

MEMORIAL RESOLUTIONS

Orville L. Chapman

Willard F. Hollander

Herbert B. Howell

Edward A. Powers

Gerald J. Small

**Iowa State University Faculty Senate
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Orville L. Chapman
June 26, 1932 – January 22, 2004



Orville L. Chapman was born in New London, Connecticut. The son of a Naval officer, he grew up in several cities in the United States and Central America. He attended high school in San Diego and received his undergraduate degree at Virginia Polytechnic Institute in Blacksburg, Virginia with a double major in Chemistry and English. Chapman received his Ph.D. with Jerrold Meinwald at Cornell University in 1957. He began his independent career at Iowa State in 1957 as an Instructor and moved up the ranks to Professor in 1964.

Chapman was an early pioneer in the emerging field of organic photochemistry. His selection of this research area was characteristically bold, especially in view of his lack of prior experience in mechanistic chemistry. Chapman credited his Iowa State colleagues Chuck DePuy and Glen Russell with teaching him physical organic chemistry. His early work focused on enone photochemistry and the mechanism of photocycloaddition reactions.

Chapman's interest in reaction mechanisms and theoretically interesting molecules led him to adopt techniques that allowed direct experimental detection of reactive species. Early efforts involved IR spectroscopy of intermediates generated upon photolysis of neat precursors at 77K. A critical advance came in the early 1970s when he was introduced to rare-gas matrix isolation spectroscopy by Jake Pacansky. They adapted this technique to study reactive intermediates in organic chemistry, including the classic cases of cyclobutadiene and *o*-benzyne.

Chapman moved from Iowa State to the University of California, Los Angeles (UCLA) in 1974. The period 1975-85 was an extremely productive one for the investigation of a wide variety of organic reactive intermediates including carbenes, nitrenes, and strained alkynes. In 1981, Chapman initiated efforts directed at the chemical synthesis of the novel molecule C₆₀. This work was but one part of a new effort in the synthesis and characterization of various types of strained, non-planar aromatic

compounds. In retrospect, these efforts are now recognized as pioneering contributions to materials chemistry.

In 1984, Chapman and his UCLA colleague, Arlene Russell, formed a company that offered in-house short courses in technical writing. They also collaborated in the production of a laser videodisc for teaching NMR spectroscopy to undergraduates (ca. 1986-88). This was perhaps the first effort in Chapman's emerging interest in revamping the undergraduate curriculum. It led to the idea of using ^{13}C NMR spectroscopy as a method for introducing the topic of organic chemistry. In 1989, he became Associate Dean for Educational Innovation at UCLA, a position that he held until his death. In 1995, he spear-headed a project for systemic reform of the undergraduate curriculum, which led to a widely adopted instructional software program for developing writing and critical-thinking skills in large undergraduate classes, known as "Calibrated Peer Review (CPR)".

Chapman received many national and international awards, including the Pure Chemistry Award and the Arthur C. Cope Medal from the American Chemical Society, the Havinga Medal from the Stichting Havinga, Leiden, the Netherlands, and the Texas Instruments Foundation Founders' Prize. He was elected to the National Academy of Sciences in 1974. In 1975, he joined the Board of Editors of Organic Syntheses. Chapman received the ComputerWorld Smithsonian Institute Award for the best use of computers in education and academia in 1995. He was a long-term consultant for Mobil chemical, and was involved in the invention and development of a significant number of their processes.

Chapman was internationally recognized as a brilliant, creative scholar and an intellectual leader in various fields of endeavor. He was a trailblazer and innovator in photochemistry, matrix isolation spectroscopy, reaction intermediates, chemical communication, the mechanism of olfactory perception, polymers, and materials design. He was an excellent lecturer. He also achieved a worldwide reputation for bringing the best of information technology to higher education.

Chapman is survived by his mother, his wife Susan, his two sons, Kevin and Kenneth, and three grandsons. He will be remembered for his warmth, generosity, and great creativity. A fund in his name has been established at the UCLA Foundation.

Respectfully submitted by Walter Trahanovsky based on information provided by Professors Robert McMahon (Wisconsin, Madison) and Christopher Foote (UCLA).

