinary study in order to stay on the forefront of technological progress. She also expressed concern that educational opportunities be made available to the bright students whose skills are needed for advancement. She said that she did not think that there was any room for discrimination toward women in an era of such pressing technological problems.

Dr. Good is in a unique position to speak to problems of industry and academe. Prior to her position at UOP, she held the Boyd Professorship of the Louisiana State University, where she worked in the departments of chemistry and

Your quest for scientific exploration...should be because you believe your discoveries, your insights, can contribute to improving the quality of life and the quality of human understanding.

David Hall

Provost and Senior Vice President of Academics Affairs Northeastern University, Boston

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A very distinquished honor.

Edith M. Flanigen

Consultant
Senior Research Fellow with OUP, UPO Fellow in 1991

materials science. She served as vice president of the National Science Board of the NSF. *IRRD* (October 1982) focused its cover story on Mary Good's accomplishments. A description of Dr. Good's research interests follows. The long-term focus of Good's research has been physical inorganic chemistry with special emphasis on spectroscopic techniques to solve chemical or structural problems. Her early work (funded by the Atomic Energy Commission) in solvent extraction of metal complex systems was directed toward understanding actual chemical species transported across the liquid-liquid interface and their subsequent chemical and physical properties in the organic solvent. This work provided significant insight into the extraction mechanism associated with the transfer of anionic complexes into organic solvents via association with organic soluble amines and quaternary salts. The infrared spectroscopic study of these complexes in organic media provided insight into their intrinsic molecular structures, which could be deduced in the absence of solid-state crystal packing factors. These studies preceded the large volume of work by organic chemists where extraction concepts were used to prepare "phase transfer" catalysts, providing a wide variety of organic- soluble inorganic complexes for homogenous catalysis in organic reactions. The second major thrust of Good's research (supported primarily by NSF) was in the application of the Mossbauer effect to the solution of solid-state chemistry problems not easily accessible by other techniques. This distinguished work integrated the conclusions deduced from Mossbauer spectroscopy with information collected by other techniques, resulting in more-complete descriptions of complex solid-state materials. Fundamental questions on the structure and properties of both iron and tin halide systems were answered. The most important contribution of this work, was demonstrating that detailed chemical and structural information could be obtained for ruthenium systems. Publishing some of the first papers on the chemical utility of this technique in the study of mixed valence, binuclear ruthenium complexes, Good's laboratory describes the chemical state of ruthenium on catalytic supports as a function of treatment environment. The ultimate catalyst characterization utility was demonstrated in a double iron-ruthenium Mossbauer experiment designed to look at bimetallic systems, both unsupported and supported on a variety of metal oxides.

The third major research effort in Good's group was in the chemical evaluation of organotin antifouling coatings which provide long-lived marine protection for the Navy and maritime industry. This work (supported by the Office of Naval Research and the Sea Grant program) provided a long-needed, research- oriented study of the optimum properties of successful antifouling coatings, the development of appropriate laboratory testing methods for coating evaluation, and analytical methods for the determination of the environmental impact of the released organotin toxicants.

Mary L. Good also served as National President of the American Chemical Society in 1987 and the American Association for the Advancement of Sciences in 2000.

JEAN'NE M. SHREEVE
Twenty-first National Honorary Member

JEAN'NE M. SHREEVE, 1984. The twenty-first National Honorary Member earned a Ph.D. in inorganic chemistry from the University of Washington in 1961. She became an assistant professor at the University of Idaho and has risen through the ranks to serve as full Professor and Department Head. A colleague writes, "As a scholar, Dr. Shreeve's high competence is amply demonstrated by her 150 research publications in refereed journals. Her record is the more remarkable because this has been accomplished in our small chemistry department with limited access to the super-equipment and selectively screened students in major research centers. There has been world-wide recognition of her accomplishments and our department has frequent visits from international leaders in fluorine chemistry who come to confer with Dr. Shreeve. Also, faculty members from the other institutions in this country and abroad here come for periods for collaborative research." Her work in fluorine chemistry was acknowledged by the Fluorine Division of the American Chemical Society in 1979 when she received their award for Creative Work in Fluorine Chemistry She served on the editorial advisory boards of the ***Journal of Fluorine Chemistry*** and ***Inorganic Synthesis***. Jean'ne also receives high praise for her work as an academic administrator and educator. She has attracted many students to Idaho – in addition to research and equipment grants. She received the Manufacturing Chemists Assn. Award for College Chemistry Teaching in 1979, and has been honored on her own campus as a Distinguished Faculty Member and an Honorary Alumna.

Her honors are too numerous to list, but she has been awarded the Garvan Medal (1972), the Alexander von Humboldt Foundation Senior Scientist Award (1978), and the Alfred P. Sloan Fellowship (1970-72). She is a distinguished member of both Phi Beta Kappa and Phi Kappa Phi and a Fellow of AAAS.

Dr. Shreeve has managed to be active in many professional societies as well. She was National Director of Iota Sigma Pi (1972-75), and has chaired local section of the ACS, Sigma Xi, Phi Kappa Phi and Phi Beta Kappa. She has been particularly active in the ACS (Chair of the Fluorine Division, member of the Women Chemists Committee, vice president of the Council Policy Committee and councilor from the Inorganic Division) and the AAUW (member of national committees on Standards in Higher Education and International Fellowships and Awards).

Clearly, Jean'ne Shreeve merited recognition as National Honorary Member for her "exceptional and significant advancement in chemistry".

MARJORIE G. HORNING
Twenty-second National Honorary Member

DR. MARJORIE G. HORNING, 1985. The twenty-second National Honorary Member is a member of Neptunium Chapter. According to her nominators "Dr. Marjorie Groothuis Horning is a unique individual." She presently holds faculty positions at three universities. She is a full professor of biochemistry at Baylor College of Medicine, an adjunct professor of biochemical and biophysical sciences at the University of Houston, and a special member of the graduate faculty of the University of Texas Graduate School of Biomedical Sciences. Dr. Horning has made major contributions in the fields of chemistry, biochemistry and pharmacology. Much of her work has been concerned with the development and application of gas and liquid chromatographic and mass spectrometric methods for the multicomponent analysis of small biological samples. Pioneering work done with Reba Hill, M.D., found that most drugs and many drug metabolites cross the placenta. This was contrary to popular opinion which held for many years that the fetus was protected against drug effects by the "placental barrier."

Dr. Horning, who has published more than 200 papers, was awarded the Garvan Medal in 1977. Her work has been recognized by numerous awards and invitations to participate in many national and international conferences and symposia. Her professional activities include serving on editorial and advisory boards and as elected officials in the American Chemical Society and the American Society for Pharmacology and Therapeutics. She is currently serving as president of the latter society. She has been honored by both her alma mater universities. Goucher College awarded Dr. Horning an honorary doctorate in 1977 and the University of Michigan presented their Alumnae Athena Award to her in 1980.

Dr. Horning's scientific achievements are but a part of Marjorie Horning She is a caring and giving person and serves as an excellent mentor for women. Her understanding and encouragement of women to pursue and to continue the study of science are exemplary. As a member of Neptunium Chapter of Iota Sigma Pi, she has been ever supportive its activities. She has never been too busy to come and speak.

EDITH M. FLANIGEN
Twenty-third National Honorary Member

EDITH H. FLANIGEN, 1986. The twenty-third National Honorary Member is known and respected world-wide for her expertise in the areas of molecular sieves and silicate chemistry. She is a well-known lecturer and author and is frequently called upon to address groups ranging in size from those attending a college symposium to a prestigious CHEMRAWN meeting. In 1986 her 26 publications and 22 US patents attested to her proficiency and her creativity in chemistry.

I do believe that the award helped to build my confidence with some built-in credibility.

