The Pathogen

Department of Plant Pathology, University of Wisconsin-Madison August, 2005

Summer: Sun, Fun... And Research??

Summertime. A time when most undergraduates put their books away and look forward to three school-free months filled with a glimpse of the so-called "real world." This might include a part-time job to help pay for next year's tuition or a resume-building internship.

Participants of the **Symbiosis Summer Program (SSP)** know all about the importance of "real world" experience and that is exactly what they will have after nine weeks of full-time independent research.

The program gives undergraduates with a passion for the natural sciences the chance to get a feel for research. Many of these students come from small colleges where no research opportunities exist. They are selected from a pool of over 1000 applicants.

"The purpose of the program is to give undergraduate students the opportunity to do research at a top-notch research facility," said **Cathy Davis Gray**, the program coordinator.

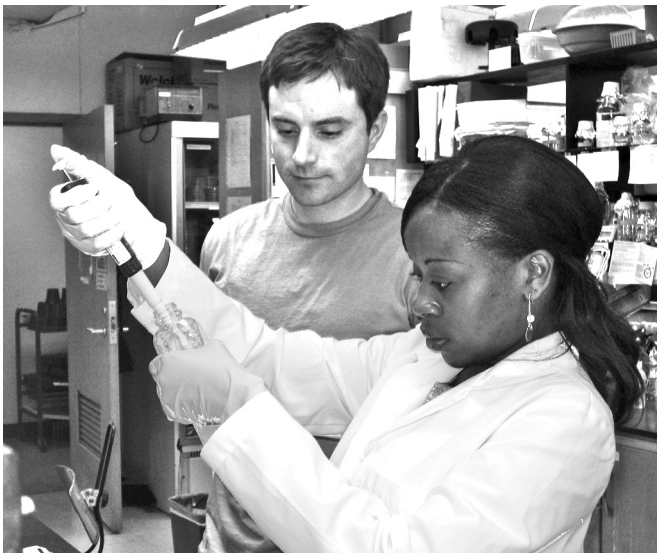
Participants come from all over the country and are paired up with a faculty member and a postdoctoral fellow or graduate student mentor. For nine weeks they engage in

SSP participant Sarah Savengseuksa.

an independent research project. This year's program is from June 6-August 5.

Under the guidance of their faculty mentor, students design and perform their own experiments and analyze current scientific literature to help develop their skills as a scientist. They also attend research seminars and weekly discussions with their peers.

"I think this a very great opportunity for me to talk to people about what to expect in medical or graduate school. It gives me a head start and time to plan what I want to do in the future," said Marian Kwamin, a junior from St. Cloud State University.



Mentor Tom Hammond works with SSP participant Alisha Gaulden in the lab.

The program also gives students an opportunity to explore their research interests.

Jade Duncan is a sophomore from Howard University. "It has definitely made me think and open my eyes to the world of science. Now I'm a little bit clearer about my goals in the field of science," she said.

The capstone of the program is a final written and oral presentation of the students' research. A departmental seminar is held for the students to present their research findings.

Brad Borlee, a graduate student in **Jo Handelsman's** lab, participated in the program as a student in 1998 and as a mentor in 2003.

"I think oral and written presentations are the key to the program. They are big confidence boosters when the program is finished, although it is a bit stressful in the course of nine weeks to juggle all of those responsibilities," he said.

"The presentations are of superior quality," Gray said. "Many students go back and present the seminar at their home institutions."

The SSP participants represent a myriad of colleges and universities, ethnicities and socioeconomic backgrounds.

"We are also actively recruiting the participants to attend graduate school at UW-Madison. We are really making an effort to create a more diverse graduate population," Gray said.

The program gives participants a chance to experience academics and research at UW as well as an opportunity to explore Madison. Participants have access to campus

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Notes from the Chair

A year has passed since I began serving as department chair, and it is valuable to use this occasion to reflect on the past year. First and foremost, I must say that the experience has been, and continues to be, a fascinating and rewarding one. It is a tremendous honor to serve as chair, and at the same time I find it very humbling to work in a department with such a rich history, and such an incredibly talented group of students, staff, and faculty. Elsewhere in the newsletter you'll see some more details about some prestigious awards and their winners – very impressive!

You might note in particular some of the international work that we've featured in this issue of *The Pathogen*. While the Wisconsin Idea embraces the idea that the borders of the University extend to the borders of the state, these days we speak more and more about the "Global Wisconsin Idea" wherein the borders of the University extend around the globe. Our department has been most fortunate to play a major role in putting this idea into practice.

Currently the department has 56 graduate students, 25 postdocs and academic staff, 13 support staff, and 18 faculty. In 2004, we brought in about $4.1 million of extramural funding, outpacing many of the departments in CALS. There's no doubt that the department is highly successful in its pursuit of a very high degree of excellence. I hope that you share the strong sense of pride I feel for our accomplishments.