In Memorial Dr. Willard F. Hollander: 1913 – 2004

By
Dr. Jack R. Girton



Dr. Willard Hollander was an internationally renowned geneticist who had a long and distinguished career. He attended the University of Texas, obtaining a bachelor's degree in 1933, and did graduate work at the University of Wisconsin, obtaining a MSc. in 1934 and a PhD in 1937. His scientific work was wide-ranging and included important contributions in a number of areas. He was especially noted for his work in deciphering the complex Mendelian genetics of pigeons, and for his understanding of the complex genetic basis of the wide array of colors, feather shapes and other characteristics that delight pigeon fanciers. While a graduate student he discovered one of the first mutant alleles of the Bithorax complex in *Drosophila* and in 1936 and 1937 carried out a number of experiments in *Drosophila* in collaboration with the renowned *Drosophila* geneticist C. B. Bridges. His studies with mice after the Second World War focused on the effects of radiation (X-rays) on chromosomes and the inheritance of radiation-induced mutations. This work grew out of the atomic bomb project. Hollander came to ISU in 1951, joining the faculty in the Department of Genetics. He remained until he retired in 1976. During his time at ISU he worked extensively on mouse and pigeon genetics, work that he continued after retirement in a facility he constructed in the barn on his home property.

Comments abound about Hollander (known as "Doc" to his friends) from his great many friends and admirers in the pigeon fancier world. Friends speak of him as being personable and friendly. His knowledge of the genetic basis of pigeon traits and characteristics was legendary, as was his tireless experimentation using sophisticated breeding schemes to deduce the nature of the genetic variants controlling complex plumage, color, and other features in modern strains. This was truly his life work and delight. He began his study of pigeons as a young boy of 11, published his first scientific paper on pigeons (in 1936) and was still publishing original work in 2002, a publication span of 66 years. Among his early work was his writing and illustrating the entire chapter on

genetics in the standard reference work for pigeon breeders “The pigeon” by W. Levi. He published several books and countless articles and letters. He was the founder and first editor of the Pigeon Genetics Newsletter, which later grew to become the Pigeon Genetics News, Views, and Comments Newsletter. After retiring his interest in pigeons lead him to make two expeditions to Turkey and to Egypt seeking information on the origins of the domesticated pigeon. Copies of letters he wrote in the Summer of 2003 contain comments and discussion on recently published data on pigeon traits, indicating that he was still active, alert, and curious about pigeon genes until shortly before he died.

Hollander was prolific letter writer (one correspondent alone received 1051 letters over a period of 33 years) and delighted in interacting with fellow pigeon enthusiasts. He regularly contributed to pigeon fancier’s newsletters and journals around the world, and had an enormous number of friends and admirers with whom he corresponded. He enjoyed traveling to meetings of the Pigeon Fancier’s Council and other such gatherings. Going to a pigeon fancier meeting with Hollander has been described as the equivalent of trying to get through a crowd of fans with a rock star. He was constantly surrounded by crowds of admirers, all with birds to show him and with questions to ask. He delighted in it all. Frequently he would turn a question into a short lesson on genetics, or answer it with another question and/or a suggestion as to the experiments that the questioners could do to discover the answer for themselves. One close friend fondly remembered how many times he would look over a bird with a complex color or feather pattern and when asked about the genes responsible would smile and say, “You find out”. He donated many birds to others for their pleasure or for breeding experiments necessary to test a hypothesis. Even though nearly all offered to pay for what was valuable breeding stock, he never charged anything. His impact on genetics and on the study and breeding of pigeons will live on with the many friends he inspired, with the knowledge he imparted, and with the large body of genes and mutations that he discovered, named, or explained.



Herbert B. Howell

Herbert B. Howell, Professor Emeritus of Economics, died July 24, 2004 at the age of 93. He retired from ISU in June 1973.