Michele Moisio Thomas

Technical Team Leader
ExxonMobil Upstream
Research Co

In the 1950-1960's the Standard Oil (Ohio) Research Laboratories in Cleveland had about 30% women on their professional staff. A visionary research director, Dr. Everett C. Hughes, recognized that the company had to provide these women opportunities to acheive in their careers and also to have a family if they so desired. The Sohio labs put flex-time work pratices and full benefits for part-time workers into place. The women chemists published, made presentations and were awarded patents in impressive numbers, fully justifying these management practices, far before women's movements brought them to the nation's attention.

Jeanette Grasselli Brown

Chair Ohio Board of Regents Retired Director Environmental and Analytical Sciences BP Amoco (formerly Standard Oil Co. (Ohio).

Dr. Flanigen has succeeded as few other scientists, and no other woman, have done at Union Carbide. She has attained the highest technical position of the Corporation, Senior Corporate Research Fellow, shared by only five other scientists. Those working in her research group benefit greatly from their association with her. Her colleagues admire her ability to integrate hard work and concern for their well-being, both in herself and in those working for her, and say that this ability is a key factor in the high quality innovative research performed under her direction. One example of such results was contained in reports of new families of molecular sieves developed at Union Carbide in her synthesis research group featured in the January 7 and September 30, 1985, issues of ***Chemical and Engineering News***.

Edith Flanigen graduated from D'Youville College, Buffalo as valedictorian and class president in 1950. Her masters in inorganic-physical chemistry was earned at Syracuse University in 1952. She began her career as a research chemist in the Linde Division of Union Carbide in that same year. She was promoted to Senior Research Chemist 8 years later and in 1973 was the first woman at Union Carbide to be appointed Corporate Research Fellow. She has been Senior Corporate Research Fellow since 1982. Her research accomplishments include synthesizing many new compositions of matter with applications as absorbents and catalysts, inventing the hydrothermal emerald synthesis process, and pioneering the use of mid-range infrared spectroscopy for interpreting zeolite structures. Currently, she is continuing her recent work inthe discovery of new generations of molecular sieve materials, including the promising new families of alumino phosphates and silicoaluminophosphates, under active development as new catalysts and adsorbent products for the chemical and petroleum industries. She is a member of many professional societies, including the International Zeolite Association which she chaired 1970-73. Dr. Flanigen is a member of three honorary societies—Sigma Xi, Sigma Delta Epsilon and Kappa Gamma Pi – and is listed in Who's Who of American Women and in American Men and Women of Science.

She holds an honorary doctorate from D'Youville College and was honored with the First International Zeolite Association Donald Wesley Breck Award in Molecular Sieve Science in 1983. She has also received the Western New York Section, ACS, Distinguished Service Award, and the Faith and Service Award of Kappa Gamma Pi.
She has been active as a volunteer worker in numerous civic and church groups. She organized and directed a choral group at the Home for Delinquent Girls in Buffalo for ten years. She was leader of a church group for professional people and organized several regional and national meetings on the theme of Science and Religion. She has also organized conferences for Latin American students and the Teilhard Society of Buffalo.

JEANETTE G. GRASSELLI
Twenty-Fourth National Honorary Member

JEANETTE G. GRASSELLI, 1987, FLUORINE. Dr. Jeanette G. Grasselli the twenty-fourth National Honorary Member, was Director of Corporate Research and Analytical Science for Standard Oil of Ohio in 1987. She is internationally recognized for her contributions to the field of molecular spectroscopy centering around IR, Raman, NMR and surface techniques. Her research interests include spectra/structures relationships, combined techniques (separation/spectroscopy) and analytical problem solving. She maintains a high commitment to continuing education for analytical chemists and spectroscopists and serves as a widely recognized spokeswoman for academic industrial interactions. Dr. Grasselli, the 1986 Garvan Medalist, has published nearly 100 papers. She is the author, editor or co-editor of six books including **Atlas of Spectra Data and Physical Constants for Organic Compounds (1973, 1975), Practical Spectroscopy - Vol. I-III, Infrared and Raman Chemical Applications of Raman Spectroscopy, The Analytical Approach, and Proceedings, 1985 International Conference on Fourier and Computerized Infrared Spectroscopy.** She also contributed a bimonthly column to **European Spectroscopy News.**

Dr. Grasselli's professional activities included serving on editorial and advisory boards and as an elected official in several professional societies, including the American Chemical Society, Society for Applied Spectroscopy, Federation of Analytical Chemistry & Spectroscopy (FACSS), Coblentz Society and ASTM. She was on the editorial board of **Applied Spectroscopy Reviews** (Marcel Dekker) and **Spectroscopy** (Aster Publications). She served on the teaching staff for Bowdoin College, Brunswick, Maine, for advanced applications of IR spectroscopy. She was Titular Member on the IUPAC Commission IV in Molecular Spectroscopy, Physical Chemistry Division, and member of the, Board on Chemical Sciences and Technology for the National Research

Council. She was a member of the Board of Assessment and chairmanon the Evaluation Panel, National Measurement Laboratory for the National Bureau of Standards. Ohio University, one of Dr. Grasselli's alma mater universities, and Clarkson University have both recognized her achievements with honorary D.Sc.'s. She was on the Board of Directors of Nicolet Instrument Corporation and served on the Board of Trustees as well as the College of Arts & Sciences, on the Board of Visitors of the College of Ohio University. She was on the External Advisory Board of the University of Southern Mississippi. According to her nominator, "Dr. Jeanette Grasselli is that rare combination of excellent scientist, good manager, and tremendous public relations person. Industrial chemistry would not have to live with its current reputation if there were more people like her to ask as spokespersons. Dr. Grasselli brings an eagerness and enthusiasm to a project that is rewarding and contagious for others. She is an exciting lecturer, who has done more to stimulate aspiring analytical chemists than any other person I could name in industry, government or academe". Grasselli is a past-president of the Fluorine Chapter.

MILDRED COHN
Twenty-fifth National Honorary Member

MILDRED COHN, 1988, MEMBER AT LARGE. The twenty-fifth National Honorary member of the University of Pennsylvania School of Medicine received her B.A. in 1931 from Hunter College and her Ph.D. in 1938 from Columbia University. She is internationally known as a pioneer in the use of NMR in biochemistry and biophysics and for her earlier work on the mechanism of phosphate transfer enzymes. "Add to these accomplishments her own personal characteristics, and one must realize that she is one of those unique scientists who brings together originality, creativity, a devotion to science and an accumulated knowledge of many diverse areas of human experience." Dr. Cohn is credited with 143 publications, has over 20 Lectureships both in the United States and abroad and has served or is serving on over 15 prestigious Advisory and Editorial Boards. Dr. Cohn has received many prestigious awards including: Garvan Medalist (1963), Career Investigator of American Heart Association (1964-78), Cresson Medal of the Franklin Institute (1975), International Organization of Women Bioscientists Award (1979), U.S. Senior Scientist Award from Humbolt Foundation (1980), National Medal of Science (1983), American Academy of Achievement Award (1984), Visiting Professor of Biological Chemistry at John Hopkins University School of Medicine (1985-present), Chandler Medal from Columbia University (1986) and Distinguished Service Award of the College of Physicians (1987).

CLARA D. CRAVER
Twenth-sixth National Honorary Member

CLARA D. CRAVER, 1989, MEMBER AT LARGE. The twenty-sixth National Honorary Member earned her B.S. *(cum laude)* in 1945 from Ohio State University and immediately went into industry. She received an Honorary Doctorate from Fisk University in 1974 at a special honoring. Dr. Craver is renowned for her work in infrared spectroscopy and has edited and published over 10,000 reference spectra and several chapters in textbooks since her 1958 affiliation with the National Bureau of Standards and the Coblentz Society. She holds two patents and since 1959 has been the president of her own consulting firm. Dr. Craver has taught courses in infrared spectroscopy for Fisk University, Vanderbilt University, Canisius College, and the American Chemical Society. She is the recipient of numerous prestigious awards including the Carbide and Carbon Award of the ACS (1956), Staff

Recognition by peers is significant for ANY professional. It is especially valuable for women to say "this person is a scientist". The earlier in the career a recognition is given the more important and helpful it is to the recipient.