The numbers I just cited are more than just material to brag about, by the way. We continue to move forward with plans for a new building, and staff from the campus facilities office use this information to help us determine what our specific needs will be. This process itself is a challenge, because what we really need to do is envision our needs over the next ten to fifty years. What do you think the needs of plant pathology will be over the next few decades? Drop me a line and let me know your thoughts.

Certainly if you have a chance to visit the campus these days, you'll see that there's a huge amount of construction going on. We're right next door to the hole in the ground that will become the Microbial Sciences Building; Observatory Drive is currently closed as they lay new steam pipes to carry heat from the newly constructed Co-Generation Plant on the west campus; the latest addition to Genetics has just been completed, and Biochemistry is planning a new building. I hope that soon we can add Plant Pathology to this list!

This is a time of transitions for the department and college. Bob Goodman has moved on (and up!) to become dean of Cook College at Rutgers; Dean Dentine, Associate Dean for the Research Division, recently retired; and Elton Aberle, Dean of CALS, will retire at the end of this summer. We wish all of them well in their future activities. Meanwhile, Irwin Goldman, Professor of Horticulture, and Dick Straub, Professor of Biological Systems Engineering, will jointly serve as interim deans to replace Dean Dentine, and at the campus level a search and screen committee is actively working to identify the next dean of the college.

The news is not quite as cheery as we might hope at the state level. Wisconsin continues to experience major budget deficits, and the University has had to bear a disproportionate share of the cuts allocated to state agencies. Our department is in the very fortunate position of having endowments from a number of generous people to help us weather this storm. We owe an enormous debt of gratitude to our friends and donors.

At the national level, our very own John Andrews will begin as President of APS. We are lucky to have John in this position; I'm confident that APS will do well under his stewardship.

If you're in the Madison area I hope that you will visit the department. We'd love to see you, to renew old acquaintances, and to show you what we're up to these days. Please stop by and say hello!

Murray Clayton

On the web!

Plant Pathology
at the University of Wisconsin - Madison
www.plantpath.wisc.edu

College of Agricultural & Life Sciences
www.cals.wisc.edu

www.wisc.edu

The Wisconsin Idea - Going Global

The Department of Plant Pathology continues to take an active role in the Global Wisconsin Idea - the boundaries of the University extend around the globe. The following article highlights the international work of three professors in the department: Walt Stevenson, Caitilyn Allen and Doug Maxwell.

Professor of plant pathology **Walt Stevenson**, never planned on working internationally, so it is somewhat surprising to find him so involved in international projects. He says traditionally, people working in extension activities didn't travel too far from the borders of the state.

Now, with several international projects underway, Walt explains, "It just happened, but in a pleasant sort of way that seems to be making a difference in the countries I visit."

Walt Stevenson with representatives of potato production in Thailand - university, grower and industry.

One of his current projects involves a potato seed program in Thailand.

"The Thai potato project started back around 1980 at the direction of the king of Thailand, who wanted to provide an alternative cropping system for farmers in the Northern Highlands," he said.

Frito Lay set up a processing plant near Chiang Mai, in the northern part of the country.

"They set about trying to grow potatoes year-round in the highlands, which was fraught with all kinds of disease problems, so the pathology aspect became important."

The program was in place for about 20 years when Walt got his first call to travel to Thailand. The call came from **Patchara Pongam**, a UW graduate student who was a Thai native and is now a lecturer at Kasetsart University.

"She had been assigned some responsibilities for doing research on potatoes to help on the pathology side, but had little experience with potatoes and the diseases affecting this crop," he said, "I went over there for two weeks in the Fall of 2001 and it seemed as though we looked at about every potato field in Thailand, where we saw some interesting problems."

Since then, Walt has traveled to Thailand two other times. On the most recent trip this past January, he lectured to a group of graduate students in Kesetsart University in Bangkok for a week. Walt is planning to return this January to present another set of lectures.

Over the years, Walt has traveled to roughly 15 countries for various tasks, including a six month sabbatical in Australia and a research project in France. He recently traveled to Poland to review a potato seed tuber production program with **Kevin Bula**, a senior inspector for the Wisconsin Seed Potato Certification Program.

"We offered suggestions and they seem to be implementing them. Hopefully that will help them and help their country," he said.

His future plans include a trip to Serbia this October with three others, where they will be reviewing aspects of seed potato production and working on the development of a manual for use by growers, once it's translated into Serbian.

"We don't really know what to expect on our trip to Serbia", he said, "but there will be quite a bit of preparation so we can learn about the country, and learn what to ask and what not to ask."

Walt says most of his traveling time is occupied by meetings, workshops and presentations, but he usually gets an opportunity to travel throughout the country to see aspects of potato production.

