

Fellows

Five members of the American Phytopathological Society were elected Fellows of the Society at the 1982 Annual Meeting in Salt Lake City, Utah. 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.

James E. Duffus



James E. Duffus was born on February 11, 1929, in Detroit, MI. He received a B.S. degree in botany at Michigan State University in 1951, and his Ph.D. in plant pathology at the University of Wisconsin in 1955. Since 1955, Dr. Duffus has been a research plant pathologist with the USDA, ARS, at the U.S. Agricultural Research Station, Salinas, CA. His area of research is viruses or viruslike diseases of sugar beet and other crop and weed hosts with a special

emphasis toward the persistent insect-transmitted viruses. He serves as research leader of Sugarbeet Production Research and leads a broad research program on sugar beets including the development of improved breeding lines, and investigations on their pathology, genetics, cytogenetics, nematology, and agronomy. While at Salinas, Dr. Duffus has become a world authority on sugar beet viruses, leafy vegetable viruses, and insect-transmitted yellowing viruses. He has described over one-third of the world's beet viruses and over one-half of California's lettuce virus diseases, and has developed an international reputation in the areas of insect transmission and plant virus epidemiology.

Dr. Duffus has discovered many "firsts" during his career. He was the first to realize that "beet yellows" of sugar beets was actually a complex of viruses, one of which he discovered and named beet western yellows virus. This was a very important discovery that had worldwide implications, because attempts to control beet yellows then could be directed at the entire complex. He also was the leader in studying the epidemiology of the viruses of the beet yellows complex in the USA, and this work led to the implementation of beetfree periods to control these viruses in California. Through this work he also was able to develop a method to inoculate plants with viruliferous aphids on sugar beets in the field for use in breeding programs. This allowed much more rapid development of sugar beet varieties tolerant to beet western yellows virus. He has demonstrated that beet western yellows virus is also an important pathogen of vegetables worldwide, and causes many diseases that were previously thought to be due to a variety of causes, such as nutritional deficiencies.

Dr. Duffus also discovered the first virus shown to be a pathogen of plants as well as an aphid vector. His paper on sowthistle yellow vein virus is a classic in the study of virus-vector relationships, and his initial work in this area has stimulated many researchers to further investigate the properties of these viruses that infect plants as well as insects.

Dr. Duffus was the first researcher to discover that the greenhouse whitefly was a plant virus vector. This finding was initially considered a curiosity; however, beet pseudo yellows virus has been recovered from naturally infected field plants,

and recently this virus has been demonstrated to be responsible for a serious yellowing disease of glasshouse vegetables in Europe. The virus is representative of a new group of damaging viruses transmitted by whiteflies.

Dr. Duffus' recent work has dealt with understanding the relationships among luteoviruses. He has used a serological technique, which he developed, and as an important sidelight of this work he has demonstrated that "potato leaf roll" can be caused by more than one entity. This work has stimulated researchers in all continents to reinvestigate the etiology and control of this disease.

Dr. Duffus has always argued that to understand what plant viruses are actually doing in the field, we must use the vector in the laboratory, and not rely solely on mechanical transmission. The fruits of his research clearly demonstrate this point.

In recognition of his role in plant-insect-virus interactions he has been invited to present invitational papers for international meetings and organizations in nine countries on such diverse subjects as beet virus diseases, virus-vector relationships, virus transmission by aphids, virus transmission by whiteflies, serological relationships, epidemiology, virus diseases of vegetable crops, and disease management practices. Invitations from national and international organizations to present papers have been from organizations not only in his own field of emphasis, plant pathology, but from entomological, horticultural, biological, and crop protection organizations.

Dr. Duffus has served on various committees of the American Phytopathological Society, American Society of Sugar Beet Technologists, and the International Society for Plant Pathology. He has served two terms as associate editor of *PHYTOPATHOLOGY*, associate editor of *Plant Disease Reporter*, and associate editor of *PLANT DISEASE*.

Michèle C. Heath



Michèle Christine Heath was born September 22, 1945, in Bournemouth, England. She received a B.Sc. (Honors) degree in botany in 1966 from Westfield College of the University of London, England. In 1969, she earned the Ph.D. and D.I.C. in plant pathology from Imperial College of the University of London under the tutelage of Professor R. K. S. Wood. Her thesis was entitled "A comparative study of two leafspot diseases of

pea." As a postdoctoral research fellow in the Department of Plant Pathology at the University of Georgia from 1969 to 1971, she worked on the ultrastructure and biochemical basis of host-parasite specificity in rust fungi. In 1971, Dr. Heath came to the Department of Botany at the University of Toronto, Canada, as a research fellow with Verna J. Higgins working on in vitro and

in vivo degradation of pterocarpanoid phytoalexins. As lecturer in botany, 1972; assistant professor, 1973; associate professor, 1976; and professor, 1981, Dr. Heath's contributions to teaching, research, and service have been outstanding.

