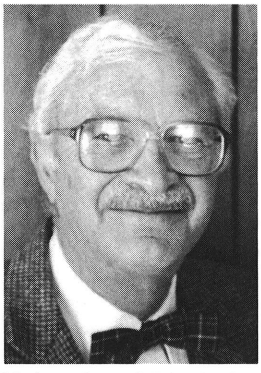
Fellows

Fourteen members of The American Phytopathological Society were elected Fellows of the Society at the 1989 Annual Meeting in Richmond, Virginia. Election as a Fellow of the Society is a reflection of the high esteem in which a member is held by his colleagues. The award is given in recognition of outstanding contributions in extension, research, teaching, or other activity related to the science of plant pathology, to the profession, or to the Society.

Carl H. Beckman



Carl H. Beckman was born in Cranston, RI, on May 9, 1923. After serving in the U.S. armed forces during World War II, he attended the University of Rhode Island where he received his B.S. degree in 1947. He received his Ph.D. degree in plant pathology in 1953 from the University of Wisconsin where his research on oak wilt, under the direction of Drs. A. J. Riker and J. E. Kuntz, initiated his lifelong interest in vascular wilt diseases. After completing his graduate studies, Dr. Beckman returned to the University of Rhode Island where he has remained, except for a five-year period in the 1960s when he joined the Central Research Laboratories of the United Fruit Company to focus on Fusarium wilt of banana.

Dr. Beckman has devoted his professional career to elucidating the complex series of interacting biochemical and physiological events and accompanying structural changes that occur following the infection of plants by vascular wilt pathogens, particularly the soilborne fungi within the genera *Fusarium* and *Verticillium*.

Although vascular wilt diseases have long been destructive to many crops worldwide, the mechanisms of vascular wilt resistance and pathogenesis were not understood when Dr. Beckman initiated his research program 35 years ago. Little was known about the interactions that occur within the confines of the plant's vascular structure. Dr. Beckman unraveled many of the key events that determine resistance or susceptibility after vascular infection. He developed a generalized model of resistance mechanisms that follow initial infection. These involve the trapping and localization of spores by vascular gels, the stimulation of vascular parenchyma cells to form tyloses, and the infusion of phenolic material into these structures that results in the sealing off of an infected area. He has shown that the same processes occur in susceptible plants, but in these cases the pathogen disrupts the sequence of the responses and is able to spread systemically through the plant. His work has also helped to explain the causes of water stress and the expression of symptoms of water stress that develop in vascular wilts.

A significant contribution of Dr. Beckman's work was the emphasis it placed on the time and space aspects of infection and response. He directed attention to the specific location of sites that are critical to the infection process and stressed the importance of the events that occur within these sites during the first few hours and days of infection as those that determine success or failure of the resistance response. This work has helped to unify the diversity of thought that has been associated with vascular wilt pathogenesis and provided a basis for the direction of future work.

Dr. Beckman has served on the editorial boards of *Phytopathology, Physiological Plant Pathology*, and APS Press, and is a coeditor of "Fungal Wilt Diseases of Plants" and "Basic Studies and Control of Vascular Wilt Diseases of Plants." His preeminence in the area of wilt disease was recognized by the APS Monographs and Review Committee, which selected him to revise and update Dr. J. C. Walker's monograph, "Fusarium Wilt of Tomato." This effort was later expanded into a more comprehensive volume entitled "The Nature of Wilt Diseases of Plants."

Eileen Brennan

Eileen Brennan has focused on air pollution as a stress limiting to plants for the past 40 years. During this time, Dr. Brennan has conducted research on all of the major air pollutants, including ozone, sulfur dioxide, hydrogen fluoride, peroxyacetyl nitrate, and acid rain. In addition, Dr. Brennan has studied many of the minor pollutants, including chlorine gas, ethylene as an air pollutant, and aldehydes. Dr. Brennan and colleagues have presented these research accomplishments in over 80 refereed journal articles.

Dr. Brennan has a true scientific instinct and keen power of observation. Throughout her career, she has forged new ground, led by her enthusiasm for research and uncanny sense of discovery. In 1969, for example, Dr. Brennan reported in *Phytopathology* that virus-infected foliage was more tolerant of ozone than healthy foliage. This was the first article of its kind and was followed by other publications from other institutions confirming the interaction between viruses and ozone. This paper helped to forge the way for development of an appreciation of the importance of biotic/abiotic air pollution interactions, an area still of interest today.

Throughout her career Dr. Brennan has allowed her scientific curiosity to lead her, unencumbered by political pressures and biases. She speculated in the 1960s that aldehydes might be toxic to horticultural crops. Dr. Brennan performed experiments in which she reproduced field symptoms on plants by exposing them to aldehydes under controlled conditions. The work was viewed at the time as the effect of a minor pollutant, but today the toxicity of hydrocarbons like the aldehydes is better appreciated and serves as a foundation for a new branch of research on air pollution effects.

Dr. Brennan's accomplishments have been recognized many times by the scientific community, as evidenced by her participation on the U.S. Environmental Protection Agency Science Advisory Board. Dr. Brennan has served as a member of the Executive and Ecological committees and most recently as a consultant to the board's Clean Air Scientific Advisory Committee.

Dr. Brennan served as secretary/treasurer, vice-president, and president of the APS Northeast Division from 1975 to 1977. She also served on the editorial boards of the *Journal of the Air Pollution Control Association, Journal of Forest Science*, and *Plant Disease Reporter*. In 1988 she was named a fellow of the Air Pollution Control Association.

Dr. Brennan, a professor of plant pathology, has honored her profession by her commitment and accomplishments. She has served the academic community, her state, and her country with distinguished service that has furthered the understanding of air pollution problems on vegetation and has moved toward the objective of a cleaner environment.

John M. Duniway

John M. Duniway, born on November 6, 1942, in San Francisco, CA, grew up in the San Francisco Bay area. He received his B.A. degree in biology in 1964 from Carleton College, Northfield, MN, and his Ph.D. degree in plant pathology in 1969 from the University of Wisconsin, Madison. From 1969 to 1970 Dr. Duniway was at the Australian National University, Canberra, on an NSF postdoctoral fellowship to work on the water relations of Fusarium wilt of tomato. He joined the faculty in the Department of Plant Pathology at the University of California, Davis, in 1970, where he is now a professor and plant pathologist.

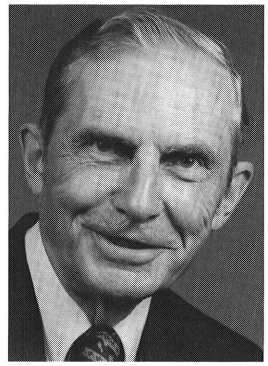
Dr. Duniway's research, devoted to understanding plant and soil water relations in the ecology of plant pathogens, has provided quantitative insights into mechanisms by which diseases affect host plant physiology. His early research on the effects of diseases on the water relations and photosynthesis of plants represents some of the first applications of current concepts and techniques of water relations research to studies of disease physiology. He showed that the change in transpirational behavior that leads to water stress in bean plants with rust results from physical rupturing of the cuticle. His pioneering research on water relations in Fusarium wilt of tomato provided the first quantitative data for the plugging theory to account for wilting and directed attention to the highly significant increases in resistance to water flow in xylem in the petioles and leaves rather than stems, where earlier workers had focused their attention. His experiments on Fusarium and Verticillium wilts showed that wilting is not due to changes in permeability of leaf cells or stomatal behavior, but showed further that Fusarium wilt has effects on photosynthesis that exceed the effects of pathogen-induced water stress. More recently, he showed that Phytophthora root rot causes large increases in resistance to water uptake in infected roots and stems of safflower. He demonstrated by studies of leaf-gas exchange that powdery mildew has large and detrimental effects on the transpirational behavior and photosynthetic capacity of sugar beet leaves.

Dr. Duniway's research on water relations in the ecology of plant pathogens in soil has emphasized the effects of soil moisture on the behavior of *Phytophthora* spp. and the development of Phytophthora root rots. His analytical and quantitative approach has revealed in physical terms the influence of water on sporangial formation, zoospore release, and zoospore migration in soil. These studies showed that zoospore release in *P. cryptogea* was a function of soil matric potential and was totally prevented regardless of soil type if the matric potential was only −25 mbar or drier. These relatively high matric potentials at which zoospores were released were shown to coincide with the existence of water-filled soil pores large enough to accommodate swimming zoospores. The distance of zoospore movement, in turn, was shown to vary with pore-size distribution of the soil. His work on *P. cryptogea* stands as one of the most quantitative and comprehensive demonstrations of the effects of soil moisture on the behavior of microorganisms in soil. He showed further that safflower is predisposed to Phytophthora root rot by plant water stress and low levels of oxygen.

Dr. Duniway, active in graduate education, teaches a graduate course on ecology of plant pathogens and epidemiology of plant disease, and participated in an introductory plant pathology course for several years, consistently receiving very high student evaluations in both courses. He is active in the plant pathology graduate program at the University of California at Davis, including many years as an academic advisor and member of the Department Graduate Affairs and Curriculum committees.

Dr. Duniway currently is an associate editor of *Phytopathology* and a member of the International Society for Plant Pathology Soilborne Pathogens Committee. He was awarded the Ciba-Geigy Award in 1982.

David W. French



David W. French was born on November 10, 1921, in Mason City, IA. He received primary and secondary education in the public schools at Niagara Falls, NY, and conducted his graduate studies in forestry and plant pathology at the University of Minnesota, where he received a B.S. degree in 1943, an M.S. degree in 1949, and a Ph.D. degree in 1952. Dr. French served in the U.S. Army from 1943 to 1946 and was a captain when discharged.

A professor in the University of Minnesota Department of Plant Pathology, Dr. French became internationally known for teaching and research in forest pathology and decay of wood and deterioration of wood products. His research in deterioration of wood products, including insulating board, hard board, coatings, and related products, saved the industry from millions of dollars in losses. Dr. French, a skilled and thorough teacher, has taught approximately 5,000 undergraduates during his career. He is especially successful as an advisor and mentor for graduate students. Seventeen former students are leaders in academic departments in as many universities and eight served the U.S. and Canadian forest services. One student was assistant commissioner of Minnesota's State Department of Agriculture, and another became dean of research at the University of Florida.