Professor **Caitilyn Allen** has also recently started working on several international projects in Guatemala and France.

"In France, I am part of a group of UW-Madison faculty developing joint masters-level courses taught between UW-Madison and the Ecole Nationale Superieure Agronomique de Montepellier," Caitilyn said.

The collaboration, which began in 2004 and is supported by the French Foreign Ministry, will involve courses that consider both biological and social studies of land use in a cross-cultural context.

"France and the US have different approaches to urban and suburban sprawl; we have a lot to learn from each other," she said.

Caitilyn is also working on two projects in Guatemala. One of these projects involves working with producers of geraniums and other ornamentals who want to exclude the bacterium *Ralstonia solanacearum*, which is a quarantined pathogen in the US.

"We are developing a non-destructive method to detect infected plants," she said.

The other project is a cooperative effort with Professor **Doug Maxwell** to develop sustainable strategies for tomato production.

"Tomato growers in Guatemala face two major constraints: geminivirus and bacterial wilt," Caitilyn said. "Collaborating with Luis Mejía, a plant breeder at the University of San Carlos in Guatemala, we are selecting tomato varieties that are resistant to both these problems and suitable for the Central American climate and market."

Additionally, the UW and the University of San Carlos signed an agreement last October to foster exchanges between the two institutions. The agreement "involves having their faculty and students come here for graduate training and then for us to be able to take students to

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Focus on Faculty: Amy Charkowski

Amy Charkowski, assistant professor in the Plant Pathology department, remembers a time when she was taking classes in Russell Labs, not running them.

"I got my undergraduate degree here, I actually worked in this building as an undergrad," she said.

Amy went on to earn her Ph.D. in plant pathology from Cornell University. From there, she worked in California for the USDA for a few years before returning to Madison, her hometown. Of her work in California she says "I examined adhesion of bacterial human pathogens to fresh produce. We found that *Salmonella* adheres better than *E. coli* O157:H7 to plant tissue and identified some of the genes required for this adhesion."

Now, her second time around in Russell Labs, things are different for Amy. Her title has changed from "undergrad" to "assistant professor," and she now runs the seminar series for graduate students. She is also administrative director for the historic Seed Potato Certification Program.

The program was the first of its kind in North America when it was established many years ago. Its roots can be traced back to the days of John W. Brann and Earl Wade.

"The program has been in existence in some form or another since 1913," Amy said.

The goal of the program is to improve the quality and productivity of commercial potato plantings. This is done through thorough inspection and certification of potato seed.

Because potatoes are vegetatively propagated, it is important to remove unhealthy plants to maintain a vigorous and healthy supply. The loss of productivity of potatoes is due, in large part, to the accumulation of pathogens when the tuber-to-tuber cycle is not broken by starting with fresh disease-free material. Virus pathogens are particularly serious in this regard.

"Farmers have to figure out a way to plant them to exclude diseases, so most developed countries have some form of seed certification," Amy said.

Amy explains how the Wisconsin seed program works. "We propagate about 10,000 potatoes a year and then we bring them up to the farm where they are grown in greenhouses." During this phase, they are maintained as varietally pure, pathogen-free lines by visual inspection, disease screening, and an annual winter test of samples in Florida. At the end of the third year, they are sold to certified seed growers in Wisconsin.

Amy is assisted by the program director and inspectors based in Antigo and laboratory specialists in Madison. She summarizes: "We work really hard to keep everything at as low disease level as possible, and then we sell them to seed farmers."

In addition to her work with the certification program, Amy is also involved in several research projects. One of these is a collaborative effort with two researchers from Cornell University focusing on pathogen detection.

"The project is to develop multiplex detection methods for pathogens of solanaceous crops, so that includes potatoes, tomatoes, eggplants, peppers," Amy said.

The team is in their first year of this four-year project. The Cornell researchers are focusing on viruses and fungi, while Amy and her lab are investigating bacterial pathogens.

"We're getting the techniques worked out and the long-term goal is to transfer as much as possible to diagnostic clinics," Amy said.

While many methods can be used, Amy said they are often too expensive or technically very difficult. The challenge is finding methods that are appropriate for the diagnostic clinics.

"That's probably the hardest part; you can detect the pathogens and diagnose them, but to make the methods simple enough and cheap enough that people can use them is difficult," she said.

The last year of the project will be used to train people in the diagnostic clinics.

When Amy is able to find some free time, she enjoys reading and gardening. Smiling, she admits that her garden is mostly filled with weeds right now, and her favorite flowers are woodland wildflowers. She also stays busy with her new baby, Kasia Viola who was born on January 30th.

