



The Pathogen

Department of Plant Pathology, University of Wisconsin-Madison

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Albert H. Ellingboe - Retirement Congratulations

After a distinguished career in plant pathology, which included the last 20 years as a Professor in the UW Departments of Plant Pathology and Genetics, Albert H. Ellingboe officially retired and became Professor Emeritus on May 23, 2004. Events held in his honor included a stimulating afternoon symposium on the genetics of host-pathogen interactions (see inset).

Most plant pathologists associate Professor Ellingboe with a determined defense of Harold Flor's original conclusion that there is a complementary relationship between genes for resistance in the host plant with genes for pathogenicity in the parasite. Some early skeptics held fast to the concept that virulence and susceptibility, rather than avirulence and resistance, were the active factors in most gene-for-gene interactions. Al rebutted this line of thinking very effectively. He advocated conclusions that were consistent with the available data, and he advocated further genetic and molecular genetic studies to test different models for these interactions. Early data suggested that in any given interaction, a single plant *R* gene product and a single pathogen *Avr* gene product were the sole contributors to defense. However, as investigations pressed forward, this model was modified. Al's detailed genetic studies, along with the work of others, revealed modifier genes and other genes required for the expression of avirulence in the pathogen or resistance in the plant. Interactions with Al, social or

otherwise, often came around to his drawing quadratic checks and other more elaborate gene interactions on any available piece of paper or blackboard, while he explains the details and becomes more and more animated. Many scientists were stimulated by Al's contributions. Their discoveries about the molecular basis of gene-for-gene

resistance have been among the more important advances in plant pathology, with an influence extending more broadly across plant biology and immunology. Indeed, Harold Flor could not have imagined a greater champion of his ideas and conclusions than Al Ellingboe.

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Symposium Held in Ellingboe's Honor



Dallice Mills, Mark Farman, Roger Wise and Al Ellingboe.

Not unlike some of his old cars and tractors, Al Ellingboe retired with a big bang. A mini-symposium held in his honor focused on the genetics of plant-microbe interactions. Two former students, Dallice Mills of Oregon State University and Roger Wise of USDA-ARS at Iowa State University, as well as former post-doc Mark Farman of University of Kentucky, were the featured speakers. Andrew Bent served as moderator. The talks were titled: The Shaping of Scientific Thought: A Tribute to Albert H. Ellingboe (Mills); Flor Revisited: Systems Biology in Barley-Powdery Mildew (Wise); and Host-Pathogen Interactions in the Rice Blast Pathosystem (Farman). The event took place on May 17 at the UW Biotechnology Center. This date, Syttende Mai, or Norwegian Independence Day, was highly appropriate considering Al Ellingboe's proud heritage and newfound independence! The tenor ranged from deeply scientific to humorous, and more than a few quadratic checks were in evidence. At a reception following the symposium, Al with his wife Ann introduced the F_1 and F_2 generations of their family. Chair John Andrews presented Al with a gift certificate to the Norske Nook, the famous bakery/restaurant that Al simply could not pass by with a van full of Plant Pathology 559 students. Al also proudly wore on his lapel a button pleading "Legalize Lutfisk."

Chair's Message - *Some Thoughts on the Recent Past and the Future*

John Andrews

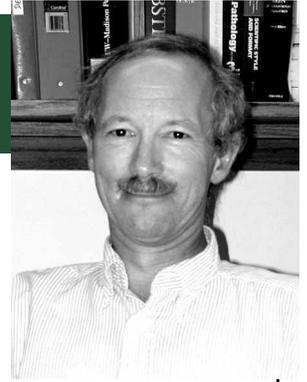
Another busy academic year has slipped away quickly, one that has seen the usual assortment of transitions for our department. Among the highlights are the following. We were pleased to welcome many new undergrad and grad students, while wishing numerous others well as they left the department to continue their careers elsewhere. The recruitment for a USDA potato pathologist ended successfully; Dennis

Halterman, formerly in a USDA position at Iowa State University, has within the past days joined us. He will continue in a research area on the genetics of disease resistance that is very similar to the one vacated last year by the retirement of John Helgeson. This, incidentally, is our fifth faculty position filled in six years (the other new members being, in the order of their arrival, professors Bent, Jung, Keller, and Charkowski), one of the most active phases of faculty hiring in our history! At the same time, the passing in this past year of Bob Fulton, an early and seminal leader in the rapidly evolving field of plant virology during the 1950's-1980's has saddened us. We also mourn the loss of another great virologist, Gus de Zoeten. We are comforted, however, knowing that these fine men were excellent mentors, and their scientific offspring carry on their legacies.

I stepped down as department chair on June 30 after six years in this role and have been asked to provide some personal reflections. Rather than dwell on the past, for now I will say simply that being chair has been an enlightening and enlarging experience. I thank all those of you who have helped me as chair and who have served the department diligently, in many cases unheralded behind the scenes. It has been an honor to have your trust in leading such an outstanding department. Indeed, it is a humbling experience to have been placed among the remarkably talented individuals who preceded me in this role, beginning with L.R. Jones in 1910. I believe the greatest strength of this department is its diversity of talent together with the fact that, from our inception, we have emphasized both basic and applied science. To capitalize on our diversity, we must continue to strive for ways to collectively plan and build on common themes for the good of the department.

As one looks to the future, I think there are three important things to keep in mind. First, a fundamental goal always must be to recruit the very best students and staff; simply put, to enhance excellence we should be continually trying to replace ourselves with those who are better than we are. Second, we need to build on the foundation laid in the past few years in planning for a new building. This long-term, ambitious task is not for the faint-of-heart! However, if we fail to do so now, we will find ourselves yet another decade further down the road and in a real crisis, given the relatively long lead-times necessary for planning, fund-raising, and construction. Delay will adversely affect the quality of our science and ultimately our ability to attract top-notch students and staff. Finally, we must remain in the limelight of our central scientific organization, the American Phytopathological Society. This does not mean we should jettison our other professional ties, nor is it desirable to do so. After a hiatus of some 15 years (since the presidency of Paul Williams in 1990) we now have someone in the officer lineage, and it is gratifying to note that both persons nominated for vice-president this year (Jan Leach and John Sherwood) are Wisconsin graduates. We need to encourage our graduate students to join APS, and the senior faculty should be mentoring and nominating their junior peers to positions of leadership in the society. This is a tradition we pass from generation to generation.

I wish you all well and am pleased and confident to pass the chairmanship to the capable hands of Murray Clayton.