Dr. French was a skillful administrator during his 12 years as assistant head and head of the Department of Plant Pathology. This period was one of great financial stress brought about by budget reductions and reallocations imposed across the university. Under his leadership the department doubled in size and completely modernized its physical plant, revised the graduate curriculum along the lines of biological organization, developed internationally recognized programs in epidemiology and air pollution, and greatly expanded its participation in international plant pathology. Dr. French also served 10 years as associate director and/or superintendent of the University of Minnesota Lake Itasca Forestry and Biological Station. He helped shape this facility into one of the outstanding biology stations.

Dr. French, who has been active in APS for 36 years, also belongs to 12 other professional societies, six concerned with forest pathology. His awards and recognitions include the Award of Merit from Gamma Sigma Delta; Certificate of Recognition from the University of Minnesota Institute of Agriculture, Forestry, and Home Economics; and Charter Treasurer Recognition from the APS Foundation. He is also in demand as an invitational lecturer and as a symposium speaker on forest pathology, deterioration of wood, and general plant pathology. In 1988 he gave the keynote address, "The Intercontinental Movement of Plant Pathogens," at the 26th annual Plant Pathology Congress in the Republic of South Africa. Dr. French has traveled extensively, advising on forest tree diseases and problems of wood decay (e.g., his work on resistance of wood to deterioration and on chemical control of wood decay).

Dr. French was recently elected treasurer of APS. He has served as a member of the APS Foundation Board of Directors and has been the U.S. representative to the International Poplar Commission and to the European Common Market for the oak industry . He was treasurer of the American Chestnut Foundation and was recently appointed to the NSF Panel on Forest Biology Research.

C. Wendell Horne

C. Wendell Horne was born in Sulphur Springs, TX, on July 28, 1934. He was reared on a combination vegetable and dairy farm and was very active in vocational agriculture throughout high school, receiving the highest state award (Lone State Farmer) and the highest national award (American Farmer Degree). His work in production agriculture included marketing produce at the Dallas farmers' market. Ever since, Dr. Horne has been a major and effective advocate of the free-market system and of helping the agricultural producer. Dr. Horne earned his B.S. degree in 1956 and his M.Ed. degree in 1960 from East Texas State University. He was recruited into plant pathology and, in 1965, earned his Ph.D. degree from Texas A&M University. He undertook postgraduate work in administration and supervision at Colorado State University in 1975 and Texas A&M University in 1977.

Dr. Horne taught vocational agriculture in Texas at Powderly High School from 1956 to 1958 and at Bonham High School from 1958 to 1960. He was extension assistant in plant pathology at the Texas Agricultural Extension Service (TAEX) from 1960 to 1963. At that point he was chosen to succeed Dr. Harlan Smith as leader of extension plant pathology at TAEX. He served as extension plant pathologist (1963–1974), project leader in plant sciences and plant pathologist (1974–1980), and project group supervisor and plant pathologist (1980–present).

Starting with a two-person staff, he built TAEX to its present 11 full-time professional positions. As supervisor, he remains responsible for the TAEX plant pathology program in Texas. He personally gained legislative support of eight of these positions. Recently, this program was undergirded by The Texas Plant Disease Diagnostic Lab with a full-time Ph.D. diagnostician and state-of-the-art instrumentation.

Dr. Horne actively works in plant disease control activities that include diagnosis, development of control strategies, and demonstration of control principles and effectiveness. He has extensive field experience in the diagnosis and control of diseases of field crops, vegetables, fruits, and ornamentals. He organized "for credit" plant pathology courses for county extension agents to enhance their understanding of plant disease so that extension plant pathologists could work through them more effectively. In addition to extension management, his personal specialty is diseases of peanuts, yet he carries on very effective programs dealing with other challenges (e.g., Christmas tree diseases, wheat diseases, aflatoxins, and air pollution effects on plants).

His contributions in and beyond extension have been well recognized. In 1969 he was awarded the TAEX Superior Service Award, which is its highest award. In 1971 he was honored with the distinguished Faculty Distinguished Achievement Award by the TAMU Association for Former Students. This award carries a cash prize, a gold watch, and a framed certificate.

Dr. Horne is also nationally and internationally recognized as a leader in the extension process of applying research-based information to existing problems. He published his well-known extension philosophy in an invited paper entitled "Extension: The face of plant pathology" in the 1981 *Annual Reviews of Phytopathology,* and he has presented seminars on the same general topic in several states. He has participated in USDA-CSRS departmental reviews in four states and participated in a five-week study in Bangladesh in 1985 to help improve the pest monitoring and surveillance programs of that country.

Dr. Horne's example of leadership and commitment includes APS. He has chaired the Extension Committee and was on the first editorial advisory board charged to oversee the transition from *Plant Disease Reporter* to *Plant Disease.* He served two terms as editor-in-chief of *Plant Disease* (1983–1988). Concurrently, he has been a member of the APS Council.

John G. Moseman

John Gustav Moseman was born on December 7, 1921, in Oakland, NE, where he attended public school. He earned a B.S. in agronomy in 1943 from the University of Nebraska, an M.S. degree in agronomy in 1948 from Washington State University, and a Ph.D. degree in plant pathology and crop breeding in 1950 from Iowa State University. Dr. Moseman has been a research scientist for the USDA-ARS his entire professional career. For the first four years, Dr. Moseman was stationed at North Carolina State University where he worked as a regional cereal pathologist for the Southeast. In 1954 he was transferred to Beltsville, where he blossomed into an excellent researcher and administrator.

At Beltsville while working with Harry R. Powers, Jr., Dr. Moseman laid the groundwork for extensive research into the genetics of barley powdery mildew interactions. Dr. Moseman investigated this relationship in his laboratory and in collaboration with scientists throughout the United States and Canada for the next 20 years. In this research, the gene-for-gene concept was extended and clearly applied to *Erysiphe graminis* and *Hordeum vulgare.* Dr. Moseman used cultures of *E. graminis* with unique pathogenic characteristics to demonstrate that some barley cultivars were actually digenic at apparently simple loci. He further demonstrated techniques for making routine analyses of complex loci.

In cooperation with scientists in Israel, Dr. Moseman developed the concept of mobile nurseries comprised of differential cultivars for trapping and identifying unknown wild strains of *E. graminis* f. sp. *hordei.* They also studied *Puccinia hordei* in Israel, and their results led to new interpretations of the coevolution of barley and its pathogens.

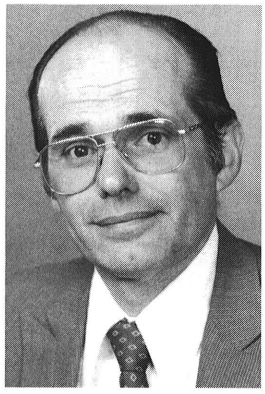
Dr. Moseman cooperated with scientists in Egypt, Yugoslavia, Denmark, Japan, and Israel in evaluating plant accessions, including many from wild species, for disease resistance. Many novel and known resistance genes were found in the accessions. Dr. Moseman helped devise programs to transfer the resistances into agronomically acceptable germ plasm lines, which have been incorporated into the United States National Small Grains Collection. From cooperative evaluations of 6,273 barley accessions, sets of "elite germ plasm" have been developed with the characteristics of resistance to powdery mildew, leaf rust, scald, net blotch, spot blotch, and barley yellow dwarf. These elite sets have been used worldwide by many scientists.

From 1981 until his recent retirement, Dr. Moseman served as the coordinator of the International Powdery Mildew and Rust Nurseries. This was a large undertaking because of the geographical extent of the nursery program, the amount of seed evaluated each year, and the number of cooperators. Dr. Moseman did much to streamline the nurseries to make them more manageable.

Dr. Moseman's research publications furnish ample evidence of his originality, leadership, and cooperation in the world community of cereal science. He served as leader of the USDA-ARS Barley Investigations from 1969 to 1972 and was chairman of the Plant Genetics and Germplasm Institute from 1972 to 1981, during which time he was responsible for coordinating the research of 65–70 scientists while maintaining an active research program. Dr. Moseman's work nourished the work of many other scientists. He was the sponsoring scientist for 11 PL-480 and NATO grant projects. These projects greatly enhanced cereal pathology research in Poland, Israel, Egypt, Pakistan, India, Yugoslavia, and Peru.

Dr. Moseman has been active in APS, serving the Potomac Division as councilor, secretary/treasurer, vice-president, and president. He is a member of the APS Advisory Committee on Plant Rusts of the American Type Culture Collection. Dr. Moseman is a fellow of the American Association for the Advancement of Science and is active in the American Society of Agronomy and the American Barley Research Workers Conference. He has chaired sessions of the International Congress of Plant Pathology and the International Barley Genetics Symposia. Dr. Moseman has been a major influence in barley research, host-pathogen genetics, and germ plasm enhancement worldwide for over 30 years. He has served his colleagues, his agency, his country, and his science in peerless fashion.

Rodrigo Rodríguez-Kábana



Rodrigo Rodríguez-Kábana was born in Las Villas, Cuba, in 1940. He received a B.S. degree in agronomy in 1961, an M.S. degree in soil microbiology in 1962, and a Ph.D. degree in plant pathology in 1965 from Louisiana State University. Dr. Rodríguez-Kábana assumed a postdoctoral fellowship with Professor E. A. Curl at Auburn University in 1965, and he was appointed to a prestigious Auburn Alumni Assistant Professorship in 1970. He was promoted to associate professor in 1971 and full professor in 1976.

Dr. Rodríguez-Kábana's research has focused on the biology, ecology, and management of soilborne pathogens. His contributions are via basic and applied studies directed at improving the productivity and profitability of soybean, peanut, and potato farmers in the southeastern United States. This work has greatly added to the fundamental understanding of nontarget effects of pesticides; application technology of nematicides for optimal control; losses from nematodes on peanuts, soybeans, and cotton; the role of fungi in biological control of nematodes; the long-term effects of crop rotations on nematode populations; and the effects of soil amendments on soil microflora and microfauna.

In his early work, Dr. Rodríguez-Kábana elucidated the mechanisms involved in biological control of nematodes in paddy rice production. A paper published in *Science* demonstrated the direct association between the sulfate-reducing *Desulfovibrio* spp. and the starch-fermenting *Clostridium* spp. and demise of rice nematodes following flooding. He and Dr. J. P. Hollis later demonstrated that several *Clostridium* spp. produced fatty acid products toxic to nematodes. This research is now applied in tropical Africa and elsewhere in nematode management systems for paddy rice production.