Herb Howell was born December 8, 1911 in Frederick, South Dakota. He earned the B.S. degree in Agricultural Economics from Iowa State College in 1934 and in that same year began working for Iowa State as an Extension Associate. During 1935-45 he was District Extension Farm Management Specialist working out of the Davenport office. In 1945, Herb earned the M.S. degree in Agricultural Economics from Iowa State and joined the Economics Department faculty as an Extension Economist and Assistant Professor of Agricultural Economics. He was promoted to Associate Professor in 1947 and to Professor in 1957.

Professor Howell was a farm management specialist. He served for many years as project leader for the Extension farm management programs in Iowa, the key person in the development of farm management teaching programs conducted by state and area Extension farm management staff. He was a leader in bringing improved decision-making methods and ideas to Iowa farmers.

Herb Howell was the director of the Agricultural Credit School for 26 years. This two-week school is sponsored by Iowa State University with the cooperation of the Iowa Bankers Association. Its purpose is to improve the analytical skills of agricultural-loan officers in financial institutions that service farmers. Subject matter of the school pertains to the farm finance problems encountered by rural banks. Another important part of Herb Howell's extension program in farm finance was an annual short course for bankers originally held only in Ames, but later held each year at a number of

regional centers throughout the state. Subject matter of the conferences was geared to farm finance and the types of problems that arise in the making of farm loans.

Professor Howell was the author of a small book, *Better Farm Accounting*, published by Iowa State University Press in 1946. The book was widely used by farmers and for 30 years or so years outsold all other ISU Press publications. Another book he co-authored with Dorothy Simmons, *Your Family Finances*, was also published by ISU Press and at one time was among the top 10 best selling Press books.

For many years, Herb Howell made a weekly three-minute radio tape on timely agricultural economics topics. These tapes were sent to about 50 radio stations in Iowa for use in their broadcasts to their farm clientele. Farmers often mentioned to Herb that they enjoyed these radio talks. Since he knew many farmers through the meetings that he conducted across the state, Herb served as a judge for the "Master Farmer" selections.

Herb Howell computed current cost-of-production data on Iowa crop and livestock enterprises. These data were widely used by farmers and Extension staff in budgeting, projecting farm income and securing credit.

Professor Howell worked in the country of Peru for 18 months during 1962-64. He was the first Chief of Party for the Iowa Universities Mission in Peru, a large project involving the University of Iowa as well as Iowa State University that was funded by the United States Agency for International Development. The purpose of the project was to assist public and private entities in carrying out programs to improve the economic welfare of the people of Peru. Herb also served as a consultant in the late 1950s and early 1960s to the Argentine government with regard to furthering the development of beef production in that county.

Herb Howell was elected Vice-President of the American Society of Farm Managers and Rural Appraisers in 1955. He served as Secretary-Treasurer of the Iowa Society of Farm Managers and Rural Appraisers during 1954-62. He was a member of the American Agricultural Economics Association, Gamma Sigma Delta (agricultural honor society), Epsilon Sigma Phi (Extension recognition society) and Alpha Zeta (agricultural honorary society). He received the ISU Faculty Citation in 1973. Herb was Iowa's representative on the North Central Extension Farm Management Committee for nearly 10 years during the 1950s and 1960s. Community service included two terms on the Ames Community School Board. He also served on the Board of Directors of the First National Bank of Ames for many years.

Herb Howell married Virginia Brayer in 1935 in Spokane, Washington. Virginia died in 1999. Herb and Virginia are survived by their two children, Katherine Weingard of Walla Walla, Washington and Steve Howell of Ames, two grand children and two great grand children.

Respectfully submitted by
Dennis R. Starleaf
Everett G. Stoneberg

Edward A. Powers

March 10, 1941-June 24, 2004



Edward A. Powers, March 10, 1941-June 24, 2004

Edward A. Powers received his B.A. in Sociology from Alma College in 1962, and his M. A. and Ph. D. from The Ohio State University in Sociology in 1965 and 1968. Ed became a member of the Iowa State University faculty 1967, when he was hired as an instructor in the Department of Sociology and Anthropology. He continued at ISU until 1987, when he resigned as Head of the Family Environment Department to accept the position as Associate Dean of the School of Human Environmental Sciences at the University of North Carolina, Greensboro. He retired from UNC-Greensboro in 1995.