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Dennis Halterman Joins Faculty



Dennis Halterman joined the UW Department of Plant Pathology and the USDA-ARS as an Assistant Professor on July 1, 2004. A major focus of his program will be host resistance to *Phytophthora infestans*, the late blight pathogen of potato and tomato. Dennis earned his B.S. degree at Cornell College in Mount Vernon, IA, majoring in Biology and Biochemistry. In 1999 he received a Ph.D. in Biochemistry from Purdue University. His thesis research concerned the molecular genetic characterization of the fenthion insecticide lesion-forming response and Pto-mediated *Pseudomonas syringae* pv. *tomato* resistance in tomato. His post-doctoral research at Iowa State University dealt with the characterization of genes involved in resistance of barley to powdery mildew. Dennis's program will be housed on the seventh floor of Russell Labs.

Labor of Love: Durbin Writes Book on Wisconsin River

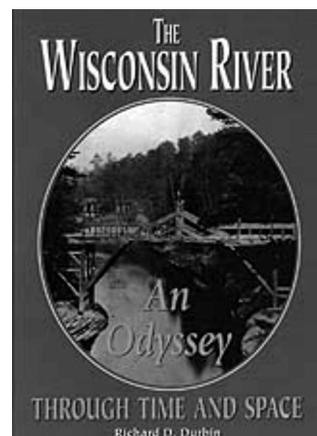
Many alumni and staff of the UW Department of Plant Pathology have fond memories of canoeing at least a short stretch of the Wisconsin River. Emeritus Professor Rick Durbin has more than memories. He has written a 237-page history of the river, with an emphasis on its role in the evolution of the Badger State through the 19th century. Durbin wrote *The Wisconsin River: An Odyssey through Time and Space* for history buffs and outdoor enthusiasts alike, drawing primarily from original material and newspapers of the time. The idea for the book came to Durbin in the mid 1980's, but it was after retiring in 1990 that he started in earnest to document his vast knowledge so that others could appreciate the Wisconsin. The book was published with support from the state after the Governor's Sesquicentennial Commission selected it to commemorate Wisconsin's 150th birthday in 1998.

Each county graced by the Wisconsin River from northernmost Vilas where the headwaters gather to Crawford where the waters meet the Mississippi, is featured in its own chapter. This format allows readers to "jump in" wherever they like and focus on their favorite segment of the river. Along the way, 24 vignettes highlight the institutions and events associated with the Wisconsin River (for example, railroads, steamboats, and early travelers).

First used for travel and habitation by the Indians, the river later became important in the French, British, and American fur trade, then as a major artery for the flow of lumber from the north woods of Wisconsin to the Mississippi, and eventually to the treeless Great Plains. Nowadays, the upper section has become a provider of electricity for utilities and paper mills. Much of the remainder, especially in the lower half, is now a recreational resource. This social and geographical history book is illustrated with numerous photos from the 1800's and maps showing dams,

portages, access points, and communities. As one might expect from a retired scientist, the facts are documented in an extensive bibliography.

If you cannot make it back to Wisconsin to enjoy this splendid river in person, do the next best thing. Enjoy it through the eyes of one of the river's greatest fans!



For more information or to order contact:

Richard Durbin (autographed copies available exclusively from this source!)
Phone: (608) 798-4265
E-mail: rddurbin@wisc.edu

Or order at:

www.wisc.edu/wisconsinpress/
The Wisconsin River: An Odyssey through Time and Space, by Richard D. Durbin. Published by Spring Freshet Press; 1997. ISBN: 0-9658559-0-2. \$27.50.

In Memoriam

Gustaaf A. de Zoeten (1934-2003)



Professor Emeritus Gustaaf (Gus) A. de Zoeten passed away on November 29, 2003 in Denver, CO, as a result of cancer. The varied circumstances surrounding his personal and professional life served to create a legacy of respect for his scientific accomplishments and an appreciation for his role as mentor and friend to students and colleagues

that will be long remembered.

Gus was born in 1934 in Tjepoe, Indonesia. Following the invasion of Indonesia during World War II, he spent four years in concentration camps. At the end of the war his family moved to The Netherlands, where he resumed his education at the age of 13. In 1957, he received his degree as a candidate in Horticulture and Entomology at the State Agricultural University in Wageningen and spent the following year working on physiological diseases of fruit trees in South Africa. In 1960, he earned his M.S. in Horticulture, Plant Pathology, and Organic Chemistry at Wageningen. Following two years of service as a meteorologist in the Dutch Royal Navy, he moved to the University of California at Davis, where in 1965 he earned his Ph.D. in Plant Pathology and Botany, followed by two years of postdoctoral studies at the University of California at Berkeley.

In 1967 Gus became an assistant professor in the UW Department of Plant Pathology, charged with teaching and conducting research on plant viruses. In this new role he continued to expand his reputation as an authority on ultrastructural research, which began at Davis where he was recognized with a Student Achievement Award for Electron Microscopy. These studies continued during his postdoctoral work at Berkeley, and soon after coming to Wisconsin he was again recognized by receiving a National Institutes of Health Career Development Award.

In the early 1970's, the field of molecular plant virology was rapidly evolving. For the next 30 years, Gus combined his technical expertise, knowledge of the ultrastructure of viral infections and virus particles, and his special talent for inspiring graduate students, to create a program focused on the replication, transmission, and systemic spread of pea enation mosaic virus. This program and the work carried forward by the eight M.S. students, 10 Ph.D. candidates, and 10 postdoctoral researchers that participated in it, constitutes the most important collective contribution to our current understanding of this pathosystem. These and related studies resulted in funding from diverse competitive sources, the presentation of numerous invited and contributed papers, and over 100 refereed publications.

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Robert W. Fulton (1914-2004)



The death of Robert W. Fulton on January 7, 2004 may have gone unnoticed by most of our graduate students and newer members of the staff of the Department of Plant Pathology. This is unfortunate, for they should know a great deal about one of the most distinguished emeritus professors and one of the last of

the great generation of plant pathologists who, beginning in the 1930's, provided the foundations for plant virology. That field has remained one of the most active areas of scientific research, due in part to the early efforts of scientists like Bob Fulton. He isolated, purified, and determined the properties of plant viruses purely on the basis of local lesion assays and using equipment that by today's standards would be considered rudimentary. He became one of the world's experts on stone-fruit viruses, which are notoriously difficult to isolate because of their instability. For decades he provided antisera freely to other scientists for use in identification work.

The highlights of Bob's career are listed below and provide evidence of a highly productive career as a scientist, mentor of graduate students, and distinguished editor of scientific journals. However, the list does not provide a picture of Bob's personality and of his lasting influence on friends and colleagues. Bob was a quiet, shy man. He preferred to work alone and had no use for the ordinary chit-chat among students and technicians in his laboratory. A man of few words, he was, nevertheless, a demanding, punctilious editor who had intimate knowledge of the English language. An avid sportsman, his quiet demeanor would change to excitement only when describing his fishing adventures. An expert lapidary, he could cut and polish precious stones in a highly professional fashion, a hobby that helped him face retirement when that dreaded day arrived.