The research by Dr. Rodríguez-Kábana and associates has clearly demonstrated the role of several types of fungi in the pathology of both cyst and root-knot nematodes and their potential use in biocontrol strategies. This research led directly to studies on the use of chitin amendments and products for nematode control.

His work on biological control of *Sclerotium rolfsii* has led to practical recommendations for control by peanut farmers as well as improving the basic understanding of biocontrol and nontarget effects of pesticides. In a series of papers published in *Phytopathology* beginning in 1968, he and co-workers demonstrated the mechanisms whereby *Trichoderma viride* controls *S. rolfsii* in peanut fields and developed the "food-base" carrier concept for the delivery of *Trichoderma harzianum*. Using this concept, a formulation was developed that provided control in the field equal to the standard fungicide treatment.

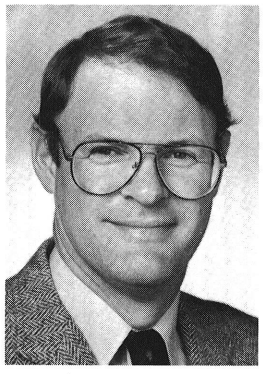
Several scientific societies have benefited from Dr. Rodríguez-Kábana's commitment to his profession. He has served two terms on the APS Council as representative of the Caribbean Division, senior editor of *Plant Disease*, and coeditor of the "Compendium of Peanut Diseases." He has also served as president and business manager of the Organization of Tropical American Nematologists, president of the Society of Nematologists, editor of *Nematropica*, associate editor of *Plant and Soil*, and member of numerous committees. He is currently president of the Intersociety Consortium for Plant Protection. He has served as the U.S. representative on the Steering Committee of the International Workshop on Side Effects of Pesticides, on the Organizing Committee of the first International Congress of Nematology, and USDA-EPA Benefits Assessment Committees for Temik and DBCP.

Dr. Rodríguez-Kábana is an excellent teacher. His course, phytonematology, is highly rated by students and is nearly always fully subscribed. He has directed 12 graduate student theses and has served on the committees of many graduate students. Currently, he is directing the research of three Ph.D. candidates.

The many contributions of Dr. Rodríguez-Kábana are reflected in some 158 refereed journal articles, in addition to numerous book chapters and other publications. He has published cooperatively with plant pathologists, agronomists, horticulturalists, weed scientists, and plant physiologists.

Numerous professional organizations have honored Professor Rodríguez-Kábana, including Auburn Alumni Professorship, American Soybean Association-ICI Americas National Research Recognition Award, the Alabama Agricultural Experiment Station-Director's Senior Research Award, Distinguished Service Award from the Organization of Tropical American Nematologists, the 1985 Distinguished Service Award from the Southern Soybean Disease Workers, and the Ciba-Geigy Award from the Society of Nematologists.

Gregory E. Shaner



Gregory E. Shaner was born in Portland, OR, on December 9, 1942. He received his B.S. degree in botany from Oregon State University and continued for a Ph.D. degree in plant pathology from the same institution. In 1968 he joined the faculty of the Department of Botany and Plant Pathology at Purdue University, where he has remained.

In his research at Purdue, Dr. Shaner has concentrated on the nature, inheritance, and epidemiological consequences of quantitative disease resistance in small grains. His research has primarily involved leaf rust, powdery mildew, and Septoria blotches of wheat, with additional work on cereal viruses and take-all of wheat. He and colleagues began these studies with wheat cultivars and lines that consistently developed less leaf rust or powdery mildew than other cultivars in the field, despite displaying a compatible reaction. Their initial hypothesis was that infection efficiency was less on slow-rusting or slow-mildewing wheats, but infections that did occur would develop the same as in fully susceptible cultivars. Their early experiments showed, however, that reduced infection efficiency was only a minor component of wheat leaf rust resistance. Instead, an extended latent period was the main component of the slow-rusting resistance.

By modeling and direct experimentation in the field, Dr. Shaner and colleagues showed that seemingly small differences in reproductive fitness of rust or powdery mildew fungi can lead to large differences in rate of disease development that are sufficient to prevent a damaging epidemic on slow-rusting or slow-mildewing cultivars.

After he identified and quantified the components of resistance, Dr. Shaner turned his attention to the genetic control of slow

leaf rusting in wheat. He and colleagues found that a long latent period was controlled in each of several slow-rusting cultivars by two or three partially recessive genes with additive action. Genes from different slow-rusting cultivars could be combined to yield progeny with much longer latent periods than those of either parent. Thus, they showed that slow rusting is a stable and heritable trait that can be manipulated by plant breeding.

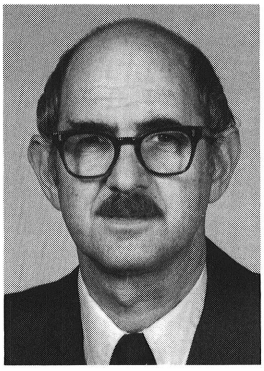
Dr. Shaner's work in quantifying slow-rusting and slow-mildewing resistances led to an interest in Septoria leaf blotches, which are also characterized by quantitative forms of resistance. Here, too, he has quantified components of resistance and is now studying the inheritance of that resistance. Another of his interests in the Septoria diseases of wheat is the relation of epidemic development to weather. With colleagues, Dr. Shaner has developed models to predict epidemics of Septoria leaf blotches based on early spring temperature and rainfall.

Dr. Shaner's basic research on factors controlling disease resistance and the germ plasm developed in his research have provided vital resources for the nationally prominent cereal breeding program at Purdue. With colleagues in the departments of agronomy and entomology at Purdue and in the USDA-ARS, he has been directly involved in the development of 15 cultivars and three germ plasm lines of soft red winter wheat and four cultivars of spring oats. Several of these have become leading cultivars in the eastern United States as well as important sources of germ plasm for other cereal breeding programs throughout the world. The importance of these cultivars is that they combine superior agronomic traits, grain quality, and resistance to a broad spectrum of diseases.

Dr. Shaner's research program constitutes only one aspect of a diverse curriculum of activities that range from teaching to administration and service. For many years he has taught a successful, well-received graduate-level course in plant disease resistance. He served as head of the Department of Botany and Plant Pathology from 1982 to 1987, supervising a large and diverse group in work ranging from cell physiology to weed science and plant pathology. This came during a period of reorganization when departmental activities oriented toward cell and molecular biology were rehoused in a new building. His organizational skills, tact, and composure provided a valuable stabilizing influence during the inevitable upheaval of this period.

Dr. Shaner served as associate editor of *Phytopathology* from 1979 to 1981, senior editor from 1982 to 1984, and editor-in-chief from 1985 to 1987. He expended great effort on behalf of the Society to manage the journal and ensure its quality and status as a highly respected publication. The Society and his profession are indebted to Dr. Shaner for his dedication to this task.

Malcolm R. Siegel



Malcolm R. Siegel was born on November 5, 1932, in New Haven, CT. He received a B.S. degree in horticulture in 1955 from the University of Connecticut, an M.S. degree in plant pathology in 1959 from the University of Delaware, and a Ph.D. degree in botany in 1962 from the University of Maryland under the direction of Professor H. D. Sisler. After three years of postdoctoral work at the University of Maryland, he was appointed an assistant professor of plant pathology at the University of Kentucky. He was promoted to associate professor in 1968 and to professor in 1973. Since 1978 he has held the rank of professor in the Graduate Center for Toxicology. His professional career includes experience as a visiting scientist at the Organic Chemistry Institute in Utrecht, the Netherlands, in 1975 and the U.S. Department of Agriculture, Washington, DC, in 1978–1979. He also served in the U.S. Army for two years.

Dr. Siegel has achieved recognition in two very diverse areas of plant pathology, the mechanisms of fungicidal action and the role of endophytic fungi on toxicity of fescue to cattle. He and Dr. Sisler discovered that cycloheximide was a specific inhibitor of protein synthesis. This finding had impact far beyond plant pathology, as cycloheximide has been an important tool in biochemical research.

After moving to Kentucky, Dr. Siegel continued to make important contributions in mode of action, fate, and resistance mechanisms in fungi, higher plants, and animals to fungicides such as captan, chlorothalonil, benomyl, and imazalil. He has been a frequent invited speaker at APS and American Chemical Society symposia. In 1977 he and Dr. Sisler edited the basic reference, "Antifungal Compounds."

In the late 1970s fescue toxicity in cattle, which had been associated with infection of the grass by the fungal endophyte *Acremonium coenophialum*, became an increasingly important problem of fescue pastures in Kentucky and other states. Recognizing the need for research in this area, Dr. Siegel's initial input was primarily on the biology, epidemiology, and control of the endophyte. Subsequently, he became increasingly involved in the toxicity of endophyte-infected grasses to insect and grazing animal herbivors. He is a leader in an interdisciplinary research effort involving agronomy, animal science, and entomology that led to the discovery of both adverse and potential beneficial effects of endophyte-infected grasses. He was one of the first to suggest that certain Acremonium endophytes enter into mutualistic symbiosis with their host grasses and that manipulation of these endophytes could improve grasses used for pasture, turf, and conservation.

Dr. Siegel, recognized as an international authority in grass-endophyte associations, has coauthored definitive reviews on various aspects of this subject and is a regular contributor to APS and ACS symposia. Despite his heavy involvement with the fescue endophyte research, Siegel has contributed significantly to the solution of other important disease problems in Kentucky. He has active programs on factors affecting susceptibility of tobacco to blue mold and on virulence and fungicidal resistance of *Peronospora tabacina* isolates.

Dr. Siegel is a member of Sigma Xi and Gamma Sigma Delta. He has served as an associate editor of *Phytopathology* and was on the editorial board of *Pesticide Biochemistry and Physiology*. He has also served as a member of several APS committees and on USDA/CSRS review panels.

Jui-Chang Tu

Jui-Chang Tu was born on August 14, 1936, in Tainan, Taiwan. He received his B.Sc. and M.Sc. degrees from National Taiwan University in 1959 and 1961, respectively. He then studied plant pathology at Washington State University where he obtained a Ph.D. degree in 1966 for his research on the ecology and epidemiology of *Puccinia striiformis*, the causal organism of stripe rust of wheat. From 1966 to 1970 he held postdoctoral appointments at Iowa State University and the University of Alberta. In 1970 he joined the staff of the departments of biological science and plant science at the University of Alberta and was subsequently promoted to associate professor. In 1978 he was appointed to his present position as research scientist at the Harrow Research Station of Agriculture Canada where he is responsible for research on the biology and control of diseases of bean, root rot diseases of pea, and viral diseases of soybean.