In the relatively short span of her professional career, Dr. Heath has come to be recognized as one of the intellectual leaders among plant pathologists and biologists interested in host-parasite relationships. Her studies have demonstrated a standard of technological excellence that will serve as a benchmark for many studies on parasitism in the years to come. Dr. Heath's contributions to our understanding of nonsusceptible resistance have provided a strong basis for continued experimentation into the mechanisms underlying both resistance and susceptibility to fungal pathogens. Her research exemplifies the approach of using innovative analytical technologies at the cellular and subcellular levels to focus on the critical states in the developmental sequence of interorganismal communications and interaction between parasitic fungi and their potential host cells. Her elegant cytological, cytochemical and ultrastructural studies conducted over carefully delimited time frames of the infection process have permitted a much more precise basis for the interpretation of events leading to pathogen-nonsusceptible interactions.

Beyond her excellence in research has been her intellectual leadership in the area of host-parasite relations. Dr. Heath is recognized for her innovative conceptualization and interpretations of the events in host-parasite relations. Her ideas and supporting research have illuminated the long restrictive "black-box" thinking associated with the use of the term "hypersensitive reaction." Her demonstration that incompatibility could be the result of a range of potential choices or "switching-points" that existed in the developmental sequences of a parasite on a susceptible or nonsusceptible host has stimulated others to more carefully analyze the initial events in parasitism. Likewise, her development of a generalized concept of host-parasite specificity has brought into unique focus the most plausible current genetic and biochemical theories relating to nonhost resistance, basic compatibility, and cultivar resistance. This generalized concept has provided a firm basis for experimentation and future understanding of resistance in plants.

Besides her contributions to host-parasite relations, Dr. Heath is widely known for her contributions to fungal cytology. In continuing collaborations with her husband, students, and other colleagues, she has demonstrated a high standard of excellence in the experimental use of electron microscopy and cytochemistry in developmental studies of rust fungi. Her book, "The Ultrastructure of Rust Fungi," coauthored with Dr. Larry J. Littlefield, is a valuable resource in both mycology and plant pathology.

Dr. Heath has been widely sought as an invited lecturer at international congresses, symposia, and at many universities. She has written a number of review articles on host resistance and infection by rust fungi.

Dr. Heath has substantial teaching responsibilities at the University of Toronto where she has a major role in the organization and presentation of biology to beginning students. She has taught plant morphology and evolution, and lectures in mycology and plant ultrastructure. In addition, she is active in advising both undergraduates and graduate students.

For her exemplary research, teaching, and service, Dr. Heath has been recognized as the 1979 recipient of the Huxley Memorial Medal from Imperial College of the University of London and in Canada as the 1982-1983 recipient of the E. W. R. Steacie Memorial Fellowship, the highest award presented by the Natural Sciences and Engineering Research Council of Canada.

Dr. Heath has been active professionally in the American Phytopathological Society. She is currently an associate editor of *PHYTOPATHOLOGY*. She also serves on the editorial board of *Caryologia* and is a senior editor of *Physiological Plant Pathology*.

L. H. Purdy



L. H. Purdy was born in Miami, AZ, September 28, 1926. He graduated from Point Loma High School, San Diego, CA, in June 1944. He attended the University of Montana in the Army Specialized Reserve Training Program and then entered active duty in the U.S. Army-Air Force. At the cessation of World War II, he returned to the University of Montana for another year and a half where he majored in chemistry. He transferred to San Diego State College in 1947 where

he received the B.S. degree in chemistry in June 1949. In September 1949 he began his graduate education at the University of California, Davis, where he studied the variability of taxonomic characters and infection processes in *Sclerotinia sclerotiorum* under the supervision of R. G. Grogan. The Ph.D. degree was awarded in January 1954.

In November 1953 he began his career as a research plant pathologist in the USDA Regional Smut Research Laboratory in Pullman, WA. His primary objective was chemical control of wheat smut. He demonstrated the efficacy of hexachlorobenzene (HCB) against seedborne and soilborne common bunt when formulations were applied to seed. Soil surface applications of HCB controlled dwarf bunt, and coupled with other studies, led to establishment of the time that plants are infected by the fungus. His research that demonstrated the effectiveness of HCB against seedborne and soilborne inoculum, led to the elimination of bunt as a deterrent to efficient wheat production in the Pacific Northwest.