Ed's interests within sociology focused on family sociology and gerontology. He coordinated the 30-40 sections of the Courtship and Marriage course that were offered in Sociology annually, served a term as Graduate Coordinator for Sociology, was the Coordinator of ISU's Gerontology Program, and served as Chair of the Iowa Council on Family Relations. He was the co-director of two longitudinal studies on aging, "Life after 70 in Iowa," funded in part by the Iowa Commission on Aging, and "Older Workers: Withdrawal Patterns and Adaptation," funded in part by the Social Security Administration. The two studies provided data for numerous publications offering insights into individual, families, and the aging process. Additional research interests focused on women religious and liberation theology.

After 13 years as a faculty member in Sociology, during which he rose through the ranks to Professor, he was selected to head ISU's Department of Family Environment in 1980. While serving in that capacity, he received a Faculty Citation from the ISU Alumni Association.

As faculty member, he was sought after by his colleagues as a mentor to hone their research,

teaching, and proposal-writing skills. As an administrator, he never forgot what it was like to be administered. His support of faculty members in their many roles was clear and unequivocal. He was especially helpful to strong faculty members, perhaps because he had been one himself. He worked with people where they were, capitalizing on their strong points and helping them overcome their weak ones.

Ed and his wife, Joyce, had a long and productive history of volunteering in church and community activities. He was especially proud of his involvement in building homes for Habitat for Humanity, and his frequent field supervision of disaster assistance through the American Red Cross.

Following his retirement, Ed took instruction in wood turning. He perfected his skills to the point that he was selling bowls, plates, vases, and ornaments in several craft outlets and gift shops in northern Minnesota, the location of his summer home. Wood turning became such a preoccupation that he frequently missed meals when working on a prize piece, much to Joyce's consternation.

He is remembered by his colleagues for his sense of humor, infectious laugh, and compassion. He organized a bowling team in the faculty league in his first years on the faculty, and later became a race walker. He invited friends to accompany him on long Saturday morning ice cream walks, stopping for ice cream breaks along the way.



Gerald J. Small

Dr. Gerald J. Small (1941-2004), distinguished professor of chemistry at Iowa State University and a senior chemist at the U.S. Department of Energy's Ames Laboratory, passed away on Saturday, August 7, 2004, at the Israel Family Hospice House in Ames (IA), as a result of advanced lung cancer. Gerald J. Small was born in Vancouver, B.C., where he received his primary and secondary education. He received a B.Sc. with honors in Chemistry and Mathematics in 1963 from the University of British Columbia. After receiving his Ph.D. in physical chemistry from Penn in 1967 with Professor Robin Hochstrasser, Gerry moved as a postdoctoral fellow to the laboratory of David P. Craig at the Australian National University in Canberra. In 1969 Gerry joined the faculty of Iowa State University (ISU) in Ames, where in 1991 he would become a Distinguished Professor of Liberal Arts and Sciences. At ISU, Gerry's outstanding research quickly brought him national recognition as an Alfred P. Sloan Foundation Fellow from 1974 to 1978 and later election as a Fellow of the American Physical Society. He served on the editorial advisory boards of the *Journal of Chemical Physics*, *Chemical Physics*, the *Journal of Physical Chemistry*, *Chemical Research in Toxicology*, and *Spectrochimica Acta*. He chaired a number of Gordon conferences, including the 1985 Gordon Conference on electronic spectroscopy, as well as numerous other conferences and seminars in the area of photosynthesis and electronic processes.

His pioneering work on molecular polaritons in the '70s and '80s showed, through elegant experiments using one and two photon absorption, how photons and excitons couple in molecular crystals. Gerry introduced a theory of polariton relaxation to explain these important results [Robinette et al. 1978; Stevenson et al. 1981]. He later showed that by tuning the polariton wavepacket velocity, one can vary the quantum yield of a host exciton to trap energy transfer by orders of magnitude [Stevenson et al. 1988]. This research illustrates how Gerry was able to bridge physics and chemistry, bringing new concepts into molecular science from solid state physics.