Dr. Tu is a creative and productive scientist who has made highly significant contributions to phytopathology. In his

research, published in over 120 papers in refereed journals, he has examined the etiology, host-parasite interactions, and control of a wide range of diseases, primarily of legumes, caused by viruses and fungi.

He began his research career in 1966 as a research fellow with Dr. R. E. Ford at Iowa State University where he investigated maize dwarf mosaic, then a new disease in Iowa. He quickly established the etiology, epidemiology, and physiological pathology of this disease. His publications on the disease contributed significantly to its control and are widely cited. In the same period, he initiated his pioneering studies on the effects of virus infection on the legume-rhizobium symbiotic complex in soybean infected with soybean mosaic virus. This work, which he continued at the University of Alberta, explored gross morphology, ultrastructure, cellular biology, and enzymology of the interaction. The widely recognized work contributed to practical agriculture and basic science.

In 1978 at Harrow, Dr. Tu began investigations on anthracnose in white bean and demonstrated that the causal organism was a new race (delta) of *Colletotrichum lindemuthianum* not previously encountered in Ontario. He subsequently developed highly successful screening programs in bean for resistance to anthracnose and to bean common mosaic virus (strains 1 and 15). In collaboration with plant breeders Drs. J. Aylesworth and S. J. Park, he incorporated the anthracnose resistance gene ('*Are*') into field bean, resulting in the recent release of seven new cultivars. His continued emphasis on collaboration with plant breeders has resulted in the identification and incorporation of genes for resistance to soybean mosaic in soybean.

His imaginative research, in collaboration with Drs. A. S. Hamill and W. I. Findlay, on a chronic and severe root rot of processing pea in southern Ontario led to an integrative disease management strategy, which has increased average pea yields 150% over three years, resulting in reduced production costs of about $7 million annually. For his accomplishments in this research, which were featured in a key publication, he was honored by the Canadian Phytopathological Society in 1987 as a recipient of the Bailey Award for "exceptional and distinguished contribution to plant pathology."

Tu's concerted research on the autecology of *Sclerotinia sclerotiorum*, the causal fungus of white mold of bean, resulted in better timing of prophylactic fungicide sprays. By utilizing soil-inhabiting parasites and antagonists of inoculum-initiating sclerotia, he developed a biological control component that has been incorporated into an integrated strategy of disease control. He discovered the first navy bean cultivar (Ex Rico 23) resistant to white mold, which is now used by plant breeders worldwide, and has saved Ontario growers millions of dollars annually in reduced production costs coupled with higher yields.

Dr. Tu is an internationally recognized expert on diseases of bean. A world authority on bean anthracnose, he chairs the International Bean Anthracnose Working Group and is a member of the International White Mold Nursery Group. He is an editor of *Microbios, Cytobios*, and *Microbios Letters*, an associate editor of *Phytopathology*, and a former associate editor of *Plant Disease*. He has also served on the APS Epidemiology and Soil Microbiology and Root Diseases committees, and currently is a member of the Soilborne Diseases and Seed Pathology committees of the Canadian Phytopathological Society. He is presently an adjunct professor at the University of Windsor.

James Van Etten

James Van Etten was born in Cherrydale, VA, on January 7, 1938. His family later moved to Peoria, IL, where his father was a chemist at the USDA Northern Regional Research Laboratory. As a college student, Van Etten worked summers at Caterpillar and at a steel mill in Peoria, becoming a member of two hard-hat unions. He obtained a B.A. degree at Carleton College in Northfield, MN, where he developed an interest in fungi while taking a course from Dr. William Muir. In graduate school at the University of Illinois, he studied under Dr. David Gottlieb, who in turn was a student and disciple of Dr. E. C. Stakman. Some educational practices, such as evening journal clubs, passed from Stakman to Gottlieb to Van Etten. Van Etten obtained his Ph.D. in 1965, spent a year in the Department of Genetics, University of Pavia, Italy, on an NSF postdoctoral fellowship with Dr. Orio Cifferi, and then moved to the University of Nebraska in 1966. An inspirational teacher and an enthusiastic scientist, Dr. Van Etten progressed through the professional ranks at the University of Nebraska to become a regents professor, the William Allington Distinguished Professor of Plant Pathology, in 1986.

Dr. Van Etten has contributed to three areas of research: fungal development, double-stranded RNA bacteriophage, and viruses of eukaryotic algae. In his early years at Nebraska, Van Etten investigated a number of metabolic processes associated with fungal spore germination. One of the most striking and significant features that occurs during germination is the initiation of and rapid increases in the synthesis of protein and RNA. Van Etten assayed the biological activity of many of the components of these macromolecular processes in ungerminated and germinated spores with the goal of trying to explain how these processes are suppressed in the spore and rapidly activated during germination. He found that dormant spores, like germinated spores, contained biologically active ribosomes, tRNAs, aminoacyl tRNA synthetases, elongation factors, and mRNAs. He discovered that *Botryodiplodia theobromae* synthesizes a storage protein during sporulation. This protein, named muiridin, comprises about 30% of the spore protein and is actively degraded during germination. He later found and characterized a similar development-specific protein in sclerotia of *Sclerotinia sclerotiorum*. Both of these storage proteins accumulate in membrane-bound organelle-like structures that resemble protein bodies found in seeds of many higher plants.

Dr. Van Etten has also studied bacteriophage ϕ-6, which was discovered by Dr. Anne Vidaver. Phage ϕ-6 is the only known phage with a double-stranded RNA genome, the only one with a segmented genome, and the first bacteriophage to be discovered with a lipid envelope. This phage is now a model system for the study of membrane formation and dsRNA genomes. Dr. Van Etten led the initial efforts to characterize phage ϕ-6 biochemically and biophysically. He discovered that the viral transcription mechanism differs from that of the dsRNA viruses that infect plants and animals.

Since 1980, Dr. Van Etten has investigated large dsDNA viruses of eukaryotic algae. He followed up a colleague's electron microscopic observation of viruslike particles in a *Chlorella* and discovered an important new group of viruses. Some of the important findings of Dr. Van Etten in this area are: 1) The viruses produce plaques on lawns of the host; 2) The viruses have a large, 330 kbp linear, ds DNA genome with cross-linked termini, a lipid component, and more than 50 proteins; 3) The virions contain an enzyme(s) that degrades algal cell walls, thus permitting infection; 4) The viruses are host specific because they infect only the unicellular Chlorella-like green alga that originally exists as a symbiont in the protozoan, *Paramecium bursaria*; 5)

The viruses can be readily isolated from lakes and streams; 6) The viral DNAs of naturally occurring *Chlorella* viruses vary in degree of methylation from almost none to heavily methylated DNAs; 7) Many of the viruses, perhaps all, encode DNA methyltransferases and DNA site-specific (restriction) endonucleases. Some of the restriction enzymes have specificities identical to bacterial restriction endonucleases, but others cleave DNA at novel sites. These are the only known DNA restriction enzymes not produced by prokaryotes. Two of the DNA methylation genes have been cloned and sequenced; and 8) Host nuclear and chloroplast DNAs are degraded soon after infection.

This virus-host system has features not offered by most plant virus systems, namely a rapid, sensitive, and accurate plaque bioassay; synchronous infection; an accessible one-step growth cycle; and relatively simple procedures for isolating and characterizing mutants. Many of the procedures developed for bacteriophages can be applied to these eukaryotic algal viruses. They are a potentially important new source of DNA regulatory sequences and of restriction endonuclease, DNA-methylation, and cell wall-digesting enzymes. The discovery of *Chlorella* viruses raises interesting questions in basic biology about their role in symbiosis, their natural host in lakes and streams, their ecological role, and the biological role of restriction and modification enzymes.

Dr. Van Etten has trained seven Ph.D. students, one M.S. student, and 15 postdoctoral fellows, and regularly teaches a course in fungal physiology. He receives numerous invitations to present seminars, contribute to symposia, and serve on peer panels and professional committees. For over two decades, he has supervised a weeknight journal club that emphasizes molecular biology.

Dr. Van Etten has opened up several new areas of plant pathology. His research is the type that makes biologists in general recognize plant pathology as an exciting and vital discipline.

Robert K. Webster

Robert Kent Webster was born in Solomonville, AZ, on January 15, 1938. He attended Ricks Junior College in Rexburg, ID, from 1956 to 1958, where he majored in botany and plant pathology. He then received his B.S. degree in plant pathology in 1961 from Utah State University and his Ph.D. degree in plant pathology in 1966 from the University of California at Davis. After a short tenure in 1966 as a research associate in plant pathology at North Carolina State University, he returned to Davis as assistant professor in the Department of Plant Pathology. He was promoted to professor in 1975.

Dr. Webster has made major contributions to the understanding and practical management of diseases of rice and barley. His research has dealt with virtually every disease of economic importance on rice or barley in California, including etiology of the diseases, the biology and taxonomy of the pathogens, and the genetics of resistance and virulence in host-pathogen interactions.

Seedling diseases were a historical nemesis of rice stand establishment in California until Dr. Webster established etiology of the problem and developed suitable control procedures. When changing agronomic practices in California resulted in stem rot of rice caused by *Sclerotium oryzae* becoming a serious problem, he and students showed in comprehensive epidemiological studies that the disease was influenced by dense stands, saprophytic fitness of the pathogen, intensity of nitrogen fertilization, residue management practices, and herbicide damage. Genetics of resistance and virulence were characterized in cultivated and wild *Oryzae* species, which laid the foundation for identification of novel genes for resistance to *S. oryzae* and *S. oryzae-sativae* being transferred to cultivated rice.

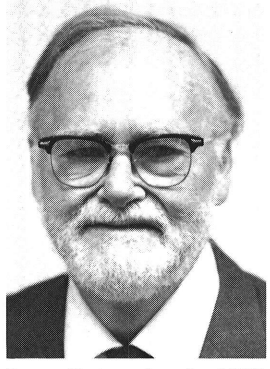
He and co-workers also clarified the etiology and epidemiology of rice aggregate sheath spot caused by *Rhizoctonia oryzae-sativae* and discovered and characterized the telemorph as *Ceratobasidium oryzae-sativae*. They also discovered and/or characterized the telemorphs of *S. oryzae, R. oryzae, R. fumigata*, and *R. zeae*. He completed an extensive study of the taxonomy of *Diplodia* and *Diplodia*-like fungi, including the effects of genetic, nutritional, and environmental factors on morphological characters, which remains the most complete of its kind on *Diplodia* and *Diplodia*-like fungi. Early in his research career, Dr. Webster worked on taxonomy, sexuality, and morphogenetic traits of *Ceratocystis fimbriata*, which culminated in publication of a biological and morphological concept of the species *C. fimbriata*. He has made other significant contributions toward the understanding of genetics of sexuality and fungicide tolerance in plant pathogenic fungi.