Dr. Purdy elucidated various facets of the biology of wheat smuts, including the influence of soil moisture and soil temperature on the development of these pathogens. He studied heritability of resistance to flag smut and stripe rust and showed that pathogenic races of stripe rust were present in the Pacific Northwest.

September 1, 1967, marked the beginning of his tenure as chairman of the Plant Pathology Department at the University of Florida. During his tenure as chairman, the number of faculty positions increased by more than 25%, graduate student enrollment increased 500%, and several courses and teachers were added at the graduate level. The single most significant event was the procurement and planning of a new building facility for the department that was occupied in March 1979. Before that time the faculty of the department were scattered over the campus in four different and widely separated facilities. In late 1979 he changed responsibility and focused his efforts on research with sugarcane rust and smut, witches' broom of cacao, and renewed his activity with *Sclerotinia sclerotiorum*.

His service to the American Phytopathological Society began through membership on several committees and subsequently as treasurer (1970-1976). He was elected vice-president in 1977 and represented APS and its program needs on the Organizing Committee for the 9th International Congress for Plant Protection. From president-elect he became president in August 1979. He initiated planning for the Diamond Jubilee celebration of APS by appointing an organizing committee and a committee to seek funding for this celebration. His year as president culminated at the 1980 annual meeting where he gave his presidential address on "Plant Pathology, Change, and the Future."

In addition to membership in APS, Dr. Purdy is also a member of the Southern Division of APS (he was president of that Division in 1972); the Caribbean Division of APS; Asociación Latinoamericana de Fitopatología (ALF); American Association of Sugarcane Technologists, Caribbean Food Crops Society, and AAAS.

Richard Stace-Smith



Richard Stace-Smith was born May 2, 1924, in Creston, British Columbia, Canada. He received a B.S. degree in agriculture at the University of British Columbia in 1950 and then joined the staff at the Dominion Laboratory of Plant Pathology at Vancouver, British Columbia. He completed his Ph.D. degree studies at the Oregon State University in 1954 while on educational leave from this post. Since then he has remained at the Dominion Laboratory (now the

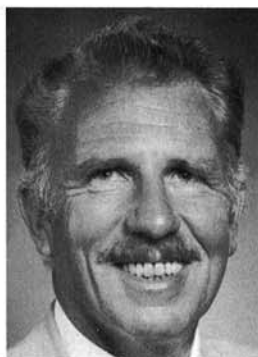
Vancouver Research Station of Agriculture Canada), apart from assignments at the Scottish Horticultural Research Institute, Dundee; the Glasshouse Crops Research Institute, Littlehampton, England; and most recently at the Victoria Plant Research Institute, Burnley, Australia. He has worked and published extensively on virus diseases of small fruits, tree fruits, potatoes, and other horticultural crops, and is regarded as an international authority in these areas. In the first decade of his professional career, he became a recognized world leader in the study of virus diseases of *Rubus* sp., particularly the red raspberry. During this period he elucidated the etiology of red raspberry mosaic as a complex of viruses. By the early 1960s he had published a series of definitive studies on the biology and transmission of *Rubus* virus diseases, and in 1970 he contributed to five chapters in a Handbook of Virus Diseases of Small Fruits and Grapevines. He is currently editing the *Rubus* section of a revision of this handbook, and has authored or coauthored five of the definitive plant virus descriptions in the CMI/AAB Plant Virus Descriptions Series.

From about 1960, Dr. Stace-Smith expanded his interests to virus purification, physical and chemical characterization, and practical immunology. In these areas he has made significant contributions to the study of several viruses, including tomato ringspot, tobacco ringspot, cherry leaf roll, tomato aspermy, and potato leaf roll. The focus of his work, however, has continued to be the development of methods for the identification, detection, characterization and control of viruses of current or potential economic importance to the small fruit, tree fruit, or potato industry of Western Canada. In this connection, he has made important contributions in the eradication of potato viruses, and in 1971 he was awarded the Public Service Merit Award as a member of the team that established the virus-free seed potato program in British Columbia.

His contributions to the profession include service to APS in various capacities. He has served as president of the Pacific Division, a member and chairman of the Virology Committee, and as director of the Pacific Division, and he was local arrangements chairman for the annual meeting at Vancouver in 1974. He has also served as secretary-treasurer of the Canadian Phytopathological Society, of which he was president in 1981-1982.