Clara D. Craver

Chemir
National Honorary
Member Iota Sigma Pi
1989

I think Iota Sigma Pi Award structure of honoring women at all levels of achievement from students to "seasoned" researchers and educators is particularly important in encouraging women in chemistry.

Darleane C. Hoffman

Professor of the Graduate School, Dept. of Chemistry, University of California, Berkeley & Faculty Sr. Scientist, Heavy Element Nuclear & Radiochemistry Group, Nuclear Science Division, Lawrence Berkeley National Laboratory, Berkeley, CA
U.S. National Medal of Science, 1997

Appreciation Award of the American Society for Testing and Materials (1982), and the Williams-Wright Award of the Coblentz Society (1985). Dr. Craver has presented lectures at the Gordon Conference (1954, 1964, 1966), the Chemical Research Institute (1980), the Conference of Technology and Assessment (1975), and the Pittsburg Conference (1976).

JANET OSTERYOUNG
Twenth-seventh National Honorary Member

JANET OSTERYOUNG, 1990, MEMBER AT LARGE. The twenty-seventh National Honorary Member was Professor of Chemistry at The State University of New York at Buffalo in 1990. Janet received her B.A. in chemistry from Swarthmore and her Ph.D. in analytical chemistry from The California Institute of Technology. She remained at CIT as a Research Fellow in analytical chemistry for a year before joining the faculty at SUNY. Osteryoung is the recipient of many awards, most notably the Garvan Medal from the American Chemical Society. Her award address, entitled "Voltammetry – The Tool that You Can Learn to Love," was presented at the luncheon in her honor on Saturday afternoon at the 1990 Triennial Iota Sigma Pi Convention. She presented the fundamentals of pulsed voltammetry and its applications in analysis. She discussed the potential for commercialization of units that would use pulsed voltammetry in analysis without requiring the end user to be an expert in the field.

DARLEANE C. HOFFMAN
Twenty-eighth National Honorary Member

DARLEANE C. HOFFMAN, 1993, HYDROGEN. The twenty-eighth National Honorary Member's research interests are in transuranium element research and the chemical properties of the heaviest elements. Her interests also include rapid chemical separation of short-lived fission products, separation chemistry of lanthanide and actinide elements, nuclear structure, studies of the fission process, heavy ion reactions, production of new neutron- rich heavy element isotopes, search for heavy elements in nature, and studies of radionuclide migration in geologic media. Dr. Hoffman is Professor Emeritus in the Department of Chemistry at the University of California at Berkeley, where she remains active in chemical research. She is also Faculty Senior Scientist and Group Leader at the Lawrence Berkeley Laboratory, and Director of the Glenn T. Seaborg Institute for Transactinium Science, a position she accepted in 1990. She received her B.S. in Chemistry and her Ph.D. Physical (Nuclear) Chemistry from Iowa State University in Ames, Iowa. Among her many honors are being named a Director's Fellow of the Los Alamos National Laboratory (1990), the American Chemical Society Garvan Medal for contributions to the physics and chemistry of the heaviest elements (1990), the American Chemical Society Award for Nuclear Chemistry (1983), and the American Chemical Society Priestley Medal (2000). She was elected to membership in the Norwegian Academy of Science and Letters (1990), received a Japan Society for Promotion of Science (JSPS) Fellowship (1987), and received a Guggenheim Fellowship for study of mechanisms of nuclear fission (1978-79). In 1986, she received the Iowa State University Alumni Association Distinguished Achievement Award.

In addition to her many honors, Dr. Hoffman has been involved in many professional activities and served on a large number of advisory committees. Most of these deal with actinides transactinides, nuclear medicine, and nuclear chemistry. Additionally, she served on the International Committee appointed by IUPAC to examine claims to priority of the discovery of elements 104 and 105 from 1974-80. In February 1991, she was the Chair of the Organizing Committee for Symposia for the 50th Anniversary of the Discovery and First Chemical Identification of Plutonium. At the 1993 Triennial Convention Dr. Hoffman's talk focused on the discovery of transuranium elements and their chemical characteristics. She summarized much of the prodigious work she has accomplished during her career. Some of her significant contributions include the discovery of plutonium-244 in nature, carrying out of the first solution chemistry of the element hahnium (atomic number 105), making the first observation of enhanced symmetric mass division in spontaneous fission of heavy fermium isotopes, providing the first direct proof of electron-capture delayed fission. She has also had significant accomplishments in automating aqueous and gas phase chemical studies of actinide and transactinide elements, and in determining reaction mechanisms for production of heavy elements. With such a large number of accomplishments, one might expect that her talk was overwhelming. This, however, was not the case. She clearly explained the significance of her work and drew connections between its different aspects. Her enthusiasm for her research, in addition to her outstanding presentation technique, instilled excitement and curiosity in the audience.

LIDIA VALLARINO
Twenty-ninth National Honorary Member

DR. LIDIA VALLARINO, 1996, ARGENTUM. The twenty-ninth National Honorary Member received her Ph.D. in chemistry from the University of Milan in 1954. Between 1956-1959, she conducted post-doctoral research through several appointments in England, including University College, Oxford University, and I.C.I. Research Laboratories. She worked as an Assistant and later Associate Professor at the University of Milan. In 1961 she accepted a position as a Research Associate at Florida State University. In 1974 she served as a visiting professor at the College of William and Mary.

From 1975 - 1980, Dr. Vallarino was a Professor of Chemistry at Auburn University and in 1980 she moved to Virginia Commonwealth University, where she was Professor of Chemistry in 1996. Dr. Vallarino has received numerous awards and honors including a British Council Senior Research Fellowship Award early in her career. Since then she has been named a Libero Docente of Inorganic Chemistry in Italy and recently received VCU's "Distinguished Teacher Award". She has been awarded many research grants totaling well over $400,000. Dr. Vallerino's research in the areas of metallorganic and bio-inorganic chemistry has earned her an international reputation. She has published over 60 scientific papers in international journals. In 1996 she was in great demand as a speaker, having given nine invited lectures and 30 presentations at professional meetings since 1991.

Dr. Vallarino's research career began in the 1950's, the "early days of coordination chemistry." She "was fascinated by the pioneering aspects" of this chemistry. Her first research project was the synthesis and characterization of rhodium and palladium compounds. One result was a carbon monoxide and triphenylphosphine complex of rhodium, still an important industrial catalyst. Her pioneering work in this area lead to the development of a number of similar catalysts by other researchers. One of her palladium complexes, palladium-tetraphenylcyclobutadiene, promotes the self-condensation of unsaturated organic compounds and is widely used in both research and industry.

After moving to the U.S., Dr. Vallarino began a collaboration with her husband, J.V. Quagliano in the area of bio-inorganic chemistry. She studied complexes of iron, cobalt, nickel and copper with positively charged organic ligands which served as models of biologically important metallorganic substances. Dr. Vallarino was the first to show that positively charged metal ions could bind to positively charged ligands, a fundamental advance in coordination complexes.

In the 1970's Dr. Vallarino turned her attention to medically important complexes. She became interested in the spectroscopic aspects of europium (III) and terbium (III) luminescence. The ability of these metals complexes to emit visible light upon ultraviolet irradiation had been known for years, but was not used in medicine. Dr. Vallarino recognized their potential. She has cooperated with R.C. Lief of the Papanicolaou Cancer Research Institute, synthesizing and characterizing new complexes of europium (III) and terbium (III) that could be used as luminescent markers in histochemistry and immunology. Dr. Vallarino is still working to optimize the perfor-

Our best hope for the future are women who don't see the ceiling- only the sky.