Some of Dr. Webster's most significant scientific contributions have been on experimental studies of population genetics of host-pathogen interactions. He and co-workers have used barley scald caused by *Rhynchosporium secalis* as a model system for studying population genetic interactions and coevolution of host and pathogen in terms of complementary shifts in gene frequency under natural selection. This system is being used to measure the genetic load of resistance and virulence genes in host and pathogen and for assessing the potential for using composite cross populations as a mechanism for conserving resistance genes and selecting for useful field resistance and methods of deployment of resistance genes.

Dr. Webster has maintained a characteristic balance between fundamental and mission-oriented research throughout his highly productive career. In addition, he has contributed to graduate education in plant pathology through direction of thesis research and the teaching of graduate courses in advanced plant pathology, field crop diseases, and genetics of host-pathogen interactions.

He has served as associate editor of *Plant Disease* and as a member of several APS committees. He has been active in the U.S. Rice Technical Working Group, North American Barley Workers, and several regional committees. He served five years as chairman of the Department of Plant Pathology and is currently acting dean of the College of Agriculture and Environmental Sciences, University of California at Davis.

Homer D. Wells



Homer Douglas Wells was born in Blaine, KY, on November 11, 1923. He attended Ashland Junior College where he majored in pre-engineering, earning an A.A. degree in 1943. He served in the U.S. Naval Reserves during World War II from 1943 to 1946 as a radio electronics technician on the USS Iowa in the Pacific Theater. He earned a B.S. degree in agriculture and an M.S. degree in agronomy in 1948 and 1949, respectively, from the University of Kentucky, and a Ph.D. degree in plant pathology in 1954 from North Carolina State University. In 1952 he was appointed assistant agronomist and highway turf specialist at the Coastal Plain Experiment Station, Tifton, GA. He joined the USDA-ARS Forages and Turf Research Unit as a research plant pathologist at the Coastal Plain Station in 1953 and remained in this position until retirement in 1988.

Dr. Wells' research has been devoted to the identification and practical control of diseases of forages and turf. His major efforts have been in searching for sources of resistance to the various

diseases and working with plant breeders in getting these sources of resistance into agronomically desirable and high yielding plant types. He located resistance to anthracnose and two sources of resistance to gray leaf spot in narrow-leafed lupin (formerly blue lupine) and conducted the pathology research necessary for a plant breeder to incorporate these sources of resistance into Rancer, Frost, Tifblue-78, and SNLL-87 narrow-leafed lupins. In cooperation with a plant breeder in Australia, he identified resistance for these diseases in a backcrossing program that produced the narrow-leafed lupin cultivars Marie, Illyarrie, and Yandee. These cultivars have greatly expanded the area of lupin adaptation in Australia into soil types and climates not previously supportive of narrow-leafed lupin culture. As a result, the area of narrow-leafed lupin has increased from near zero to approximately 1,200,000 acres in 1984. Lupin now provides a significant portion of the protein for the Australian livestock industry. His work on viruses in lupins resulted in the periodic application of a systemic insecticide and roguing to produce BYMV-free seed of yellow lupin. During the past 10 years, he has given invitational papers on lupin diseases and lupin breeding and has participated in international conferences on lupin in Peru, France, and Australia.

Dr. Wells led a cooperative research project that demonstrated the first biological control of a soilborne pathogen, *Sclerotium rolfsii*, with an introduced antagonist, *Trichoderma harzianum*, in a natural field situation. In addition, an article on biological control of yellow nutsedge with rust coauthored by Dr. Wells in *Science* was cited in 1983 as being one of the 15 most important contributions to agricultural research in the world.

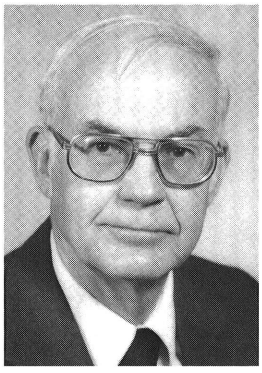
He did the early work resulting in the release of fenaminosul, chloroneb, ethridiazole, and metalaxyl to control *Pythium* spp. on turf, which has allowed the cool-season bent grasses to be used year-round approximately 100 miles further south across the United States. He also made significant contributions to the development of leaf spot and rust resistance in turf bermudagrasses. His contributions to field screening with natural disease pressure have assured that all of the forage types of bermudagrasses released at Tifton have a high degree of resistance to these diseases. He has evaluated all bermudagrass cultivars released from Tifton since 1952 for disease resistance.

Wells demonstrated that Helminthosporium leaf spot and head mold were major problems for pearl millet in the United States and solved the problem by having seed production moved to the drier southwest. He also contributed to a team effort that developed resistance to Piricularia leaf spot and rusts diseases in pearl millet by transferring genes for resistance from wild subspecies. A cytoplasmic male sterile, Tift 850A, and its maintaining line, Tift 850B, immune to both diseases, were released in 1985.

He and a cooperator in India identified germ plasm of pearl millet with resistance to downy mildews, and they found a chemical control of systemic infection of downy mildew in pearl millet, corn, and sorghum. Dr. Wells' wide scope of cooperative activity can be judged by the 178 scientific articles and abstracts he has authored or coauthored with approximately 50 scientists from Georgia and other states and countries.

Dr. Wells has served APS as representative to the American Forage and Grassland Council and as a member of the Biological Control and Plant Disease Management Coordinating committees. He was on the Constitution and Bylaws Committee of the Southern Division of APS, and was secretary/treasurer of the Georgia Association of Plant Pathologists. Dr. Wells was presented the Outstanding Plant Pathologist's Award by the APS Southern Division in 1987, and he received the Merit Certificate Award from the American Forage and Grassland Council in 1986.

Gayle L. Worf



Gayle L. Worf was born in Garden City, KS, in 1929. He earned his B.S. and M.S. degrees in agronomy and plant pathology at Kansas State University. He served as county agent in Ness County, AR, from 1955 to 1958, and then returned to graduate school at the University of Wisconsin-Madison, where he completed his Ph.D. degree in plant pathology and botany in 1961. For the next two years he was an assistant professor of plant pathology at Iowa State University. In 1963, he was invited to return to Wisconsin, where he was appointed an associate professor in 1966 and full professor in 1969.

Dr. Worf epitomizes the role of "the exceptionally effective extension specialist." The scope of his activities are best illustrated by his publication list of over 170 titles. His publications cover a wide range of crops that he has dealt with in his career as extension plant pathologist. Initially, he was responsible for all field and forage crops and certain ornamental crops. Assistance was later provided, and his area of concern shifted entirely to turf, ornamentals, and urban forestry. Dr. Worf was also instrumental in the development of a Plant Pathogen Detection Clinic in Wisconsin.

Dr. Worf was one of the first to recognize and describe the significance of a new disease, yellow leaf blight, on corn in Wisconsin in 1967. His observation that hybrids produced with Texas male sterile cytoplasm (Tms) were especially susceptible to this disease was one of the first indications of this phenomenon. This early warning of Tms danger prompted some seed companies to begin the return to normal cytoplasm and, thus, were better prepared when southern corn leaf blight struck in 1970. In 1968, a second disease new to the United States, eyespot (*Kabatiella zeae*), was discovered by Dr. Worf, who aided in its identification.

Turf disease problems are severe in Wisconsin where snow mold plays havoc with golf course greens, particularly in the northern part of the state. Recently, Dr. Worf identified and described an important new disease of turf, necrotic ring spot, which is caused by the fungus *Leptosphaeria korrae*. Many titles in his bibliography illustrate his effectiveness in developing and organizing turf disease information for golf course managers, sod producers, and homeowners.

Dr. Worf assumed a major role in Wisconsin's effort to minimize losses from Dutch elm disease. When systemic fungicides came into prominence, he organized and conducted schools for arborists; these schools served as models for other states in the region.

He has worked closely with the Wisconsin Arborists Association, providing advisement, consultation, and training. As a result, the association has formed a fund to support cooperative research. He also initiated the monthly publication of *Wisconsin Urban Forester* to provide current information regarding the maintenance of trees and shrubs, and he created the "Urban Phytonarian Handbook," an interdisciplinary publication used by extension and commercial clientele in many states.

Dr. Worf has participated in many APS activities, including member of the Plant Disease Advisory Board, editor of the feature section of *Plant Disease*, president of the North Central Division, chairman of the Extension and the Standardization of Common Names for Plant Diseases committees, and member of several other APS committees. He has served on numerous national committees, including plant pathology review panels for the University of Kentucky, University of Nebraska, and North Carolina State University, and the ECOP Environmental Quality and Urban IPM (chairman) committees. At the state level, he has chaired numerous college and extension committees, including Environmental Quality and Agriculture/Agriculture Business task

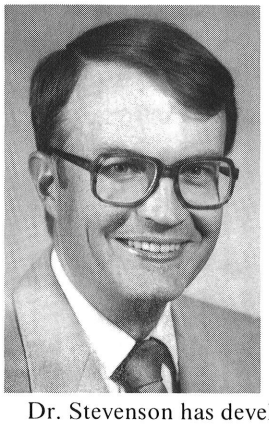
forces, forest pesticide applicator training programs, agricultural extension programs in southeastern Wisconsin, commercial ornamental and home horticulture, and college honorary recognition.

Dr. Worf has provided skilled and distinguished service to his department, college, and profession. His contributions have brought him numerous honors and awards. He was the first plant pathologist to receive the Distinguished Service Award in extension, which is the highest recognition from the Wisconsin extension service. He was recently named Vaughan-Bascom Professor of Plant Pathology, which is the first named professorship for an extension scientist at the University of Wisconsin. His outstanding service to the Wisconsin Urban Forest Program was recognized in 1982 when he was awarded the Outstanding Service Award from the Wisconsin Arborist Association, as was his service to the turf industry with a a similar recognition in 1987.