Other contributions to the profession of plant pathology in Canada include service as associate editor and editor of the *Canadian Journal of Plant Science*. He has taken part in many international symposia on plant virus diseases and his laboratory has attracted visiting workers from many countries. His strong support of international activities in plant pathology is also evidenced by his serving as chairman of the organizing committee of the International Symposia on Fruit Tree Virus Diseases and Small Fruit Virus Diseases held in British Columbia in June 1982. He assists in teaching undergraduate and graduate courses in virology at the University of British Columbia, and has supervised the training of several graduate students. Dr. Stace-Smith became head of the Plant Pathology Section of the Vancouver Research Station in 1981.

Albert R. Weinhold



Albert R. Weinhold was born on February 14, 1931, in Evans, CO. He received his B.S. degree from Colorado State University in 1953 and his M.S. degree from the same institution in 1955. He earned his Ph.D. degree from the University of California, Davis, in 1958. He served in the U.S. Air Force from 1958 until 1960. He joined the Department of Plant Pathology at Berkeley, CA, in 1960 as instructor, became assistant professor in 1961, associate professor in 1966, and

professor in 1972. He has served as chairman of the Department of Plant Pathology since 1976.

Dr. Weinhold is unique in having made significant contributions to plant pathology through distinguished administration, research, teaching, and service to the American Phytopathological Society. He is regarded as an extremely able administrator whose style is characterized as quiet, persistent, and democratic. The spirit of dedication and high morale in the Department of Plant Pathology at Berkeley is largely attributable to Dr. Weinhold's leadership. During his tenure as chairman, the quality of the graduate program has been enhanced, an excellent junior faculty has been secured, and space and facilities have been increased to the greatest extent since the founding of the department. Also, he played a key role in the expansion of the department to include a Division of Molecular Plant Biology. Dr. Weinhold has served on numerous committees at the university, college, and statewide levels, and was chairman of many of these. Because of his recognized administrative talent, he was recently asked to serve as temporary cochairman of the Department of Conservation and Resource Studies, in addition to his chairmanship of the Department of Plant Pathology.

Teaching has been a major commitment throughout Dr. Weinhold's career. He was involved in teaching Physiology of Plant Diseases from 1963 to 1976 and Diagnosis of Plant Diseases since 1968. He continues to be involved in the latter course in spite of his administrative responsibilities. He is regarded by students and colleagues as an excellent instructor.

Dr. Weinhold has done noteworthy research related both to the science and practice of plant pathology. His early research on potato scab and on the influence of green manures on control of scab is widely cited. He discovered that ethanol will replace the substances present in natural substances that promote growth of *Armillaria mellea*. This provided an opportunity for Dr. Weinhold and his students to determine the nutritional requirements for *A. mellea* and to investigate the physiology of rhizomorph initiation.

His work on the biology and host-parasite relations of *Rhizoctonia solani* ranks as a major contribution. Studies on the physiology of the infection process provided valuable insights into the role of pathogen nutrition in aggressiveness, the initial host responses to infection, and the role of host exudates in providing nutrients and inducing pectinolytic enzymes. Research by Dr. Weinhold and his students on the biology of *R. solani* was greatly facilitated by his development of a quantitative procedure to assay for the populations of the pathogen in soil. With this procedure it was possible to determine natural population levels in agricultural soils, show that inoculum density is dramatically affected by cropping practices, relate population to disease severity in the field, and to more effectively interpret the results of seed treatment trials.

An expansion of the ecological research on *R. solani* (AG4) to the potato *Rhizoctonia* (AG3) resulted in the discovery that this fungus does not survive in soil in the major potato-growing area of the state. This had significant practical implications because

it formed the basis for studies showing that in this region the disease could be controlled by seed tuber treatment. This practice has been adopted by potato growers and is considered an important contribution to California agriculture. Dr. Weinhold and his associate Tully Bowman revealed that a moderate to severe incidence of stem and stolon canker reduced the percentage of marketable tubers by 8 to 10%, with a corresponding increase in cull tubers. This work has helped

resolve a long-standing controversy regarding the significance of this disease.

Dr. Weinhold has served the American Phytopathological Society with distinction. He was senior editor of *PHYTOPATHOLOGY* for three years, then editor-in-chief for three more years. He has been a member of four subject matter committees, and is currently president-elect of the Pacific Division of APS.