A very significant form of spectroscopy that was pioneered by Gerry in the period from 1978 to 1981 is now termed nonphotochemical hole burning [Hayes and Small (*Chem. Phys.*) 1978; Hayes and Small (*Chem Phys. Lett.*) 1978; Hayes et al. 1981]. He introduced the concept of tunneling between bistable configurations as being responsible for hole burning in amorphous solids and developed theoretical models that advanced the understanding of glasses and other disordered

materials [Jankowiak et al. 1993; Jankowiak and Small 1987]. The methods and theory he introduced turned out to be enormously important, since they enabled the simplification of complex spectra, stimulated current day understanding of the dephasing of molecular excitations, and led to seminal discoveries in disordered materials and photosynthesis, about which we will say more later.

Gerry's unbounded enthusiasm for his science eventually led him to apply his considerable talents and experience to the study of photosynthesis, a process where he could realize significant applications for the spectroscopic techniques he developed for amorphous solids. A rigorous background in hole-burning spectroscopy and spectral dynamics combined with vast experience gained while studying amorphous solids provided Gerry with an ideal background to explore the initial events of photosynthesis, which occur in a span of a picosecond or less. After a brief foray into the study of pigments isolated from photosynthetic organisms, he turned his enthusiasm towards exploring energy and electron transfer in photosynthetic proteins. Using primarily the technique of spectral hole burning, he proceeded to make seminal contributions to the understanding of photosynthesis.

Gerry also introduced some remarkable new methods for chemical carcinogenesis and laser bioanalysis that are again based on the use of nonlinear optical processes to simplify complex spectra. In these examples the simplifications arise from line-narrowed fluorescence, which Gerry has used to detect tiny quantities of DNA-carcinogen adducts [Heisig et al. 1984]. He and his colleagues were the first to show that the radical cation metabolic pathway of polycyclic aromatic hydrocarbons leads to *in vivo* formation of DNA adducts [Rogan et al. 1990; Jankowiak et al. 2004]. His discovery of methods to distinguish between normal and cancerous cells using Stark effects in hole burning and his research on fluorescence line narrowing combined with capillary electrophoresis earned him a Research and Development 100 Award in 1998 [U.S. Patent, Serial No. 5,898,493; Jankowiak et al. 1996; Jankowiak et al. 2000]. In each of these areas he introduced new techniques and concepts to attack important questions.

Gerry's almost 40 years of truly outstanding research resulted in 287 publications. His research contributions were celebrated in a special issue of the *Journal of Physical Chemistry* (July 22, 2004) that was completely dedicated to him. More important to Gerry were the six M.S. and 31 Ph.D. students who received their degrees working under his direction and the 15 postdoctoral associates who also benefited tremendously from exposure to his infectious and unbounded enthusiasm for science.

Gerry Small had many interests outside the lab; he enjoyed road biking, pets, motorcycles, and good restaurants. He loved good literature, classical music and jazz. He used to go with his two sons (Eric and Adam) on ski trips nearly every winter to Colorado; he loved water skiing and camping/fishing at the Lake of the Woods in Ontario. Gerry's cousin and friend (Garry Lauk) told one of us recently "Gerry was a unique human being but still very much typical of our generation; he knew from his mother as I did from mine that we could achieve whatever we decided to achieve as long as we put our mind and spirit into it." Then he added "Gerry's belief in science almost but never did eclipse his faith in a higher power and his love of family and community." But the greatest passion of Gerry was chemistry; he has had an exceptional impact in such diverse research areas as physical chemistry, medical diagnostics, biophysics, and analytical chemistry and education. Ames Laboratory Director and Gerry's friend, Tom Barton, stated recently that, "Iowa State, Ames Lab and science were indeed fortunate to have had the services of this remarkable individual, who tackled everything in life with an intense and enviable passion." We will remember Gerry as an exemplary scientist, a fine colleague, and an excellent teacher. He is survived by his sons Eric, of Cincinnati, Ohio, and Adam, of Denver, Colorado, and his former wife, Sharon, of San Francisco, to whom we extend our deepest feelings of sorrow and sympathy.