Extension Award

This award was established in 1988 by the APS Council in recognition of excellence in extension plant pathology. The award is presented to those involved in formal plant pathology extension with recognized superior contributions in developing and/or implementing leadership roles in local, regional, or national honor societies or professional organizations.

Walter R. Stevenson



Walter R. Stevenson, born in 1946, was raised in the Finger Lakes region of New York State. He received his B.S. degree in 1968 from Cornell University and his Ph.D. degree in 1972 in plant pathology from the University of Wisconsin-Madison under the direction of Dr. D. J. Hagedorn. After serving as assistant and associate professor of plant pathology at Purdue University from 1972 to 1979, he joined the Department of Plant Pathology at the University of Wisconsin-Madison as an associate professor and was promoted to professor in 1984.

Dr. Stevenson has developed an outstanding research program that focuses on the control of vegetable crop diseases. He has shown a unique ability to coordinate his research and extension activities so that they are fully complementary. His extensive research on the epidemiology of early blight of potato has focused on the effects of different fungicide application schedules and different cultivars on early blight disease development progress. In addition, analysis of disease progress in conjunction with research relating the stage of potato plant development and occurrence of airborne *Alternaria solani* inoculum to physiological time units (P-days) has significantly increased understanding of the epidemiology of potato early blight. These research results have been used to develop an effective forecasting system for early blight on potato. This forecasting program was combined with BLITECAST, the late blight forecasting program developed at the Pennsylvania State University, into a Potato Disease Management Program software package for microcomputers. In 1987 the use of this program saved over $350,000 on 27,000 acres of potatoes in the Midwest, and its use continues to increase. This program was recently combined with modules, developed by colleagues at the University of Wisconsin, that integrate disease management with insect management, emergence prediction, and irrigation scheduling into a potato crop management software package. His fungicide research program on potatoes led to national labels of fungicides for late blight control.

His efforts have also demonstrated the feasibility of controlling foliar diseases of potato by applying fungicides through center-pivot irrigation systems. Research on use of protectant fungicides on potato seed pieces led to the unexpected observation that thiabendazole applied to potato seed pieces of some cultivars caused reductions in stand establishment and yields. The effectiveness of his total program was recognized by the Indiana Vegetable Growers Association in 1980 and the Wisconsin Potato and Vegetable Growers Association in 1986 with awards of appreciation, and the Wisconsin Cooperative Extension Service in 1988 with an award for excellence.

Dr. Stevenson's extension and research activities also include development and testing of disease forecasting strategies for white mold of snap beans. Additionally, fungicide evaluations have provided the data necessary for the approval of fungicides for the control of Botrytis leaf blight of onion and bottom rot of lettuce.

His focus of research with mint growers has centered on the importance of growing pathogen-free rootstocks. He was instrumental in establishing a spearmint and peppermint nursery on one of the University of Wisconsin research stations to demonstrate the potential benefit of using pathogen-free propagation material.

Through his extension activities, he has been a leader in the application of computers to assist in the development of disease control recommendations and to provide access to current information. He has prepared over 140 Pest Profile modules that provide up-to-date information on diseases of 23 vegetable crops. These Pest Profiles can be accessed by county extension agents and growers through the University of Wisconsin-Extension computer system. He has served on numerous state, regional, and national committees concerned with computer applications in agriculture.

Teaching Award

This award was established in 1987 by the APS Council in recognition of excellence in teaching plant pathology. The award is presented to individuals with active responsibility for one or more courses in plant pathology and recognizes the individual's distinguished proficiency in teaching, as indicated by development and effectiveness of courses taught.

Harold S. McNabb, Jr.

Harold S. "Sande" McNabb, Jr., has served Iowa State University and the people of Iowa with tremendous dedication and energy. Sande has proved to be an able and productive researcher with a national and international reputation. However, in spite of his active research career, students and teaching have always been the focus of his professional life.

Whether its graduate students or elementary school children, Sande has exhibited that special gift in teaching—the challenging of students to reach toward the horizon of the topic being discussed. The 20 Ph.D. and 18 M.S. degrees awarded under his supervision attest to his

belief in the responsibility of "passing on the torch of knowledge" to the future professionals.

McNabb is a skilled classroom teacher who consistently tries to challenge his students. His approach to teaching is student centered, and he strives to teach students how to become independent learners and to apply their knowledge in problem-solving situations. He is intensely interested in the total education of students. Current "buzzwords" in higher education, i.e., critical thinking ability, communication skills, and international perspective, have been part of Dr. McNabb's teaching for a long time.

Following a sabbatical leave in 1973 in Great Britain, Sande was convinced that his teaching needed to take a new direction. He had been teaching a popular and effective forest pathology course for 20 years but felt that students were being "cheated" if they were not given a truly integrated course in forest pest management. He began working with Dr. E. R. Hart of the Entomology Department. Together, they developed an interdisciplinary course in forest protection. Both McNabb and Hart are committed to quality teaching, and they put a tremendous amount of work into developing the course. Their time and effort were well spent; they have created a very exceptional course.

Plant Pathology 416, Forest Pest Management, was offered for the first time in 1976. The course has now been taught about 10 times, and it continues to evolve. Significant changes are made every year. This is truly a team-taught course. Both professors are in the classroom and laboratory nearly all of the time. They have developed a unique teaching style in which they often lecture by carrying on a dialogue intended to challenge current statements of fact and stimulate students to make their own interpretations. Students are encouraged to work together in reaching their own conclusions based on the available data. Student collaboration rather than competition is stressed. "After all, forest pest management decisions in the real world should be reached using the team approach," Sande often says to persons critical of this teaching method. Most tests and the final exam are open book with problem solving being stressed.

In the laboratory, students are again stimulated to think critically and creatively. During the first half of the term, students are introduced to the various forest pests. Their assignment during this portion of the laboratory is to work individually in creating dichotomous keys for the diagnosis of tree health problems. The latter portion of the term is devoted to computer simulations and group projects in which the students apply their knowledge to the solution of forest pest management problems.

Dr. McNabb's concept of education has never been restricted to the classroom or the university campus. In the 1960s, he was involved in the Iowa Academy of Science Visiting Scientist Program, making many enthusiastic participatory presentations in high school biology classrooms throughout Iowa. Students were involved in culturing and inoculating pathogens as a part of his class contacts. He was a member of North Central Association teams that made accreditation visits to Iowa high schools during this period. He also was actively involved in the Iowa State University High School Teacher Research Participation Project sponsored by NSF.

Throughout his career, Sande has made room for talented high school students to work in his laboratory during the summer. He has taken hands-on science exhibits to the State Fair, the Farm Progress Show, and to Iowa high schools and science fairs. More recently, Sande has used the *Agrobacterium*-crown gall disease and in vitro plant culture in his hands-on presentations to elementary and secondary schools to take the mystery out of genetic engineering. For his efforts with one high school over the past two years, he was named Honorary Chapter Farmer by the school's FFA chapter. Sande is truly an energetic ambassador for our profession.

Perhaps Dr. McNabb's greatest influence on undergraduates is on the many students who have worked in his laboratory on research projects or simply for hourly wages. He has influenced many to pursue careers in science. But perhaps most importantly, regardless of their career interests, Sande is sincerely interested in their academic, social, and personal development. His greatest gift is his ability to relate to students as individuals, and the many letters that were attached to his nomination statement attest to the fact that Sande has had a tremendous influence on the lives of many of his students, both in and out of the classroom.

Ruth Allen Award

The Ruth Allen Memorial Fund was established in 1965 by means of gifts from the estate of Dr. Ruth Allen through the generosity of her heirs: Sam Emsweller, Mabel Nebel, Hally Sax, and Evangaline Yarwood. The award, consisting of a certificate and income from the invested fund, is given for outstanding contributions to the science of plant pathology.

Thomas P. Pirone

Thomas P. Pirone was born on January 3, 1936, in Ithaca, NY. He obtained a B.Sc. degree in plant science in 1957 from Cornell University and then studied plant pathology at the University of Wisconsin where he obtained a Ph.D. degree in 1960. He has enjoyed a highly productive research career at Louisiana State University (1960–1967) and at the University of Kentucky (1967 to present) where he holds the rank of professor of plant pathology. He was chairman of the Department of Plant Pathology from 1978 to 1986. His teaching and research programs are concerned with plant virology and virus/vector relationships. He has served as major professor for nine Ph.D. and six M.Sc. students.

Dr. Pirone is honored for his significant contribution to the understanding of the interactions underlying aphid transmission of the nonpersistent plant viruses. His interest in this subject stemmed from the mid-1960s when he questioned the prevailing concept that these viruses were carried on the tips of aphid stylets and that their transmission was essentially mechanical. He sought to determine the basis for the specificity involved in such transmission by careful examination of the factors responsible for variation in the transmissibility of cucumber mosaic virus and the reasons for the nontransmissibility of tobacco mosaic virus. His research during the 1960s led to the discovery that purified potyviruses and caulimoviruses, although highly infectious by mechanical transmission, are not transmissible by aphids. This phenomenon was subsequently explained by the discovery of B. Kassanis and D. A. Govier of the requirement for a "helper component" in the aphid transmission of potyviruses, and then in Dr. Pirone's lab of the requirement for an "acquisition factor" for caulimovirus transmission.

It was during a sabbatical leave at the Rothamsted Experimental Station in 1974 with Kassanis and Govier that Dr. Pirone's research on characterization of the potyvirus helper component was initiated. The helper component of potato virus Y (PVY) was shown to be a protein unrelated to virus coat protein or inclusion protein, and its molecular weight was estimated to be

100–200 Kd. Its biological activity could be inactivated by treatment with pronase or trypsin. Subsequent research by Dr. Pirone and colleagues at the University of Kentucky demonstrated that the helper components of two potyviruses, PVY and tobacco vein mottling virus, were serologically distinct and strongly indicated that the helper component was encoded in the viral genome. The helper components of TVMV and PVY were purified to homogeneity and shown to be polypeptides of subunit molecular weights 53 and 58 kDa, respectively. The active helper component is likely a dimer of the monomeric unit. Direct evidence that the helper component is a viral gene product was first obtained by in vitro translation of the genomic RNAs of potyviruses and the immunoprecipitation of the products with helper component-specific antisera. Most recently, Dr. Pirone and colleagues have obtained expression of the helper component gene in transgenic plants.