Claudia Goldin

Professor of Economics
Harvard University

Yes, it encouraged me that I am a competant chemist and have something to contribute to the scientific community.

Nicole R. Brinkman

Graduate student

mance of these complexes. Initial tests show that they perform favorably compared to the flourescent markers currently in use. One of the europium complexes is being marketed for research use by a small Ohio company, and several others have been patented by VCU and a California company. She has also investigated applications of gadolinium complexes in magnetic resonance imaging (MRI).

Dr. Vallarino is also interested in chemical education. She has co-authored four textbooks, two laboratory manuals and two student study guides. Her nominator, lotan Elizabeth Hairfield of Argentum Chapter (VA), describes Dr. Vallarino as being "always on the lookout for ways to encourage promising undergraduates or new faculty persons.

L. J. Winters, her colleague at VCU says that two features characterize Dr. Vallarino's research. "One is her ability to identify and successfully approach new areas of investigation — important and timely but as yet unexplored. The other is her skill in the design and execution of long-term synthetic projects with specific goals of interdisciplinary value."

BRIDGETTE BARRY
Thirtieth National Honorary Member

BRIDGETTE BARRY, 1999. The thirtieth National Honorary Member Dr. Bridgette A. Barry received an A.B. in chemistry with High Honors from Oberlin College in 1978 and a Ph.D. in chemistry from the University of California, Berkeley in 1984. From 1985-88 she was a Postdoctoral Fellow at Michigan State University. Dr. Barry accepted a faculty appointment as an Assistant Professor of Biochemistry in the College of Biological Science at the University of Minnesota in 1988, where she is still employed. She was promoted to Associate Professor in 1994 and to Professor in 1999.

Dr. Barry's research on the photochemistry of biological molecules and resonance Raman microscopy began with her Ph.D. dissertation on the vertebrate visual pigments. Since that time she has worked to elucidate the mechanisms of biological energy coupling, particularly how electrochemical gradients are generated and utilized in cell membranes. The broad spectrum of techniques comrnonly used in her laboratory include purification, isolation and reconstitution of membrane proteins, site directed mutations and isotopic labeling of proteins and pigments, EPR, FT-IR, and fluorescence spectroscopy and mass spectrometry. She and her collaborators have applied these techniques to the light driven reactions of photosynthesis, most recently the photosystem II reaction center enzymes and cofactors. Dr. Barry also studied transport proteins, most recently lactose permease, in the hopes of understanding more about the mechanism of chemiosmotic coupling in cell membranes. In 1999 Dr. Barry's research group was diverse. She had four postdoctoral associates, three graduate students, one rotation student and one undergraduate research student. Dr. Barry teaches both graduate and undergraduate courses. Her graduate courses include parts of a spectroscopy course and a membrane course. Dr. Barry designed a new syllabus for the undergraduate majors Biochemistry course and plans to participate in the development of a new physical biochemistry course for undergraduate students.

JANET E. DEL BENE
Thirty-first National Honorary Member

JANET E. DEL BENE 2002. Dr. Janet E. Del Bene, the thirty–first National Honorary Member, is currently a professor emeritus of chemistry at Youngstown State University. She also holds the position of Adjunct Professor at the Quantum Theory Project, University of Florida, and is currently a BBV Foundation Visiting Fellow at the University of Madrid, Spain. Dr. Del Bene developed CNDO/S, a semi-empirical method for computing electronic excitation energies. Her work with Dr. John Pople led to the prediction of the structures of the hydrogen-based to hydrogen-bonded complexes $(H_2O)_2$ and $(HF)_2$ and the intermolecular potentials for pairs of HF and H_2O molecules. Her work led to the development of an

abinitio-based model of the hydrogen bond which identified the lone pair and the linear hydrogen bond as primary structure-determining factors. She performed some of the early studies on hydrogen-bonded complexes containing nucleic acid bases. Dr. Del Bene has carried out systematic studies of basis set and correlation energy effects on the computed binding energies of neutral, positive-ion, and negative-ion hydrogen-bonded complexes and of the proton affinities and lithium-ion affinities of bases. Recently, she has undertaken detailed studies of the infrared spectroscopic properties of the hydrogen-bonded complexes, with emphasis on the red shift and the increase in the intensity of the X-H band upon formation of the X-H----B hydrogen bond. She has classified hydrogen bonds as traditional, ion-pair, and proton-shared and has demonstrated a relationship between hydrogen-bond type and the computed infrared spectrum. She has studied the NMR properties of hydrogen-bonded complexes. In her collaboration with Dr. Meredith Jordan and Dr. Rodney Bartlett, Dr. Del Bene has demonstrated relationships among the X-Y distance in the X-H-Y hydrogen bond, the proton NMR chemical shift, the anharmonic proton-stretching frequency, and the X-Y spin-spin coupling constant. Dr. Del Bene has obtained 10 grants totaling 1.53 million dollars, given 43 papers, and published 153 papers. She has given 23 invited talks. Her professional experience includes consulting for Goodyear Tire and Rubber Company and to the National Institutes of Health. She has received NIH and NSF fellowships. In 1972, Dr. Del Bene was awarded the Agnes Fay Morgan research award from Iota Sigma Pi.

Agnes Fay Morgan Research Award Recipients

The Agnes Fay Morgan Research Award shall be for research achievement; the specific research for which the candidate is named must be designated by the nominators. The field must be chemistry or biochemistry. The nominee shall be a woman chemist or biochemist not over 40 years.

1951 Charlotte Roderuck, Iridium
1952 Mary Louise Quaife, Phosphorus
1954 Donna B. Cosulich, Aurum
1957 Marjorie N. Nelson, Oxygen*
1960 Evelyn L. Oginsky, Niobium
1963 Maxine F. Singer, Polonium
1966 H. Sue Hanlon, Chlorine
1969 Mary L. Good, Chlorine
1972 Janet Del Bene, Radium
1975 Giovanna Ferro-Luzzi Ames, Hydrogen
1978 Joyce Anne Benjamins, Member-at-Large
1981 Marcetta York Darensburg, Chlorine
1984 Marye Anne Fox, Tellurium
1987 Marion Thurnauer, Aurum Iodide
1990 Victoria L. McGuffin
1991 Cynthia M. Friend, Member-at-Large
1992 Jacqueline K. Barton, Sulfur
1993 Geraldine L. Richmond, Member-at-Large
1994 Jean Pemberton, Member-at-Large
1995 Jennifer Brodbelt, Tellurium
1996 Robin Garrell, Sulfur
1997 Susan M. Lunte. Kalium
1998 Anne B. Myers, Technetium
1999 Nancy Marki, Member-at-Large
2000 Kim Baldridge, Member-at-Large
2001 Jean Chmielewiski, Plutonium
2002 Alanna Schepartz, Member-at-Large
2003 Tamar Schlick, Vanadium
2004 Carolyn Bertozzi, Hydrogen

*Name changed from Iota Sigma Pi Research Award to Agnes Fay Morgan Research Award during winter of 1968-1969.

AWARD FOR PROFESSIONAL EXCELLENCE IN CHEMISTRY

The recipient of the Award for Professional Excellence in Chemistry shall have made outstanding contributions to chemistry and allied fields. Nominees will be judged on the significance of their accomplishments in academic, governmental, or industrial chemistry, in education, in administration, or in a combination of these areas. Achievements may include innovative design, development, application, or promotion of a principle or practice which has widespread significance to the scientific community or society on a national level. The first award was given in 1984.