Bob was a prodigious worker. He could spend endless hours in the laboratory or the greenhouse, intensely devoted to the task at hand and oblivious of the noise and activities around him. "Quiet competence" are words that one associates with Bob's professional life. Many of us remember that in the early 1960's the lights in his office were always on at night, where he was continuously editing manuscripts for *Phytopathology* and single-handedly proof reading and publishing that journal. Nowadays, the same work is done by a large staff and a long list of Senior and Associate Editors that make the job of the Editor-in-Chief much easier. During his career, Bob was a member of many other editorial

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de Zoeten (Cont. from p. 4)

In 1989, Gus became Chair of the Department of Botany and Plant Pathology at Michigan State University (MSU), where he served with distinction until his retirement in 2000. His unusual knowledge of and appreciation for the applied agricultural sciences as well as fundamental botany and molecular biology, made him an especially effective leader in this diverse department. He was proud that he developed a strong, visible undergraduate program in Botany and Plant Pathology at MSU and that, under his leadership, the department attained a national ranking within the top five plant biology departments. Given the fiscal constraints experienced in all of academia, these were difficult years to be an administrator. His ability to retain both the affection and respect of his colleagues is a tribute to his leadership skills.

Beyond the departments Gus served, his contributions and expertise have been recognized by numerous honors, awards, and requests to partake in important decision-making forums. In 1987-1988 he served as a Visiting Scientist at the Friederich Miescher Institute of CIBA-GEIGY, in Basel, Switzerland. In 1992, he was named Fellow of the American Phytopathological Society (APS), and in 1995 he accepted an invitation to spend a month at the Rockefeller Study Center at Bellagio, Italy. His involvement in the activities of APS included service on the Virology Committee (chair 1981-1982), the New Projects Committee, and organizing the virology program for the 1976 annual meeting. He served as an associate editor for both *Phytopathology* and *Virology*. He served on a long list of national and international committees. In recent years his interest in the use of transgenic plants in agriculture led to his consulting on several committees investigating the safety of this technology.

In addition to his documented achievements, Gus also will be remembered in significant, intangible ways. When those who were lucky enough to have Gus as a mentor find themselves together, either by design or chance, a discussion frequently arises relating to the fact that all present acquired from Gus some important trait that has made their career richer and more satisfying. The communication consists primarily of nodding in agreement and smiles of understanding, because no one has yet been able to define precisely what Gus's gift was. But all know that it's real and a very good thing and hope that they possess it enough to pass it on to their own charges.

Beyond the professional aspects of Gus's life was a rich and robust human agenda. Gus, his wife Ineke, and their children were frequent and extraordinary hosts not only to his students, associates, and the faculties of departments in which he was a member but to numerous other friends and associates both locally and internationally. He was unusually blessed with the ability to keep a balanced perspective on the value of work and family and took time to play soccer, curl, ski, camp, hike, fish, and generally enjoy life with his beloved family. He was a doting husband to Ineke, who preceded him in death. He is survived by his three children: Ruurdjan of Sugarland, TX; Marjike Osrud of Driggs, ID; and Edwin of Denver, CO; and four grandchildren.

--Tom German

Fulton (Cont. from p. 4)

committees, including that involved in preparing the Golden Jubilee Volume (*Plant Pathology: Problems and Progress, 1908-1958*), a book that remains a landmark in our professional development. He was a contributor to numerous books on plant virology, and was a frequent reviewer of this field in *Annual Review of Phytopathology*. Significantly, Bob also took the time to write about the life of his mentor, James Johnson, and to describe the unusual role of Wabash College, his alma mater, as a source of numerous distinguished plant scientists.

Bob was born January 28, 1914 in Sisterville, WV, but his family moved to Wisconsin when he was a child. He graduated from Viroqua High School in 1931 and obtained an A.B. in botany from Wabash College in 1935. His graduate studies were at the UW, where he obtained the Ph.D. degree in 1940. His initial appointment was in the Department of Horticulture, where he became an expert on tobacco diseases. That career was interrupted by World War II; he was proud to have served his country from 1942 to 1946 as a First Lieutenant in the U.S. Army. His initial appointment in our department was in 1947, where he established a world-class program on stone-fruit viruses until his retirement in 1984. He published more than 125 research papers on numerous aspects of virus isolation, structure, properties, and transmission. He was elected Fellow of the American Phytopathological Society in 1970 in recognition of his contributions to the field of plant virology.

Bob taught a course in plant virology for many years, but his greatest impact as a teacher was as a mentor of graduate students. The long list of students who completed their degrees under his direction and have gone on to distinguished careers is probably the best testimony of Bob's lasting influence in the field of virology. Most would agree that Bob did not believe in close supervision; he gave his students complete freedom to approach a problem as they saw fit but kept an eye on their progress to make certain that they did not stray too far. Bob believed strongly that to be successful in research students had to learn to be independent and self-assured right from the start.

Bob was happily married to his wife Jeanette for the past 29 years and he maintained close ties with his family, particularly his brother Joe, a distinguished plant pathologist at the University of Arkansas for many years, who survives him. We cannot complete this account without mention of Bob's love of dogs. He enjoyed having a pet dog nearby throughout his life, and it seems totally fitting that, as his wife describes it, he died while rocking peacefully with a dog on his lap.

--Luis Sequeira and Paul H. Williams

In Memoriam

Richard G. Kurth

Richard G. (Dick) Kurth, who was with the Department of Plant Pathology in the 1940's, passed away August 3, 2002 at age 80. He was a maltster and beer brewing expert. He worked for the Kurth Malting Company in Milwaukee for several years and then for the Paul Lewis Laboratory in Milwaukee, which was purchased by the Chas. Pfizer Company. Pfizer became not only the largest drug company in the world but also was involved in the brewing and cheese industries. It was in that division that Dick Kurth was employed in sales for 37 years. He is survived by his wife Jane Kurth.

News from the Plant Pathology Memorial Library

The UW Plant Pathology Memorial Library at 584 Russell Labs provides book, journal and video materials relevant to the needs and interests of our intradepartmental and external patrons. The Plant Pathology Library web pages (<http://www.plantpath.wisc.edu/library>) lead users to numerous database and Internet resources. This web site also provides for book renewal and recall, as well as reference assistance. Librarian Steve Cloyd (Master of Library Science, 1995) sets up and maintains reserve book shelves; promotes library awareness among

graduate students; periodically processes journals for binding, integrating them into the catalog; tracks the budget; and performs other functions as necessary.