In addition to biochemical and molecular studies, Dr. Pirone's group has continued to actively study the transmission process itself. The capsid protein of the tobacco etch potyvirus was shown to play a role in determining the efficiency of transmission, and evidence was obtained that aphids that acquire as few as 15 virus particles are capable of transmission. The demonstration that biologically active helper components, but not inactivated helper components, affect the localization of virus in the mouthparts and alimentary canal anterior to the gut of the aphid and that aphid transmission is associated with such localized virus further refines our understanding of the interaction between the virus and the vector and may eventually lead to an understanding of the specificity involved in the transmission of nonpersistent viruses.

The results of Dr. Pirone's research in the past decade have had a major impact on the study of nonpersistent viruses and their vectors. Consideration of these relationships has evolved from that of a mere mechanical contamination of the aphid mouthparts to the specific interaction between a virus-encoded helper component, the virus, and the aphid. Laboratories in North America, Europe, Japan, and Israel are now investigating the biological, chemical, and molecular aspects of the interaction. Dr. Pirone's continued research, coupled with that of others, on the role of helper component in vector transmission of the potyviruses, a virus group that includes many economically important viruses, paves the way for future basic approaches to studying the mechanism of transmission of nonpersistent viruses and for the development of novel means of virus disease control through directed interference in the transmission process of these viruses. A measure of the significance of Dr. Pirone's role in this research is the invitation to communicate his findings at international congresses on entomology, plant pathology, plant virology, and plant virus epidemiology. His research has been sponsored by extramural funding since 1964 and is currently supported by grants from the USDA Competitive Grants Program, R. J. Reynolds Corporation, the U.S.-Israel Binational Research Fund (BARD), and by a USDA Cooperative Agreement.

Dr. Pirone has been honored by the University of Kentucky Research Foundation (Outstanding Research Award, 1974), as a recipient of a Senior Fulbright Research Fellowship (1974–1975) and as a fellow of APS in 1980. He has served as a senior editor of *Phytopathology* (1977–1978), on the editorial board of *Annual Review of Phytopathology* (1985), as a member of the National Institutes of Health Recombinant DNA Committee (1984–1987), and as the manager of the 1988 USDA Competitive Grant Program in Plant Pathology and Weed Science.

Ciba-Geigy Award

Sponsored by the Ciba-Geigy Corporation, this award is given to individual plant pathologists who have made significant contributions to the advancement of knowledge of plant diseases or their control. The award consists of a trophy and an expense-paid trip to Basel, Switzerland.

Laurence V. Madden

Laurence V. Madden was born on October 10, 1953, in Ashland, PA. He received his B.S. degree in biology in 1975, his M.S. degree in plant pathology in 1977, and his Ph.D. degree in plant pathology with a minor in statistics in 1980 from the Pennsylvania State University. His graduate program was under the guidance of Stan Pennypacker.

Dr. Madden joined the Department of Plant Pathology at the Ohio State University in 1980 as a postdoctoral research associate to work on the epidemiology of maize virus diseases in cooperation with Ray Louie and John Knoke. They determined which aphid species were most important in spreading maize dwarf mosaic virus (MDMV). He also developed a procedure that predicts the relative incidence of MDMV based on environmental conditions before planting; demonstrated that ambient weather conditions during a season are not sufficient to predict weekly levels of MDMV; developed methodology to ascertain the pattern of virus-infected plants, which is useful for elucidating the means of virus spread; and demonstrated and quantified the dispersal of MDMV from overwintering hosts to susceptible corn.

In 1983, Dr. Madden was promoted to assistant professor. He then extended his research into several additional areas. With colleague Mike Ellis he initiated a major study of the effects of environment on fungal plant diseases. He and graduate students and postdoctoral associates working under his direction quantified the effects of temperature and wetness duration on infection and sporulation of several fungal pathogens of fruit crops. Dr. Madden has developed and validated disease prediction systems in which models are incorporated into field-based microprocessors that record and process environmental measurements to project optimal timing of fungicide applications. Dr. Madden recently developed a unique and important program of research on the mechanisms of rain splash dispersal. Results have shown how fungal spores are dispersed in single splash events and are distributed throughout a field during a rainstorm.

Dr. Madden continues to be actively involved in research on epidemics caused by plant pathogens with insect vectors. He and co-workers in Ohio and Kentucky showed that nonpersistent viruses increase in a consistent manner and that the pattern of diseased plants progresses from random to highly clustered and then becomes random again. These results have greatly increased the understanding of the population dynamics and dispersal of nonpersistent viruses at the population level. Recently, he developed dynamic models for virus disease increase as a function of vector numbers. Additionally, his work with L. R. Nault has contributed significantly to the knowledge of the coevolution of plant pathogenic mollicutes, their vectors, and plant hosts. They showed that mollicutes are differentially pathogenic to leafhopper vectors, depending upon their history of evolutionary association

with the different leafhopper species.

Dr. Madden has conducted research on the assessment and modeling of yield loss since he was a graduate student. In addition to his work with virus diseases, he and Randy Rowe have a program on modeling yield losses in potatoes due to early dying, the most serious uncontrolled disease of potatoes in the United States. A predictive, discriminant model was developed and validated, and should eventually improve management of this disease.

Dr. Madden is a world authority on the development and use of statistical models and analytical techniques for describing and comparing plant disease epidemics in time and space. His work on the development and interpretation of flexible disease progress models and the interrelationship between spatial patterns of inoculum or diseased plants and resulting disease increase are of great significance.

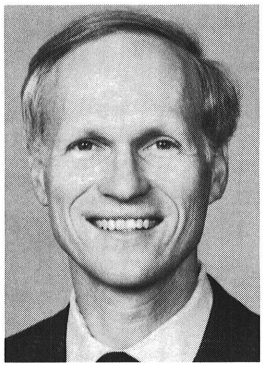
Dr. Madden is an exceptional young scientist; in his relatively short career he has published 60 refereed papers, 11 book chapters, and numerous nonrefereed technical papers and trade journal articles. He has been an invited speaker at many national and international meetings. He also has received several competitive grants to support his work. He was promoted to associate professor in 1986 after only three years as assistant professor. Dr. Madden maintains a strong commitment to graduate education. Although he has no formal teaching appointment, he developed and teaches a course in epidemiology at Ohio State and has coauthored with C. Lee Campbell a textbook on plant disease epidemiology, scheduled to be published at the end of 1989.

Dr. Madden has been very active in APS. He has been a member of and chaired the Epidemiology and the Plant Disease Losses committees, he serves on the editorial board of APS Press, and is a senior editor of *Phytopathology*, perhaps being the youngest senior editor that the journal has had.

Lee M. Hutchins Award

The Lee M. Hutchins Fund was established in 1979 by means of gifts from the estate of Dr. Lee M. Hutchins. The award, consisting of a certificate and income from the invested fund, is made for the best contribution to basic or applied research on diseases of perennial fruit plants (tree fruits, tree nuts, small fruits and grapes, including tropical fruits but excluding vegetables). The results of the research must have been published in an official journal of the Society.

Turner B. Sutton



Turner Bond Sutton was born on October 24, 1945, in Windsor, NC. He earned a B.A. degree in botany and chemistry in 1968 from the University of North Carolina and M.S. and Ph.D degrees in 1971 and 1973, respectively, from North Carolina State University. From 1973 to 1974 Dr. Sutton served in a postdoctoral position at Michigan State University where he worked with Dr. Alan Jones. He returned to North Carolina State in 1974 as a post-doctorate to assume responsibilities for developing a disease management program for apples in North Carolina. In 1976 he accepted a tenure-track position in the Department of Plant Pathology with teaching and research responsibilities in fruit diseases.

The primary thrusts of Dr. Sutton's research include the biology and ecology of major apple pathogens, the role of fungicides in apple disease management, and the development and assessment of strategies for pesticide use. A research emphasis on summer diseases of apples has resulted in a better understanding of inoculum sources, periods of spore release, and factors that affect fruit susceptibility and disease development throughout the season. For instance, the role of the four mycelial types of *Gloeodes pomigena* in infection and their sensitivity to fungicides are being determined. Methods to quantify sporulation of *Zygophiala jamaicensis* have been developed and environmental factors affecting disease development have been quantified. The effects of pruning on the incidence and severity of flyspeck and sooty blotch also have been elucidated. Studies with these fastidious pathogens and the more common ones, such as *Botryosphaeria obtusa, B. dothidea*, and *Glomerella cingulata*, are resulting in the development of more timely and effective disease management recommendations.

Dr. Sutton and his students have studied factors affecting the ontogeny of *Venturia inaequalis* under North Carolina conditions and have developed a model for predicting pseudothecial maturation. They determined that a period of dormancy was required, irrespective of environmental conditions. A model developed in New York State, based on temperature after leaf fall, was found to be inadequate in North Carolina. It predicted maturation much earlier than the date when ascospore discharge actually occurred.

Other investigations have focused on the use patterns of fungicides in the orchard and the efficacy of nonregistered fungicides. Professor Sutton demonstrated the widespread presence of benomyl-resistant strains of *V. inaequalis*, which led to the removal of this fungicide from North Carolina recommendations in the mid-1970s. Moreover, weakness in the broad spectrum activity of captan and mancozeb against summer diseases led to the evaluation of combinations of these compounds with a benzimidazole fungicide for improved control, resulting in recommendations for these combinations in North Carolina and other southeastern states. Other research has led to the development of protocols for use of the ergosterol biosynthesis inhibiting fungicides where summer diseases are a concern. Since the application of pesticides is necessary for an effective and economical disease management program, Dr. Sutton and colleague, Dr. C. R. Unrath, studied pesticide deposition and provided information for the refinement of a tree-row-volume model. Use of the model permits consistent application of pesticide deposit throughout the season as well as between orchards.

Among his many research accomplishments, his recent paper, "Biology and epidemiology of *Mycosphaerella pomi*, cause of Brooks fruit spot of apple" (*Phytopathology* 77:431-437), is a unique and important contribution to the literature on apple diseases. In this 1987 paper, Dr. Sutton and co-workers elucidated the disease cycle of *M. pomi*, an ascomycetous fungus, which causes Brooks fruit spot on apple. Although it was previously known that *M. pomi* was the causal agent for this disease and that pseudothecia in fallen leaves was the overwintering stage, no leaf symptoms had been associated with the disease and it was not known how or when leaves became infected. The careful and thorough research reported reveals not only the answers to the scientific mystery of the relationship between *M. pomi* and apple leaves, but also provides epidemiological information essential for the successful management of this disease.