The Award For Professional Excellence Recipients

1984 Joan P. Lambros, Fluorine
1987 Miriam Reiner, Curium*
1990 Bethlehem K. Andrews, Chlorine
1993 Edith M. Flanigen, Vanadium
1996 Angelica Stacy, Hydrogen
1999 Sharon Vercellotti, Chlorine
2002 Kristin Bowan-James, Kalium
*deceased

JOAN P. LAMBROS
First Award for Professional Excellence Recipient

JOAN P. LAMBROS, 1984, FLOURINE. The first Award for Professional Excellence recipient is a woman who has made outstanding contributions to chemistry and related fields on a national level. National President Doris Warren recognized Joan's role as her mentor and presented a necklace to her

I am proud to have received tha National Honorary Member Award for 2002. It is the icing on the cake!

Janet E. Del Bene

Professor Emeritus of Chemistry
Youngstown State University

I would never have found time to write the paper if the hospital hadn't kept me there for a week (traditional time) after the birth of my third child. I do not know when women find time to do extra reporting (paper writing) these days!

Clara D. Craver

Founder of Chemir
National Honorary
Member Iota Sigma Pi
1989

in appreciation. The plaque was presented by National Director Antoinette Hockman at the June 30, 1984, banquet held in Joan's honor. Joan earned her B.S. and M.S. degrees from Case Western Reserve University, but for Joan, education was a continuing process. She took courses in marketing and economics at Western Reserve, University of Houston, and the University of Athens. In 1968, Joan joined Glidden as a marketing research associate. Her job involved controlling and directing market research on coatings and resins, including site selection for stores. During her fifteen years at Glidden she did 75 technical and financial market analyses. Joan "retired" in 1983 to form a consulting company, Lambros and Associates, which offers marketing and strategic planning to clients. Joan has received many honors for her civic, religious, academic and professional achievements. She has received the Archdiocese award of the Greek Orthodox Church, the YWCA Business Woman Leader's Achievement Award for Distinguished Service and Leadership and an honorary doctorate from the University of Athens. Joan has been involved in many aspects of Iota Sigma Pi and American Chemical Society (ACS) both on local and national levels. In 1974 she became the first woman to be elected chairman of the Cleveland (Ohio) Section of the ACS. She served on the Women Chemists Committee of the ACS. Joan edited the IOTAN from 1963-66, served as Iota Sigma Pi National President 1972-75, and served as Parliamentarian for the 1984 Convention. Over the years she has been consistently willing to speak on careers and has encouraged many young women to enter non-traditional fields. In her award address entitled "Excellence: What Is It?" Joan stressed the importance of recognizing our peers and especially the need to express appreciation to other women. She found that Webster was not particularly helpful in defining a professional and so she made her own list of attributes. She concluded that professional excellence meant dedication to life: the outcome of genuine involvement is outstanding performance. Joan described her career, especially her experience at Glidden. She stressed the importance of becoming the only person able to do the job and of networking with peers, secretaries and librarians. She quipped that if you have not learned to type you can avoid being stereotyped, and if you arrive a little late at meetings you will not be asked to make the coffee! She says that she enjoys working with people, and can accept some needling without getting a chip on her shoulder. Joan has held important positions in her church, community, and profession. She is a realistic and talented woman whose actions are effective. Iota Sigma Pi was proud to have been able to honor her as the first Award for Professional Excellence Recipient.

MIRIAM REINER
Second Award for Professional Excellence Recipient

MIRIAM REINER, 1987, CURIUM. The second Professional Excellence Award recipient had a number of special guests present during the presentation luncheon on Saturday at the 22nd Triennial Convention. Special guests present at the ceremony included her nephew, Dr. Steven Mercurio, Professor of Biochemistry at Mankato State University and his wife Alice. Also present was Majorie Knowlton, a long-time friend from the days in Washington. Dr. "Mim" Reiner was introduced with an impressive list of accomplishments in the field of clinical chemistry, ranging from charter membership in the American Association of Clinical Chemists to author of the premier handbook in clinical laboratories, Manual of Clinical Chemistry. Dr Reiner presented a brief history of clinical chemistry, reminiscing about the fantastic changes in clinical chemistry since 1948. She recalled the slow, hand-measured methods used which required results to be laboriously hand-written into daily ledgers and on slips to be sent to physicians and patient wards. The advent of computer technology and instrumentation has provided for automatic recording of standards, specimens and final values, as well as increasing the number and scope of tests performed. Not only is Dr. Reiner renowned for her many contributions to clinical chemistry, but she is also described by her friends as being warm, honest, generous, dependable, stimulating, and possessing a vibrant love for life. Her commitment to professional excellence is an inspiration to all Iotans, and her commitment to Iota Sigma Pi is illustrated by her closing comments at the luncheon. "Iota Sigma Pi has certainly proved its value to women chemists in all branches, both scientifically and socially, or it would not have endured for almost a century through good times and bad times. A salute to those who have taken an active part and have been dedicated through the years. Dr. Reiner died on June 14, 1991.

BETHLEHEM K. ANDREWS
Third Award for Professional Excellence Recipient

BETHLEHEM K. ANDREWS, 1990, CHLORINE. The third Professional Excellence Award recipient made many of her contributions in the field of durable press cotton. She was lead chemist at the United States Department of Agriculture in New Orleans in 1990. Bethlehem received her B.S. in Chemistry from Tulane University. She was a member of the American Chemical Society, the American Association of Textile Chemists and Colorant and Sigma Xi. She has published 75 papers and 8 chapters in books and has 12 patents in textile chemistry. In her award address, at the Sunday luncheon, Bethlehem Andrews explained how the crosslinking of cellulose strands produces durable press properties in cotton fabrics. She also discussed some of the problems resulting from the early crosslinking agents. In particular, she explained the mechanism of formaldehyde release by durable press cotton and discussed solutions to this problem that she developed at the USDA.

EDITH M. FLANIGEN
Fourth Award for Professional Excellence Recipient

EDITH M. FLANIGEN, 1993, VANADIUM. The fourth recipient of Award for Professional Excellence has made major cotributions to solid state chemistry and technology, notably molecular sieves and silicates and their commercial applications as adsorbents and catalysts. She is recognized as the leading scientist worldwide in molecular sieve synthesis and materials. Her accomplishments include the discovery of more than 50% of the known synthetic sieves. Dr. Flanigen is a Fellow at UOP, a joint venture of Union Carbide and Allied Signal, Inc. She accepted this position after becoming the first and only woman at Union Carbide to attain the position of Senior Corporate Research Fellow. She has a B.A. in chemistry from D'Youville College, a M.S. in Inorganic/Physical Chemistry Syracuse University, and Honorary D.Sc. from D'Youville College. She began her career at Union Carbide as a Research Chemist immediately after receiving her M.S. She intially worked in the area of organosilicone chemistry. After a few years, she moved to the Molecular Sieve Group where she spent most of her career. Dr. Flanigen has received many honors for the high quality and significance of her research as well as for her service to professional organizations. Although her honors are too many to include them all, some of her most outstanding awards and honors are the 1993 Francis P. Garvan - John M. Olin Medal of the American Chemical Society, the 1992 Perkins Medal of the Society of Chemical Industry, and the First International Zeolite Association Donald Wesley Breck Award in Molecular Sieve Science (1983). She was inducted into the National Academy of Engineering in 1991, selected as a 1991 Chemical Pioneer by the American Institute of Chemists, was selected as Iota Sigma Pi's National Honorary Member (1986), and received the Faith and Service Award of Kappa Gamma Pi (1964) for outstanding leadership in professional and church organizations. She is listed in Who's Who of American Women, American Men of Science, and Who's Who in Technology Today. Dr. Flanigen noted in her presentation on zeolites that she was used to speaking in front of groups of

I think it was just that it was ..fun little explanations. ... I was so excited ...well, freshman chemistry.... it was just like a great puzzle and I thought it was wonderful.

Dr. Mary Sue Coleman

President
University of Michigan

The most beneficial aspect of my award was that it exposed me to the members of Iota Sigma Pi. I found a lot of value in having strong, positive role models.