We also continue to attract new users: between January 1 and September 30, 2003, the latest period for which we have information, 48 new patrons signed up for our services, an impressive increase of 8% in our patron base over the end of 2002. In addition, 81 new and donated books have been added to our collection, many of them donated by generous faculty, staff, and graduate students.

What's Hot in Plant Pathology?

The interdisciplinary nature of plant pathology attracts students from a wide range of academic backgrounds. Likewise, our graduates have diverse careers in academia, government, industry, and private practice. The fields of study are too numerous to list. We asked a subset of past and present members of the UW Department of Plant Pathology to share their thoughts on one or both of the following questions:

#1: Which discovery or development in the field of plant pathology has intrigued you most in recent years?

#2: Which recent scientific discoveries will have the greatest impact in the field of plant pathology in the coming decade?

The responses certainly reflect the intellectual diversity of our graduates and current staff and how our own experiences mold (no pun intended) our thinking.



Scott Adkins (Ph.D. 1996)

#2: I think development of the Internet will have the greatest impact on plant pathology in the coming decade. It facilitates inexpensive, near-continuous communication of words, images and data worldwide, enabling plant pathologists to discuss and evaluate disease epidemics in real time from disparate corners of the globe and is a repository for a wealth of plant pathology resources.



Andrew Bent (current faculty)

#1: A recent discovery that I find very intriguing is the "guard" model, whereby at least some resistance gene products do not directly interact with their corresponding pathogen *Avr* gene product. Instead, the R protein monitors (guards) another plant protein that is the target of the pathogen *Avr* protein. When the guarded protein is perturbed, the R protein recognizes this and activates defenses. Often, the relevant *Avr* gene product is a protein that contributes significantly to pathogen virulence on hosts that lack the cognate *R* gene. The above discoveries have far-reaching implications for the durability and functional plasticity of both *R* and *Avr* genes.

#2: OK, I confess that I pick *R* genes again. If we can learn to make *R* genes that recognize things they formerly did not, by moving *R* genes or *R* gene pieces between species, or by *in vitro* alteration and selection of novel *R* genes, that could have great practical applications. I am a strong supporter of conceptual and "basic science" research, but it would be particularly nice to see more molecular biology research result in things that are useful to growers.

Mary Ann Hansen (M.S. 1984)

#1: The polymerase chain reaction is one of the developments in plant pathology that has been most intriguing to me in recent years. The ability to confirm the presence of such small amounts of DNA has revolutionized pathogen detection techniques and allowed us to diagnose diseases that were virtually intractable from a diagnostics perspective before.

#2: I believe discoveries in the area of the function of resistance genes and signaling proteins involved in resistance are already having a huge impact on the field of plant pathology and on our understanding of plant-pathogen interactions. The potential practical applications are numerous. I hope that having a better understanding of

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What's Hot in Plant Pathology? (Cont. from p. 6)

how resistance genes work will help us to genetically engineer plants with different types of resistance to the same pathogen and allow us to more effectively stay one step ahead of pathogens that evolve to overcome that resistance. From the standpoint of diagnostics, e-mail and digital imagery have been the most useful recent technological developments. When I started my job as a diagnostician many years ago, I had a much smaller network of local people to turn to when I couldn't determine the cause of a given set of symptoms. Now I participate in a diagnostics list-serve that allows me to send out an image of a plant problem to a network of many people in my own field of diagnostics and acquire opinions and advice on a given sample within hours. This has expanded the expertise upon which I base many of my diagnoses and has improved the quality of my diagnoses.



**John Hartman
(Ph.D. 1971)**

#1: As a practical plant pathologist, I am intrigued with the discovery of reduced-risk

strobilurin fungicides, the development of DNA-based diagnostic tools, the development of good reference books for plant disease diagnosis and education, and the current difficulty of finding qualified applicants for extension plant pathology positions due to the apparent omission of broad, in-depth practical training now being offered in plant pathology graduate curricula. Of these, the development of good reference books in recent years has had the greatest impact on my work. We have available now detailed, documented, and well-illustrated plant disease references for almost any crop. For example, the APS Press series of compendia of plant diseases, the Cornell University Press book on diseases of trees and shrubs, and the APS Press host index of fungi in the U.S. come to mind. These references are most useful for plant disease diagnosis and for developing credible educational programs.

#2: Although I don't work in this area of research, an important discovery is the still-developing field of RNA silencing, an RNA-mediated gene regulatory system. It is said that RNA silencing can be a useful tool to identify host plant genes and a faster way to select mutants. RNA silencing should be helpful in creation of disease resistant plants. In some cases RNA silencing, when used to improve agronomic or horticultural traits, could affect plant disease reaction. Thus, RNA silencing not only has the

potential to improve agricultural production, but also to maintain a need for plant pathologists!



**Brian Hudelson
(current director,
UW Plant Disease
Diagnostic Clinic)**

#2: From the perspective of the clinic, probably the

recent event that has had the biggest impact has been 9/11, which has made national policy makers more aware of plant diseases and their potential impact, at least from a bioterrorism point of view. This increased awareness has led to an influx of funding for clinical programs like mine and hopefully will serve as the groundwork for an increased national understanding of the importance of plant diseases and the need for funding of all aspects of plant pathology (e.g., diagnostics, outreach and research).



**Nancy Keller
(current faculty)**

#1: Probably the potential use of RNAi technology. I frankly do not know if RNA interference

will/can help in moderating plant disease, but the elegant and fascinating biology is so intriguing. To think that there is this conserved mechanism among eukaryotes to silence 'unwanted' mRNA, fairly simplistic in some respects and unknown for so long, is delightful to me. We really know very little as to 'why' there is such a system and if it plays any role in host/parasite interactions (aside from the emerging data from plant/virus interactions).

#2: In pragmatic ways, having the

genomes of pathogens and plants available will hasten progress in testing function of individual genes in plant/microbe interactions. This is a tool everyone can use. Once the scientific community really develops repeatable methods to analyze all of this data, perhaps genomics, proteomics, etc. may have a big impact...perhaps. I think understanding signaling molecules in cross kingdom communication may greatly influence our view of plant/microbe and microbe/microbe interactions in ways that could change our control practices (e.g., by altering molecule production in organisms or producing mimics for spray dispersal).

James Kotcon (Ph.D. 1983)

#1: I have long been intrigued by Plant Growth Promoting Rhizobacteria, particularly their role in Systemic Acquired Resistance. Their development and commercialization holds tremendous potential in both plant protection and in increased understanding of organismal interactions.