AWARDS

Award of Distinction

1967 E. C. Stakman*
1969 J. C. Walker
1972 J. G. Horsfall
1980 H. H. Flor
1983 A. Kelman
1983 G. A. Zentmyer
1987 R. G. Grogan
1988 M. K. Brakke

Ruth Allen Award

1966 H. H. Flor
1967 F. O. Holmes
1968 M. K. Brakke
1969 W. C. Snyder*
1970 J. B. Bancroft
1971 Hidefumi Asuyama
1971 Yoji Doi
1971 Tatsuji Ishiie
1971 Michiaki Teranaka
1971 Kiyoshi Yora
1972 R. L. Steere
1973 F. M. Latterell
1973 H. H. Luke
1974 A. C. Goheen
1974 W. B. Hewitt
1974 D. J. Raski
1975 I. A. M. Cruickshank
1976 T. O. Diener
1977 J. W. Gerdemann
1977 D. H. Marx
1978 L. M. Black
1979 J. E. Vanderplank
1980 H. H. Murakishi
1981 R. J. Shepherd
1982 Allen Kerr
1983 S. Bartnicki-Garcia
1983 C. E. Bracker
1983 J. Ruiz-Herrera
1984 Wen-Hsiung Ko
1985 W. F. Rochow
1986 Richard M. Lister
1987 Deane C. Arny
1987 Steven E. Lindow
1987 Christen D. Upper
1988 Paul G. Ahlquist

Campbell Award

1974 R. D. Berger
1976 Karen Kearney
1976 Joseph Kuc
1976 Gary Shockley
1978 J. F. Shepard
1978 R. E. Totten
1980 B. J. Jacobsen
1980 H. J. Hopen

CIBA-Geigy Award

1975 D. J. Hagedorn
1975 A. L. Shigo
1976 W. W. Hare
1977 G. S. Abawi
1978 A. L. Jones
1979 A. A. MacNab
1980 W. J. Moller
1981 S. M. Mircetich
1982 J. M. Duniway
1983 G. R. Safir
1984 R. C. Rowe
1985 S. E. Lindow
1986 T. J. Burr
1987 M. A. Ellis
1988 C. T. Stephens

Lee M. Hutchins Award

1980 D. C. Ramsdell
1981 M. Bar-Joseph
1981 M. F. Clark
1981 S. M. Garnsey
1981 D. Gonsalves
1981 D. E. Purcifull
1982 J. W. Randles
1983 S. M. Mircetich
1988 G. I. Mink

Special Award

1983 John F. Fulkerson

Distinguished Service Award

1984 Thor Kommedahl

APS Fellows

1965 H. W. Anderson*
1965 H. P. Barss*
1965 A. C. Braun*
1965 C. Chupp*
1965 G. H. Coons*
1965 J. H. Craigie
1965 C. W. Edgerton*
1965 G. W. Fisher
1965 H. H. Flor
1965 M. W. Gardner*
1965 J. G. Harrar
1965 Helen Hart*
1965 W. B. Hewitt
1965 C. S. Holton*
1965 J. G. Horsfall
1965 L. M. Hutchins*
1965 J. H. Jensen
1965 G. W. Keitt*
1965 G. C. Kent
1965 J. G. Leach*
1965 L. D. Leach*
1965 G. L. McNew
1965 I. E. Melhus*
1965 P. R. Miller
1965 J. W. Oswald
1965 G. S. Pound
1965 A. J. Riker*
1965 H. A. Rodenhiser*
1965 E. C. Stakman*
1965 W. M. Stanley*
1965 Gerald Thorne*
1965 W. D. Valleau*
1965 J. C. Walker
1965 G. F. Weber*
1965 C. E. Yarwood*

1966 C. W. Bennett*
1966 L. M. Black
1966 V. W. Cochrane*
1966 A. E. Dimond*
1966 Charles Drechsler*
1966 David Gottlieb*
1966 G. H. Hepting*
1966 F. O. Holmes
1966 Thorvaldur Johnson*
1966 R. A. Ludwig
1966 S. E. A. McCallan
1966 K. O. Muller
1966 W. C. Snyder*
1966 E. E. Wilson*
1966 R. A. Young
1966 W. J. Zaumeyer

1967 R. M. Caldwell*
1967 F. L. Howard
1967 H. H. McKinney*
1967 J. S. Niederhauser
1967 Saul Rich
1967 Ikuzo Uritani

1968 J. S. Boyce*
1968 A. F. Ross
1968 W. N. Takahashi
1968 F. A. Wolf*
1968 G. A. Zentmyer

1969 D. L. Bailey*
1969 K. F. Baker
1969 R. G. Grogan
1969 J. W. Heuberger*
1969 Arthur Kelman
1969 W. C. Price

1970 L. J. Alexander*
1970 D. F. Bateman
1970 C. M. Christensen
1970 E. E. Clayton*
1970 R. W. Fulton
1970 W. F. Rochow
1970 J. E. Vanderplank
1970 P. E. Waggoner
1970 J. M. Wallace*
1970 H. E. Wheeler

1971 A. W. Dimock*
1971 M. E. Gallegly, Jr.
1971 W. Q. Loegering*
1971 Karl Maramorosch
1971 R. R. Nelson
1971 Luis Sequeira
1971 M. C. Shurtleff

1972 M. K. Brakke
1972 J. R. Christie*
1972 J. E. DeVay
1972 J. Galindo Alonso
1972 L. J. Klotz*
1972 E. S. Luttrell*
1972 A. G. Plakidas*
1972 R. L. Steere
1972 H. D. Thurston
1972 R. K. S. Wood

1973 E. V. Abbott
1973 G. M. Armstrong*
1973 G. A. Brandes
1973 T. O. Diener
1973 R. M. Lister
1973 R. L. Millar
1973 Michael Shaw
1973 R. J. Shepherd
1973 H. D. Sisler
1973 A. J. Ullstrup*
1973 Cynthia Westcott*

1974 G. W. Bruehl
1974 Stephen Diachun
1974 R. N. Goodman
1974 A. L. Hooker
1974 T. A. Shalla
1974 J. T. Slykhuis
1974 F. L. Wellman
1974 Stephan Wilhelm

1975 J. G. Bald
1975 A. A. Bitancourt*
1975 J. M. Daly
1975 J. F. Fulkerson
1975 J. W. Gerdemann
1975 W. F. Mai
1975 P. P. Pirone
1975 M. N. Schroth

1976 Antonio Ciccarone*
1976 R. H. Daines*
1976 J. P. Fulton
1976 D. J. Hagedorn
1976 Tsune Kosuge*
1976 H. H. Luke
1976 C. J. Nusbaum*
1976 J. G. ten Houten

1977 E. C. Calavan
1977 E. B. Cowling
1977 P. R. Day
1977 J. L. Lockwood
1977 G. C. Papavizas
1977 R. H. Stover
1977 Kohei Tomiyama

1978 A. H. Ellingboe
1978 C. J. Gould
1978 J. E. Mitchell
1978 Shu-Huang Ou
1978 Albert Siegel
1978 F. A. Todd
1978 S. D. Van Gundy
1978 Milton Zaitlin

1979 Robert Aycock
1979 V. H. Dropkin
1979 J. B. Rowell
1979 R. P. Scheffer
1979 I. R. Schneider
1979 J. S. Semancik
1979 W. L. Smith, Jr.*
1979 P. H. Williams

1980 Ralph Baker
1980 K. R. Barker
1980 J. A. Browning
1980 R. J. Cook
1980 R. J. Green, Jr.
1980 W. J. Hooker
1980 M. F. Kernkamp*
1980 T. Kommedahl
1980 T. P. Pirone
1980 L. F. Roth
1980 A. F. Sherf
1980 A. L. Shigo

1981 J. B. Bancroft
1981 J. A. Kuc
1981 C. Leben
1981 George Nyland
1981 A. O. Paulus
1981 C. O. Person
1981 S. P. Raychaudhuri
1981 R. E. Stall

1982 J. E. Duffus
1982 M. C. Heath
1982 L. H. Purdy
1982 R. Stace-Smith
1982 A. R. Weinhold

1983 G. N. Agrios
1983 G. W. Bird
1983 J. Bird-Pinero
1983 J. Dekker
1983 C. J. Delp
1983 R. I. B. Francki
1983 Y. Henis

1983 K. J. Leonard
1983 C. J. Mirocha
1983 D. E. Munnecke
1983 D. J. Samborski
1983 E. L. Sharp
1983 A. K. Vidaver

1984 W. R. Bushnell
1984 P. P. F. M. deNeergaard*
1984 R. D. Durbin
1984 G. E. Galvez-Enriquez
1984 C. W. Roane
1984 A. F. Schmitthenner
1984 M. D. Simons
1984 R. C. Staples
1984 J. F. Tammen
1984 G. E. Templeton
1984 S. A. Tolin

1985 R. D. Berger
1985 R. J. Campana
1985 R. E. Davis
1985 J. W. Eckert
1985 D. C. Erwin
1985 R. I. Hamilton
1985 J. Kranz
1985 H. H. Murakishi
1985 P. E. Nelson
1985 W. E. Sackston
1985 F. A. Wood*

1986 George E. Bruening
1986 Arun K. Chatterjee
1986 Elroy A. Curl
1986 W. Harley English
1986 Anton J. Novacky
1986 Joseph M. Ogawa
1986 Rosario Provvidenti
1986 Alan P. Roelfs
1986 Norman C. Schenck
1986 Peter H. Tsao
1986 Isaak Wahl

1987 Horace L. Barnett
1987 Michael G. Boosalis
1987 Richard A. Frederiksen
1987 Stephen M. Garnsey
1987 A. Morgan Golden
1987 Cedric W. Kuhn
1987 Frances M. Latterell
1987 Roger H. Lawson
1987 Gino Malaguti
1987 Srecko M. Mircetich
1987 Nathaniel T. Powell
1987 Albert D. Rovira

1988 Alois A. Bell
1988 Douglas W. Burke
1988 Urban L. Diener
1988 Eddie Echandi
1988 Gian L. Ercolani
1988 Chuji Hiruki
1988 Sung M. Lim
1988 Gad Loebenstein
1988 Donald C. Ramsdell
1988 John F. Schafer
1988 Hong-ji Su
1988 Ivan J. Thomason
1988 Billy G. Tweedy

*Deceased