Jean Huang

Americas Technical Services Manager
Lyondel
Houston, TX

men, but that a roomful of women chemists made her nervous! Zeolites have a wide variety of applications. In general, their uses can be categorized under adsorption, separation catalysis, and ion exchange. The largest single use of zeolites is as detergent binders. Until the late 1970s, silica/alumina molecular sieves were studied extensively. As the Si/Al ratio goes from one to infinity, stability increases, the sieve goes from hydrophilic to hydrophobic, acidity increases, and cation concentration decreases, The management of Union Carbide challenged Dr. Flanigen and her group to discover the next generation of molecular sieves. They tried to make a new framework from aluminum and phosphorus and successfully synthesizing a wide variety of these sieves from some having pores as large as 12 to 13 angstroms to some having very small pores. With time, silica/alumina/phosphates and then metal/ alumina/phosphates (where the metal is Mn, Fe, Co, Mg, or Zn) were also formed. With the large variety of sieves available, characteristics such as acidity and pore size can be selected to fit many applications. Dr. Flanigen gave some insights into what she felt were the critical factors for performing successful research, particularly in an industrial setting. These include enlightened management (!), a successful strategy, the right team of people, creative dissension, organizational commitment, and serendipitous luck. The rewards of successful research are the excitement of discovery and the blessings of success. As evidenced by her Kappa Gamma Pi award, Edith also exhibits a strong concern for people and is active in community affairs. She has organized and directed a choral group at the Home for Delinquent Girls in Buffalo for ten years. She was the leader of a church group for professionals and organized several regional and national meetings on the theme of Science and Religion. She has also organized conferences for Latin American students and the Teilhard Society of Buffalo.

ANGELICA STACY
Fifth Award for Professional Excellence Recipient

ANGELICA STACY,1996, HYDROGEN.
The fifth Professional Excellence Recipient is from the University of California at Berkeley. Dr. Stacy was recognized for her excellence in teaching and her work in chemical education curriculum reform. Stacy received a BA in physics and chemistry from LaSalle College and a Ph.D. in chemistry from Cornell University. She spent two years as a post-doctoral associate at Northwestern University working with R.P. Van Dyne and P.C. Stair. Since 1983 she has been an Assistant and then Associate Professor at the University of California, Berkeley. She also holds a research appointment at the Division of Materials Research at the Lawrence Berkeley Laboratory. Stacy has received a number of honors and awards including the prestigious ACS Garvan-Olin Medal in 1994 and an NSF Presidential Young Investigators award from 1984-9. She has been recognized for excellence in teaching many times, beginning during her graduate career when she received the Clark Distinguished Teaching Award from the College of Arts and Sciences at Cornell and the DuPont Teaching Award from Cornell's Chemistry Department. During her time at Berkeley she has received the Distinguished Teaching Award in 1991 and the President's Chair for Teaching from 1993-96. Stacy's role as an excellent teacher and her work in Chemical Education were the main focus of her nomination portfolio. Dozens of students wrote comments in support of her application. Her nominator Andrew Streitweiser, Professor Emeritus at Berkeley, describes her as "The most outstanding teacher in the Department of Chemistry. " Many colleagues also wrote in support and all describe her as an excellent teacher and an important part of the chemical education curriculum reform movement. Dr. Stacy's department has recently been awarded a planning grant to develop a series of environmentally and biologically relevant experiments for freshman chemistry. Dr. Stacy will play a big part in this work. The full grant for this work if received, will be $5 million. Dr. Stacy has already introduced a modular approach to her lecture and laboratory courses in freshman chemistry. She begins each module with a question which she uses as a springboard to teach chemical concepts. She has also pioneered the use of e-mail and a newsboard for her large lecture classes. Dr. Stacy has been awarded over $300,000 in chemical education grants. Dr. Stacy is also involved in outreach activities for pre-college teachers. She has taught at several workshops for high school teachers including the Institute for Chemical Education Summer Program and the Science for Science Teachers programs at Berkeley. Dr. Stacy has given invited lectures on science reform at the College level at the American Association for Higher Education Conference and an NSF Invitational Conference. Dr. Stacy is also active in chemistry research and been awarded over $2.5 million in grant funding and has numerous publications. Her research interests are in the area of material science, specifically the development and characterization of new solid state materials

with novel electronic and magnetic properties. She has developed new synthetic methods, including the use of molten salts for the synthesis of oxide superconductors. She has also uncovered structure-property relationships in copper oxide material and discovered new layered niobium superconductors. Her group has synthesized polymeric transition metal chalcogenides and studied cooperative phenomena rare earth transition metal phosphides. Dr. Stacy's students describe her impact on them with open admiration. One student, Tanya Faltens, speaks for many when she says, "Professor Stacy continues to be my finest role model. She is the researcher whose enthusiasm animates the people she works with, the dynamic lecturer who never missed a class until she delivered her baby, the woman who managed to balance her work at the forefront of science with raising a family. Finally, and foremost, Professor Angelica Stacy is the teacher whose personal example remains my most compelling lesson." Who could give a better reason for Angy Stacy to be given the Award for Professional Excellence?

SHARON VERGEZ VERCELLOTTI
Sixth Award for Professional Excellence Recipient

SHARON VERGEZ VERCELLOTTI, 1999, CHLORINE. The sixth Professional Excellence recipient is President of V-LABS, INC., Covington, LA, a consulting, manufacturing, and analytical laboratory, specializing in carbohydrates and polysaccharides. Her business, which she founded in 1979 serves the food, pharmaceutical, and biotechnology industries. She has been the recipient of three Small Business Innovation Research grants: two from NIH, one from NSF, and a matching grant from Louisiana Economic Development grant, all on polysaccharide modification, derivatization and applications of membrane separation to polysaccharides. She received a B.S. in chemistry from Louisiana State University and a M.Sc. in chemistry from The Ohio State University. She is author of eleven scientific journal articles, seven national presentations, and one book chapter. Sharon has been Editor of *The Iotan* from 1997 to 1999, and has redesigned many of the Iota Sigma Pi publications. Sharon joined the Chlorine Chapter of Iota Sigma Pi in 1962 as an undergraduate, and served as its vice-president from 1991-95 and president 1995-97. During her term, she instituted the program "Super Science Saturday" with an Iota Sigma Pi Minigrant. It has been held three years at the Louisiana Children's Museum in New Orleans. She also led an Iota Sigma Pi teacher-in-service program in Orleans and St. Tammany Parishes with demonstrations and supplies for hands-on experiments, with funding from the local ACS Section and from member's Exxon grants. Sharon Vercellotti is a member of the Sigma Xi, honorary research society, the American Chemical Society Carbohydrate Division, has served as Secretary of the ACS Division of Small Chemical Businesses since 1995, President of the American Association of University Women of Louisiana 1998-2000, and Vice President of Board of Directors for the Louisiana Alliance for Biotechnology 1998-present. She served as a member of the advisory committee of the National Science Foundation's Industrial Innovation Interface (III) for five years from 1989-1994. She is listed in Marquis "Who's Who in Science and Engineering," 1992-9, First - Fifth Edition. Since her founding of V-LABS in 1979, Ms. Vercellotti has served continuously as a mentor to a number of high school and college students at her laboratory. Many of the students have pursued studies and careers in the sciences. V-LABS' first Ph.D. student in chemistry graduated in 1990.

KRISTIN BOWMAN-JAMES
Seventh Award for Professional Excellence Recipient

KRISTIN BOWMAN-JAMES, 2002, KALIUM. The seventh Professional Excellence recipient is Professor of Chemistry at the University of Kansas. She was also the chair of the chemistry department from 1995-2001. Early in her career, Dr. Bowman-James worked on macrocyclic chemistry, by exploring their derivatives with heavier transition metals. Her significant findings

Having no role models led to insecurity and self-doubt, which took a longtime for me to overcome.