#2: Developments in biosecurity and invasive pest monitoring are important. The science behind remote sensing, information management systems, and diagnostics for monitoring networks has tremendous potential. Whether or not overt bioterrorist attacks occur, accidental releases of invasive aliens remain a threat, one that will inevitably increase as trade agreements increase international transport of organisms.

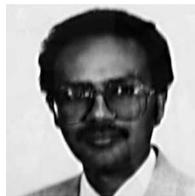


**Sally Leong
(current faculty)**

#1: I think the parallels between innate immunity in animals, insects and plants are very intriguing and

suggest that these systems are ancient.

#2: I think the whole genome sequences of hosts and pathogens will open new doors to our understanding of the biology of host-parasite interactions and the evolution of these interactions.



Alemu Mengistu (Ph.D. 1985)

#1: Biosecurity: The major development and a new area of focus in plant pathology in recent years has been in the area of biosecurity and food safety.

Plant pathologists have participated in setting a national policy for protecting U.S. agriculture from potential terrorists. Plant pathologists have played a critical role in educating the public on the types of organisms that may find their way to the U.S. The possibility that microbes can be used with an intent to harm U.S. agriculture has generated renewed interest in the application of the principles and knowledge of plant pathology in early detection and identification of these pathogens and appropriate corrective actions. Plant pathologists have responded to various requests from members of Congress and federal agencies for information and suggestions for research and infrastructure needs and priorities to protect U. S. crops from bioterrorism. Microbial genomics: The enactment of the congressional directive for the Department of Energy to utilize the Joint Genome Institute's sequencing capacity to provide sequences and functional genomics of plant pathogens has added a significant dimension in the field of plant pathology. The output from this will provide a higher level of detail in host-pathogen interaction.

#2: The development and extensive use of marker-assisted selection strategies have facilitated in the rapid selection and identification of resistant plant types.



Jack Rogers (Ph.D. 1963)

#1: Computer technology, especially word processing, has had a great impact on thesis preparation and publishing in plant pathology and other enterprises.

Old timers like me remember the agony of receiving reviewers' comments on a manuscript that required the whole thing to be re-typed with the possible introduction of additional errors.

Moreover, the introduction of Power Point and its ilk have allowed us to put illustrative material into a data base and to retrieve it easily, e.g. rather than pawing through a mass of slides whenever we had a lecture to deliver.

#2: PCR and its use in various aspects of plant pathology will only grow. It is the most useful technical achievement in biology since, I think, the microscopes, compound and electron. As a taxonomist, the data and insights achieved by molecular biology are immense. Most data are used to establish relationships or phylogenies. The next big thrust will be on regulation of genes and constellations of genes, a more difficult, but perhaps more useful pursuit.



Deborah Samac (Ph.D. 1988)

#1 and #2: The progress in our understanding of plant-microbe interactions over the course of my career has been extremely exciting and intellectually stimulating. I believe the most profound discovery that has been made in

recent years is that effector proteins of bacterial plant pathogens, including products of avirulence genes, are introduced into plant cells by a bacterial secretion system and have roles both in causing disease and triggering a resistance response. I think it is only a matter of time until we find that other pathogens produce effectors with dual roles and that some are introduced into host cells where they modify plant gene expression and metabolism. In addition to increasing our understanding of how pathogens cause disease, this discovery has important practical applications for predicting which resistance genes will be most durable in the field. Resistance genes recognizing effector genes critical for pathogenicity have been shown to be more durable, because pathogens with mutations in the effector gene suffer reduced pathogenicity and fitness. This concept can be used for rational deployment of resistance genes to break the "boom and bust" cycle of disease resistance breeding. Such discoveries underscore the importance of research on plant diseases and graduate education in agricultural sciences. Scientifically, it is a great time to be a biologist and especially a plant pathologist! The availability of genome sequences for plants and their microbial partners is opening up uncharted and exciting areas of knowledge. Increased emphasis on funding agricultural research and graduate education is needed to take advantage of all the new information flooding onto our desk tops and to help us develop crops and crop management programs for feeding the world population in a way that is ecologically sustainable and economical.



Paul Tooley (Ph.D. 1982)

#1 and #2: I think the development of plant pathogen genomics is most intriguing and far-reaching. Soon we will have complete genetic information for quite a number of plant pathogens, including my own favorite,

Phytophthora. In my graduate years students would spend entire Ph.D. projects sequencing a few thousand bases. Now, that same task can be performed in a routine manner within days, and would not even be considered a publishable exercise by itself. The field has changed dramatically due to the advances in genetic technology, which includes diagnostics, with ELISA and PCR based kits now available for many pathogens. Aside from the genomics revolution, the one that next comes to mind is the revolution in high-performance computing. In spite of commercial upheavals in the late 1990's, in which supercomputing architectures and associated large companies changed tactics several times making the field appear unstable, the underlying technology has continued to evolve very rapidly. Microprocessor performance has continued to rise, while the cost of memory per bit has declined exponentially. The computer power now available to graduate students and faculty in plant pathology would have been unthinkable a few years ago. This must enhance research capability in terms of offering greater flexibility in research approaches, novel concepts

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What's Hot in Plant Pathology? (Cont. from p. 8)

based on more far-reaching types of analyses, greater predictive ability in modeling approaches, and greater speed of analysis. Of course the internet too, allows now for much improved access to global resources, more rapid searches of literature and acquisition of research papers as well, making the old ways of hours at the Xerox machine in Steenbock library a thing of the past. High performance computing can now become a routine part of every plant pathologist's work, whether extension, research, teaching, or any combination thereof.



Gary Vallad (Ph.D. 2003)

#1: A recent development in the field of plant pathology that has intrigued me is the

commercial availability of plant defense elicitors, such as Acibenzolar,

Harpin and Oxycom. These products are the offspring of a phenomenon known to plant researchers for nearly 100 years – that plants can be preconditioned against pathogens. While plant defense elicitors are not the solution to every pest issue, they do offer growers another option to add to their IPM toolbox.

#2. I feel that post-transcriptional gene silencing will have the greatest impact in the field of plant pathology in the coming decade. Microarray-based technologies are giving plant researchers a broader view into the transcriptional inner-workings of plants during various states of growth and during plant-microbe interactions. However, results from these studies are purely correlative and to test these correlations using traditional screens for specific gene mutations is a haphazard process at best. Post-transcriptional gene silencing could potentially allow plant researchers to

disrupt the function of specific genes that have putative roles in plant-microbe interactions with relative ease.



Tom Wacek (Ph.D. 1974)

#1: The appearance and publicity associated with Sudden Oak Death has intrigued me

the most during the past few years. This new villain from the plant disease world has raised awareness of the effect of plant diseases, has created stars in our ranks, and has served as inspiration for the coming generation of Plant Pathologists as they look to the necessity of future research and extension work. But mostly this disease has created humility in all of us as we observe the constant, changing power of nature. Humility is good.