Ann Weber

Senior Director of
Medicinal Chemistry
Merck Research
Laboratories
Rahway NJ

Chemical & Engineering News
May 27, 2002, pg. 28

Yes, and this remains a temptation whenever I feel overwhelmed by the pressures to succeed in a field that doesn't always feel welcoming of me.

Nicole R. Brinkmann

Graduate student
University of Georgia

include (1) formation of novel intermediate condensation products, in some cases, shedding light on mechanistic pathways involved in a template-facilitated macrocycle formation; (2) second and third row transition metal complexes display a propensity toward formation of higher order polyiodide chains as counterions; and (3) photosensitive lability of coordinated aldehydes was discovered and explored. Dr. Bowman-James designed a novel and promising new family of ligands, the *accordion porphyrins*. She recognized that two key types of metal complexes successfully manipulate molecular oxygen for respiring organisms. She produced a unique tetrapyrollic ligand that combines central features of both natural phenotypes, a hybrid porphyrin/binucleating macrocycle capable of binding two metal ions simultaneously. Subsequent work using macrocycles for selective recognition of anions led to the discoveries that (1) simple polyammonium macrocycles not only form very stable complexes, they also catalyze the hydrolysis of nucleotides; (2) metal ions regulate the catalysis performed by these macrocycles; and (3) a simple polyammonium macrocycle could essentially control a complex multi-step catalytic process. Her studies in coordination chemistry led to the crystallographical characterization of (1) the first binuclear complex of a ditropic azacryptand which contains two encapsulated and eclipsed nitrates; (2) the first cascade complex in which two fluorides occupy two "metal-ion-like" sites in a ditopic azacryptand, and are linked by a bridging water molecule; and (3) a "sandwich complex" in which a sulfate is sandwiched between neutral tetraamido macrocycles. Dr. Bowman-James was asked by the National Science Foundation to co-organize a workshop on the future of inorganic chemistry; she has served on the editorial boards of Inorganic Chemistry and Supramolecular Chemistry. Dr. Bowman-James has published 70 papers and has given 17 invited lectures at national and international meetings. She has written chapters in 4 books and co-authored a book. Dr. Bowen-James is an avid race car enthusiast and drives her own dragster.

CENTENNIAL AWARD FOR EXCELLENCE IN TEACHING

The Centennial Award for Excellence in Teaching was established at the Centennial Triennial Convention in 2002 to recognize females who teach at undergraduate colleges and universities that do not offer a graduate program in chemistry, biochemistry or a chemistry-related field. This award is given for excellence in teaching chemistry, biochemistry, or a chemistry-related field. An important part of the dossier is letters of recommendation from students.

2003 Esther Gibbs, Member-at-Large
2004 Rose Ann Clark, Member-at-Large

ESTHER GIBBS
First Centennial Award for Excellence in Teaching

ESTHER GIBBS, 2003. The first Centennial Award for Excellence in Teaching recipient is Professor of Chemistry at Goucher College in Balimore, MD. Dr. Gibbs has been a member of the Chemistry Department at Goucher College for 21 years. During that time, she has been a leader in chemical education both at Goucher and nationally. She has a strong commitment to and record of excellence in teaching, in the classroom and in the laboratory. At Goucher, she earned the Goucher College Award for Outstanding Research and Teaching in 1985 and 1993 and was awarded Woman of the Year in 1986 by the Baltimore Chapter of The Association for Women in Science. A very active member of several national organizations and initiatives, Dr. Gibbs has also overseen major changes in General Chemistry offerings at Goucher. She has been a Co-Principle Investigators on three NSF, HHMI, and Drefyus Grant grants for curricular improvement. Among many other initiatives, she recently implemented the Peer-Led Team Learning (PLTL) approach. This approach, in which students are guided by peer facilitators in mastering worksheet activities, engages students in more active, inquiry-based learning. This approach has been quite successful, increasing student performance and fostering a more positive attitude about chemistry.

Professor Gibbs has been extremely active in mentoring undergraduates in research. Numerous undergraduate students performing research under her supervision have been co-authors on a large number of journal articles. Her excellent research productivity has led to 35 peer-reviewed publications or book chapters. In addition, she has been PI or co-PI on a wide range of research initiatives from the NSF and NIH that have benefited undergraduate students by providing them with the opportunity to do research in the

summer months and through new, state-of-the art instrumentation. Dr. Gibbs' interaction with students is extraordinary — she has a true gift. Her enormous energy and enthusiasm for science and learning are infectious. She has the ability to get the most from students and to instill in them the desire to perform to the best of their ability. She is direct, honest, and upbeat with students, encouraging them, challenging them, and inspiring them. She never gives up on a student. Former students testify to the positive impact that Dr. Gibbs has had on them, both professionally and personally.

ROSE ANN CLARK
Second Centennial Award for Excellence in Teaching

ROSE ANN CLARK, 2004. Rose Ann Clark, Ph. D., Associate Professor at Saint Francis University is the 2004 recipient of the Iota Sigma Pi Centennial Award for Excellence in Teaching. Dr. Rose Ann Clark received a B.S. in chemistry at the University of North Carolina – Wilmington and a Ph. D. in analytical chemistry from North Carolina State University under the direction of Edmond F. Bowden. After spending two years as a NSF postdoctoral fellow at Pennsylvania State University with Dr. Andrew Ewing, she joined the Chemistry Department at Saint Francis University in Loretto, PA to focus on undergraduate education and research. Dr. Clark has been instrumental in the transformation of the Chemistry Department at Saint Francis. The department has undergone complete curriculum revisions with addition of concentrations in forensic chemistry, biochemistry and a neuroscience minor. Not only has the curriculum changed, but the method of teaching has also changed. Dr. Clark adopted new active learning textbooks to further encourage active learning in general chemistry classes and helped to redesign the ways labs are taught by incorporating cooperative learning at all levels.

Dr. Clark is driven to educate undergraduates and to get more students interested in the field of chemistry. She is a very caring person and would do anything to help her students reach their goals. Dr. Clark measures her success by the success of her students. Since research is the ultimate teaching tool to excite students, she encourages all students to get involved in a research project as soon as possible, ideally during their freshman year. Her success at making research an effective teaching tool for undergraduates is reflected in the progress of students she has mentored. Undergraduates conducting research with Dr. Clark have presented a large number of papers at conferences locally, regionally, and nationally. Dr. Clark has also made 30 research presentations and was an invited speaker for a Symposium on Undergraduate Research and Education: A Showcase of Faculty at Primarily Undergraduate Institutions held at the 2004 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy. She has 15 publications in various journals, including Analytical Chemistry, the Journal of Physical Chemistry and the Proceedings of the National Academy of Science. To further improve chemistry education at Saint Francis, Dr. Clark has been a strong force in grant writing for teaching and research. She has obtained funding from the NSF, Society for Analytical Chemists of Pittsburgh, the Spectroscopy Society of Pittsburgh, ACS, and others. Dr. Clark is continuing her quest for new equipment by submitting a 2003 NSF-CCLI to provide more instrumentation for the forensic science concentration. Improvements to the department have produced a record number of chemistry majors. Saint Francis Chemistry now has 32 majors (an 8 fold increase), and with 9 chemistry majors graduating and 15 students committed for the Fall 2004, the numbers continue to grow. In addition to teaching, mentoring, and research, Dr. Clark is very involved in community outreach. The Chemistry Department and student volunteers run the Rural Outreach Chemistry for Kids Program, reaching 1,500 students and conducting 65 + events. Some of her other activities include promoting women and minorities in science by participating in the Department of Labor U.S. Women's Bureau Girl's E-Mentoring in Science, Engineering and Technology, the ACS Project Seed Program, and the Pennsylvania Junior Academy of Science.

..being a woman may open more doors, but it's still up to you to walk through them.