What's Happening? – News from Near and Far



John Andrews, who recently stepped down as department chair, is currently APS Vice President and will be President

presiding over the 2006 annual meeting in Quebec City, Canada. He is currently on sabbatical leave in the Department of Plant Pathology at University of California at Davis.



View of a WI prairie

Deane and Edith Army have a 145-acre recreational farm in Richland County in southwest-

ern Wisconsin. Being very hilly, only 30 acres are tillable, and they get paid to keep these acres in grass. Recently they put the farm into a conservation easement; it will never be divided and will stay essentially as it is at present. Deane and Edith have started burning of some remnant prairie areas to restore

them. They are also clearing the understories of several ancient oaks and hope to bring those areas back to the way they were prior to settlement.



Osea Boone, wife of late **Professor Emeritus Don Boone**, donated several documents

of historic significance to the Cranberry Museum in Warrens, WI. Among the items is an original research notebook of Neil Stevens, for whom the major cultivar of cranberry is named. Several other items from Don's collection are on display in cranberry museums in central and northern Wisconsin.



Murray Clayton became Chair of the Department of Plant Pathology on July 1, 2004 (see separate article).

Additionally, he was elected Chair of the University Committee, which oversees the Faculty Senate.



Gary Gaard, who worked in various research and service capacities in the department for 38 years, retired January 31, 2004. For several

years Gary worked in the virology program of **Gus de Zoeten** and was the "go to" man for expertise on electron microscopy. Gary was author or co-author of numerous papers, and contributed to the success of countless students who passed through the department. For several years Gary was involved in the diagnosis of turfgrass diseases. His diverse talents and expertise are greatly missed in the department. In addition to the usual retirement pastimes of fishing and gardening, Gary will build upon his success in bringing back bluebird populations in Wisconsin. Since 1990, Gary has spent a two-week vacation every year volunteering on construction projects in economically depressed regions internationally and within the U.S., and



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What's Happening? (Cont. from p. 9)

he plans to continue that work in the future. This fall Gary and his wife will treat their five grandchildren to a Disney World vacation.



Sally Leong has joined the Diversity Team of the NSF-sponsored campus initiative called CIRTL (Center for the Integration of

Research, Teaching and Learning in science, technology, engineering, and math). This project aims to examine roadblocks in teaching and learning using a research model. The team is evaluating literature on successful methods of teaching, especially work related to teaching minorities and women, and developing a toolkit for teachers in these disciplines. CIRTL (called Delta at UW-Madison) is a joint effort with Michigan State University and Pennsylvania State University. Sally is also teaching a course called "Appropriate Conduct of Science." Each year this course attracts 40 to 50 students from several programs on campus. Students work in small groups to evaluate case studies of topics such as authorship, sexual harassment, intellectual property, equal opportunity, use of animals in research, conflict of interest, and moral reasoning.

Doug Maxwell recently heard from a former student, **Gordon Murray**, who is Principal Research Scientist with Wagga Wagga Agricultural Institute in Australia. Dr. Murray had an unexpected



adventure when he was asked to fly to Pakistan on a day's notice. Pakistani authorities claimed that Karnal bunt contaminated a shipment of Australian wheat, and they rejected the cargo. This was a major concern, as Karnal bunt has never been detected in Australia; if verified, it would be detrimental to trade with other countries. The actual sampling of wheat required

getting out to the cargo ships about 16 nautical miles off the port of Karachi. It took three hours in a small wooden vessel with a "chug-chug" diesel motor to reach the cargo in question. Accessing the much larger cargo ship from the small boat entailed climbing up the big ship's side on a rope ladder. Not just another day at the office. After vigorous discussion on sampling methods, the work began. After a long day, the dusty, "seedy" team headed back to the port in their little boat, which went smoothly until the fuel tank ran dry. Fortunately, there was extra fuel on board. The process was repeated the next two days, with wheat from three different ships sampled and tested by an international team. In the end, Dr. Murray did not detect Karnal bunt in the shipment, and his results were confirmed independently by tests done in other countries.



John H. Owen contacted us with an interesting story about his time at Wisconsin. His M.S. was in Plant Pathology and Biochemistry

working with **Dr. J.C. Walker** and Dr. Mark Stahnman. His research was on 3-methyl-4-hydroxycoumarin, which had antibiotic activity. When the side chain was modified, the antibiotic activity increased. Vitamin K was added to counteract the hemorrhaging effect of the dicoumarol. Owen's project was to test derivatives with or without Vitamin K for antibiotic activity against bacteria. Another student tested the compounds in mice. While the antibiotic activity was promising, the deleterious effects on mice were even more spectacular, and they ended up making the rat poison "Warfarin" rather than an antibiotic. Owen was not allowed to publish his M.S. research, but he went on to get a Ph.D. in 1949 with Walker studying Botrytis neck rot of onions. By 1959 Owen climbed to the rank of Professor in the Department of Plant Pathology at University of Florida and then moved to

University of Georgia (UG) where he was Division Chairman of Plant Pathology and Genetics and later Director of UG Agricultural Stations. In 1970 he was named President of North Georgia College and State University in Dahlonega, GA. He retired in 1992 and currently resides at 364 Calhoun Rd., Dahlonega, GA, 30533.



Emeritus professors do get around a lot, but there had been no plant pathologists at the South Pole until **Luis Sequeira** managed to bum a ride on a National Guard C-130 plane and land there just after Thanksgiving last year. Not that plant pathologists are needed at a place where self-respecting microbes do not manage to survive; howling winds, deep snows, and temperatures that reach -75°F on a regular basis are not conducive to life. He was there on a site visit on behalf of the National Science Board, the governing arm of the National Science Foundation (NSF). Other members of the group were two astrophysicists and a computer mathematics expert, which is entirely appropriate because NSF conducts multi-million dollar projects in astronomy, particle (neutrino) physics, global warming, etc. at the South Pole. Professor Sequeira was much busier at other locations in Antarctica, particularly near McMurdo Station, where more than 100 projects on ecology of marine as well as lake biota are being carried out by American scientists. Interestingly, one of the projects involves the study of nematodes that feed on algae, led by plant pathologist Diana Wall of Colorado State University. Other plant pathologists are working at McMurdo on the impacts of climate change on the abundance and distribution of soil biota. An interesting trip, but Professor Sequeira was glad to be back for a balmy Madison winter.

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Andrews Recognized for Service; Clayton Welcomed as New Chair



Craig Grau and John Andrews

In a soggy spring marked by record rainfall and voracious mosquitoes, we were granted a brief respite from the elements to thank John Andrews for his six years as Department Chair and to welcome incoming Chair, Murray Clayton. The celebration took place in Allen Centennial Garden on the UW campus on June 17. Craig Grau, who was Chair in the early 1990's, acted as emcee. Craig and Murray thanked John for his hard work on behalf of the department and noted his success in landing five new faculty members in an era of tight budgets. John was also acknowledged for his continued service to the college, university, and APS, despite the demands of leading the department.

The department presented John with a gift certificate to a favorite restaurant (to nourish his body), a bottle of single-malt scotch (to calm his nerves), and a plaque inscribed with the words of his long-time hero, Winston Churchill (to soothe his soul). The plaque read: THANK YOU for six years of "blood, toil, tears, and sweat." John thanked the members of the department for allowing



him to serve as Chair and for their support and friendship. He also acknowledged the college administrators for their cooperation. After his final "thank you" a bagpiper marched into the garden, blaring "Scotland the Brave" and "My Country, 'Tis of Thee," otherwise known to John and Murray, both of Canadian extraction, as "God Save the Queen."



Craig Grau and Murray Clayton

Murray Clayton was associate chair for the past few years under John, and became Chair on July 1. He has been at the UW since 1984, balancing a split appointment between the Departments of Plant Pathology and Statistics. His Ph.D. is in Statistics from the University of Minnesota, and his research thrust is the application of statistics to biology. Many of our students have taken at least one of the several courses Murray has taught, and his expertise in spatial patterns of

diseases and modeling has made him an invaluable consultant to scientists at the UW. In our department he has collaborated on diverse research, mentored students, and served on numerous thesis committees. His many service roles within the department and across campus attest to his effective leadership. In the past he served as Associate Chair of Statistics, Chair of the Biological Sciences Division, and Chair of the CALS Equity and Diversity Committee. He's currently Chair of the University Committee. Murray has been an associate editor for various journals, including *Phytopathology* and has won prestigious college- and campus-wide teaching awards. We look forward to a new era of leadership under Professor Clayton.

What's Happening? (Cont. from p. 10)



Potato production field in Thailand

Walt Stevenson traveled to Thailand in January 2004 as part of a UW-Thailand collaboration with a

focus on the production of a safer food supply. He spent a week visiting with Thai scientists and visiting potato production areas. He observed late blight and methods the local growers are using to manage this important disease. UW Chancellor John Wiley signed a memorandum of agreement that formalizes collaborative work between Thailand and the UW. There are many areas of research

related to the collaboration that could include student exchanges, capstone experiences for senior students, faculty visits, and even grower visits. A goal is to have an exchange of growers and representatives of the Wisconsin and Thai potato industries during 2004 or 2005 and to collaborate on research that results in safer, more effective control of key potato diseases such as late blight.

Graduate student degree recipients – August, December 2003; May 2004



Gina Foreman

“Wood Chip Mulch as a Source of *Verticillium dahliae*”
Advisor: Douglas Rouse
MS degree
University of New Mexico,
Medical School



Anna Whitfield

“Virus Acquisition by Thrips: the Role of Tomato Spotted Wilt Virus Glycoproteins”
Advisor: Thomas German
Ph.D. Degree
Post doc at UW-Madison,
Entomology



Grace Jurkowski

“Two Cyclic Nucleotide-Gated Ion Channels Mediate Disease Resistance in the Absence of the HR”
Advisor: Andrew Bent
Ph.D. Degree
Post Doc at UW-Madison,
McArdle Labs



Yongqiang Zhang

“Connection of 2-Methylcitrate Cycle to Polyketide Biosynthesis in *Aspergillus nidulans*”
Advisor: Nancy Keller
Ph.D. Degree
Post doc at Dartmouth University



Ann Kinziger

“Parasitic and Saprophytic Phases of Subpopulations A and B of *Phialophora gregata*”
Advisor: Craig Grau
MS degree
Pharmacy School



Josh Bronson

“*Sirococcus conigenus* as a Conifer Regeneration Pathogen”
Advisor: Glen Stanosz
MS degree
US Forest Service, Antigo, WI



Paul Rabedeaux

“Tobacco Streak Virus in Wisconsin: Studies on its Impact to Soybean Systems and the Reaction of Soybean Germplasm”
Advisor: Craig Grau
MS degree
Sakata Seed, Fresno, CA



Nancy Kurtzweil

“Role of Soil pH on the Development of Brown Stem Rot of Soybean”
Advisor: Craig Grau
MS degree
Research Technician, UW Plant Pathology Dept.



Archana Vasanthakumar

“IAA-Producing Bacteria are Associated with Cranberry Galls”
Advisor: Patricia McManus
Ph.D. Degree
Post doc at UW-Madison,
Entomology



Peter Rogers

“Developing a Carrot Production System that Reduces Pesticide Dependence”
Advisor: Walt Stevenson
MS degree
Continuing on with Ph.D. in Plant Pathology at UW-Madison

Awards and Recognition

Blustery weather forced the 2004 Plant Pathology Recognition Celebration indoors but didn't dampen the mood. Award winners are listed below. A highlight of this annual event is the presentation of the "Chair's Distinguished Service Award," which recognizes an individual who has demonstrated faithful service, a willingness to help others, a happy disposition, and most importantly – no whining. This year's recipient was Vi Best, who after eight years of excellence as a research specialist, recently left Wisconsin for Colorado.

Students

Nanda Chakraborty – Riker Award
Joe Curley – Riker Award
Dimitrios Tsitsigiannis – George Washington Carver Award
Tom Hammond – August Gorenz Scholarship
Rachel Leisso – Hagedorn Plant Pathology Award
Amy Van de Voort – Steenbock Academic Merit Award
Frances Yap – Dibble-Terra Award

Staff

Brian Hudelson – Second Mile Award from UW-Extension



Vi Best and John Andrews

Faculty and Emeritus Faculty

Doug Maxwell – Board for International Food and Agriculture Award for Scientific Excellence
Nancy Keller – Most "distinguished classmate" from high school

Maxwell Wins International Award

Professor Emeritus Douglas P. Maxwell of the UW Department of Plant Pathology, University of Wisconsin-Madison, received the Award for Scientific Excellence from the Board for International Food and Agricultural Development (BIFAD) at a ceremony on February 4, 2004 in Washington, DC. Wisconsin Congresswoman Tammy Baldwin presented the award. BIFAD is the advisory board to the U. S. Agency for International Development (USAID). The award recognized Dr. Maxwell's 20 years of international research on characterization and management of begomoviruses on vegetables in South and Central America, the Caribbean, the Middle East, Africa, and Asia. Currently, Maxwell and his colleagues are involved in breeding begomovirus resistant tomatoes for Central America and the Middle East.