Ann Weber

Senior Director of
Medicinal Chemistry
Merck Research
Laboratories
Rahway NJ

Chemical & Engineering News
May 27, 2002 pg. 28

In the top 75 chemical producers, among the 48 companies surveyed, 52 women occupied seats on the board of directors, out of the 527 positions.

Chemical & Engineering News
May 8, 2000, pg. 36

ANNA LOUISE HOFFMAN AWARD FOR OUTSTANDING ACHIEVEMENT IN GRADUATE RESEARCH

At the time of nomination, the candidate must be a full-time (as defined by the nominee's institution) woman graduate student who is a candidate for a graduate degree in an accredited institution. The research presented by the candidate must be original research which can be described by one of the main chemical divisions (*e.g.*, analytical, biochemical, inorganic, organic, physical, and/or ancillary divisions of chemistry).

1979 Irene Gennich, Mercury, University of Minnesota
1980 Ann E. Orel, Hydrogen, University of California at Berkeley
1981 Kerin Scanlon, Mercury, University of Minnesota
1982 Diane Peebles, Tellurium, University of Texas at Austin
1983 Jane Young Lewis, Radium, University of Cincinnnati
1984 Veronica Blasquez, Plutonium, Purdue University
1985 Olivia Salinovich, Chlorine, Louisiana State University
1986 Bridget A. McCortney, Neptunium, Rice University
1987 Jo Ann Canich, Member-at-Large, Texas A&M University
1988 Nancy J. Marki, Hydrogen, University of California at Bereley
1989 Beatriz G. Bravo, Member-at-Large, Texas A&M University
1990 Carol J. Mertz, Aurum Iodide, Northern Illinois University
1991 Kathleen Schaffers, Member-at-Large, Oregon State University
1992 Laura McConnell, Memer-at-Large, University of South Carolinia
1993 Kathleen Ann Cox, Plutonium, Purdue University
1994 Sheryl Ann Tucker, Member-at-Large, North Texas State University
1995 Shahuna Motakef, Member-at-Large, University of Arizona
1996 Jacqueline L. Kiplinger, Member-at-Large, University of Utah
1997 Irina Massova, Member-at-Large, Wayne State University
1998 Katherine Queeney, Member-at-Large, Harvard University
1999 Joanne Wittbrodt, Member-at-Large, Wayne State University
2000 Laura Kaufman, Hydrogen, University of California at Berkeley
2001 Exaterina V. Pletneva, Aurum, Iowa State University
2002 Vy Dong, Member-at-Large, California Institute of Technology
2003 Rachel Brewster, Member-at-Large, Georgia Institute of Technology
2004 Jennifer Heemestra, Member-at-Large, University of Illinois at Urbana-Champaign

NATIONAL UNDERGRADUATE AWARD FOR EXCELLENCE IN CHEMISTRY

The recipient of the Undergraduate Award for Excellence in Chemistry shall be a senior woman chemistry student in an accredited college or university who has excelled in her work. Recipients include the following.

1975 Lynne Shapiro Garone, Member-at-Large, Polytechnic Institute of New York
1976 Janet Andrene Lindsey, Neptunium, Houston Baptist University
1977 Michele Moisio Thomas, Member-at-Large, Kenyon College
1978 Deborah Louise Plick,* Member-at-Large, Rutgers University
1979 Anne Marie Learnard, Member-at-Large, Illinois State University
1980 Ann Boothe Woods, Member-at-Large, University of Tennessee at Knoxville
1981 Martha S. Reynolds, Radium, University of Cincinnati
1982 Cecelia A. Walsh, Samarium, University of Notre Dame
1983 Carol J. O'Rouke, Neptunium, Rice University
1984 Faith L. Van Nice,* Promethium, University of Oregon
1985 Ingrdi Fritsch, Member-at-Large, University of Utah
1986 Amy Jo Hoffman, Plutonium, Purdue University
1987 Andrea M. DeLeLaeat, Radium, University of Cincinnati
1988 Carmen D. Wheelock, Chlorine, Louisiana State University
1989 Vivian Wai-Fan Chan, Member-at-Large, College of Wooster
1990 Kristy Ann Martin, Member-at-Large, Miami University
1991 Catherine Perry, Member-at-Large, Oberlin College
1992 Susan Conyers, Member-at-Large, Virginia Polytechnic Institute
1993 Hala Gobran, Member-at-Large, University of Texas
1994 Michelle T. Renda, Plutonium, Purdue University
1995 Mary Ellen Biggin, Member-at-Large, Clarke College

1996 Margaret Elizabeth Stroupe, Member-at-Large, Wake Forest University
1997 Tina Trunka, Vanadium, Columbia University
1998 Rebecca Holmberg, Member-at-Large, University of Virginia
1999 Nicole Brinkmann, Member-at-Large, College of Wooster
2000 Angel Chan, Member-at-Large, Western Illinois University
2001 Rebecca Sansom, Member-at-Large, Boston University
2002 Laura Wieland, Member-at-Large, Illinois Wesleyan University
2003 Mary Rozenman, Vanadium, Columbia University
2004 Laura M. Wally, Member-at-Large, Colorado State University

* Deceased

GLADYS ANDERSON EMERSON SCHOLARSHIP

The Gladys Anderson Emerson award is for excellence in chemistry or biochemistry. Each year one scholarship of $2000 is awarded to an undergraduate junior who is a member of Iota Sigma Pi at the time of her nomination. In July 2000 National Council raised the stipend from $1000 to $2000 per award. Gladys Anderson Emerson died on January 18, 1984. Iota Sigma Pi was the recipient of a generous bequest to establish scholarships for undergraduate women. In establishing these scholarships for Iota Sigma Pi, she expressed her belief in the necessity for women to be full participants in scientific education.

Dr. Emerson was National President of Iota Sigma Pi from 1951 to 1957 and was made a National Honorary Member in 1966. Dr. Emerson received the Garvan Medal from the American Chemical Society in 1952. Dr. Emerson was the co-isolator of vitamin E in 1936 and enjoyed a long and fruitful career in nutrition research.

Gladys Anderson Emerson Undergraduate Scholarship Recipients, their chapters and colleges or universities follow.

1987 Jean C. Huang, Aurum, Iowa State University
1987 Presdhanit Sarma, Neptinium, Houston Baptist University
1988 Christiana Wiese, Kallium, University of Kansas
1989 Harolyn Lynette Ho, Technetium, Rochester Institute of Technology
1989 Carol A. Mintock, Samarium, St. Mary's College
1990 Heather A. Carlson, Aurum Iodide, North Central College
1991 Bridget Brandes, Member-at-Large, Trinity University
1992 Gidget Cantrell, Fluorine, Cleveland State University
1993 Elizabeth Currin, Member-at-Large, North Carolina State University
1994 Fei Liu, Fluorine, John Carol University
1995 Emily L. Reichert, Member-at-Large, University of Redlands
1996 Emily Elizabeth Ray, Member-At-Large, Oregon State University
1997 Taschia Williams, Member-At-Large, Baylor University
1998 Shanna Schmiesing, Fluorine, Baldwin Wallace College
1999 Jessica Chuang, Member-At-Large, Harvard University
2000 Veronika Gagovic, Aurum Iodide, North Central College
2001 Jovana Grbic, Aurum Iodide, Northwestern University
2002 Edith V. Bowers, Member at Large, The College of William and Mary
2003 Jelena Petrovic, Member-at-Large. Saint Francis University
2004 Lesley-Ann Giddings, Member-at-Large, Smith College

Many of these recipients have continued their education and obtained doctorates and are still active members of Iota Sigma Pi.

Iota Sigma Pi member Lillian Butler in the laboratory. Golden Jubilee photograph, 1952.

There are a lot more women in midlevel science management positions today, but still we have not taken the best advantage in the country of placing women in the top management positions. That is our challenge.

Lura J. Powell
Director of Pacific Northwest National Laboratory
US Department of Energy's first female laboratory director, Hanford Site

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