Where Are They Now???

Do you have news to include in the 2005 Pathogen? New job? New kid? Recent retirement? We'd like to hear about what you've been up to lately. If your address has changed, please let us know so that we can keep our mailing list current. Send to: *The Pathogen*, Department of Plant Pathology, 1630 Linden Dr., Madison, WI 53706; phone: (608) 262-1410; fax: (608) 263-2626; e-mail: psm@plantpath.wisc.edu.

Name _____ Street _____
City, ST _____ Zip _____ Country _____

Al's many accomplishments in science could be listed, but they do not convey his colorful personality. To a large extent, his high intensity and determination were molded as a child, growing up on the family's small dairy farm in the town of Lakeville, MN. When Al was a very young boy, his father became ill, and Al had to take over the operation of the farm and provide for his mother and three older sisters. His father had encouraged his children to pursue a high school education, but, after his death, the possibilities for higher education seemed remote indeed. Eventually, the farm was rented out, and Al was able to attend Mankato Teacher's College, intending to become a high school teacher. After two years he had to transfer to the St. Paul campus of the University of Minnesota in order to obtain a B.S. degree in Agricultural Education, which would allow him to teach in high school. Needing a job to support himself, he found himself working in the Department of Plant Pathology. There he had frequent contact with Professor E. C. Stakman, who encouraged him to pursue a graduate career in plant pathology. The rest is history. Al did his Ph.D. work under Professor M. F. Kernkamp, with a thesis on Phoma diseases of alfalfa and clover. Courses in cytogenetics sparked an interest in fungal genetics, which he pursued as a postdoctoral student in John Raper's laboratory at Harvard University. His work there concerned somatic recombination and sexual compatibility in the fungi, an interest that he maintains to the present. After Harvard, he joined the plant pathology faculty at Michigan State University (MSU), where for many years he pursued research on the genetics of several fungi that attack cereals, particularly the powdery mildew pathogens.

When asked what accomplishment of his 20 years at MSU was the most significant, Al did not hesitate to point to his role in establishing the very successful Genetics Program that he directed. However, this also led to a great deal of frustration when the program did not become a department, and probably contributed to Al's departure from MSU to accept a position with the International Plant Research Institute (IPRI) in California. At IPRI Al pursued his ideas on how genes for avirulence in a pathogen, and the corresponding host resistance genes, could be cloned. The first molecular description of an avirulence gene came in a paper from IPRI. Al assembled a team of very capable plant pathologists and plant geneticists; however, as with many early biotechnology companies, IPRI folded after a few years because of financial problems. Al opted to return to academia and accepted an appointment in our department in 1983. It is significant that several members of his team went on to very outstanding careers, pursuing research along

the same lines that they had initiated at IPRI.

Al's ability to challenge the prevalent thinking was evident at a NATO meeting in Sounion, Greece in 1980. Some of us remember Al's opening words: "What I have to say does not support much of the speculation and dogma that has been presented at this meeting." Strong words indeed. It is beyond the scope of this account to enter into the details of the controversy at that meeting; this was one of the occasions on which the explanations that biochemists had proposed to account for different host-parasite responses did not reconcile with the known genetics of the interactions. Al would remind us today that in spite of great advances in molecular aspects of host-pathogen interactions, the problems that he foresaw in 1980 are still very much with us. Specific recognition in host-parasite interactions is for incompatibility, but the effects of genes that modify this host response present some pesky interpretive challenges. Some of Al's recent thinking on the subject was summarized in the article "Plant-pathogen interactions: genetic and comparative analyses" (Ellingboe, AH, 2001, *European Journal of Plant Pathology* 107: 79-84). Al intends to continue examining some of these problems beyond retirement in collaborative work on *Magnaporthe grisea*. In addition, his work on reciprocal exchanges of cloned genes from *Leptosphaeria maculans* (a pathogen of canola) and *M. grisea* (a pathogen of rice) may yield important paradigms for the identification of durable resistance.

Al has devoted a considerable part of his research toward work on the Shiitake mushroom, selecting more productive lines from crosses among different clones. He has provided these new lines to commercial growers, and he is convinced that mushroom growing could be an important industry in Wisconsin. Among many other interests, Al also has been a diligent member of the American Chestnut Foundation, whose main focus is to develop chestnuts that are resistant to blight.

One cannot complete this account without mentioning Al's interest in farming and in old farm equipment. Al's collection of ancient tractors and various other relics of former farming days is his pride and joy. To the despair of his lovely, patient wife Ann, and their four children, Al's predominant form of entertainment has often been to tinker with old cars and tractors. We suspect that Al will relish retiring to his farm in rural Wisconsin to do just that.

--Luis Sequeira & Andrew Bent

To Our Donors: Thank You!



Russell Labs (center), Biochemistry (front right) with Lake Mendota and Picnic Point in the background.

We sincerely thank our alumni and friends who have generously supported the UW Department of Plant Pathology. As state support for the UW continues to dwindle, your gifts are more important than ever. Your donations help us attract and support top-flight graduate students, sponsor seminar speakers, enhance research and teaching facilities, and maintain our preeminence as leaders in the field of plant pathology.

Your annual household gift of \$500 or more qualifies you and your spouse for membership in the CALS Dean's Club.

An invitation to join the prestigious Bascom Hill Society is extended to those who provide support of \$25,000 or more to the department or a specific project or program of their choice. You can also pledge your commitment over a 10-year period, provide for a gift in your will, or give a gift of annuities or appreciated stock.

If you have specific questions about giving, please contact Jodi Wickham at the UW Foundation (Phone: 608/263-2027; e-mail: jodi.wickham@uwfoundation.wisc.edu).



Ag Hall and Henry Mall

Department of Plant Pathology Fund

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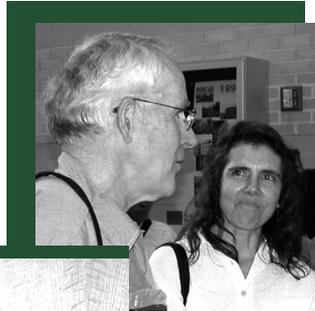
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People



*Choctoberfest 2003
- Amy Charkowski
and Ann
MacGuidwin
(above); Zakee
Sabree and Peter
Rogers (right)*



*Ellingboe retirement - Paul Williams and
Nancy Keller (left); Craig Grau and Eric
Holub (below)*



*Karaoke at the 2003 holiday party: Kelly
Winterburg, Enid Gonzalez and Nicole Broderick*

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