Goodman Appointed Dean of Cook College at Rutgers

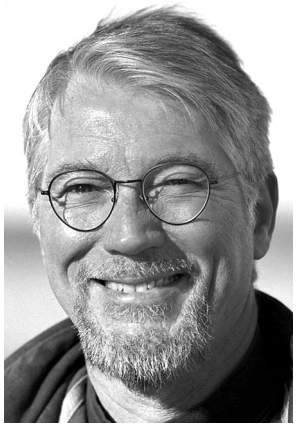


Photo by Jeff Miller UW-Madison University Communications

Robert M. Goodman succeeded Keith R. Cooper as dean of Cook College at Rutgers, The State University of New Jersey. Bob is also executive dean of agriculture and natural resources and executive director of the New Jersey Agricultural Experiment Station. These changes occurred June 1, 2005.

Bob was a professor at UW-Madison since 1991. He taught in the Departments of Plant Pathology and Environmental Studies. He was active both on and off campus, serving on many committees and in various organizations.

At UW-Madison, Bob's most recent work focused on interdisciplinary approaches to study microbial community diversity, dynamics and function in soils. Bob was named a UW-Madison Vilas Trust Associate in 2000.

Bob received his B.S. in plant sciences and his doctorate in plant pathology, both from Cornell University, where he is a member of the advisory board for the Cornell Center for Technology, Enterprise and Commercialization.

"I am pleased to be joining the Rutgers University leadership team at a critical time of change and investment in the future," Bob said in a release Feb. 25, 2005. "I will do my best to provide leadership that will enhance excellence and enrich learning across campus and for the benefit of all the people of New Jersey."

From Dennis Halterman – A First Year in Review

I was asked to give a short synopsis of my first year as a member of the Department of Plant Pathology. My experience is probably fairly typical for most first year faculty. Most of my time has been spent getting my lab set up and defining the projects that I feel are worth doing. Surely, no one would believe me if I said that I've had nothing but positive experiences, but at the close of my first year I can honestly say that the positive experiences have far outweighed the negative.

I arrived on campus at the beginning of June last year. At that time the lab was still undergoing renovations and it wouldn't be until a couple of months later that everything was finished completely. However, it was well worth the wait and, if you haven't stopped by to visit 785, you should come and take in the view. Hats off to Mike and Tom for their excellent handiwork.

My first year as a principal investigator has been filled with paradoxes. For example, I am enjoying the freedom to direct my own research project, but at the same time it sometimes terrifies me to think that I am directing my own research project. Being a recruiter, boss, senior researcher, purchasing agent, trainer, and friend all wrapped in one is a new and exciting experience, but these roles typically conflict with one another and I look forward to the day when I can come in and attend meetings all day like a fully tenured faculty member!

My research project revolves around the study of host-pathogen interactions using potato as a substrate and molecular biology as a tool. (Occasionally, I have found myself a direct target for a different kind of host pathogen interaction, but such is life when you share the floor with an Entomology lab working with mosquitoes.) I have formed several fruitful collaborations with researchers within and outside of the department and look forward to beginning even more.

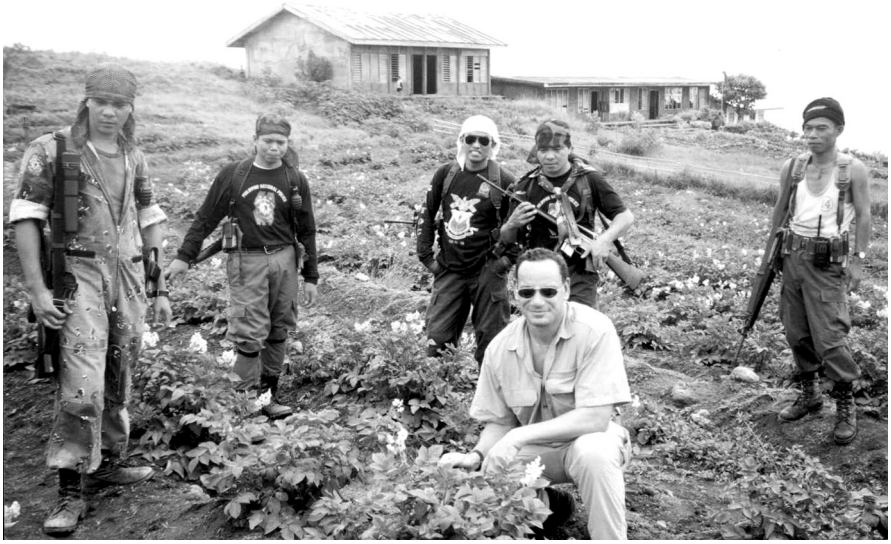
I am very appreciative of the assistance that I have received from everyone – whether it be an in-house review of grant applications or help getting out of a stuck elevator. I look forward to many more productive years as a member of Plant Pathology and the day when I am no longer at the bottom of the faculty totem pole!

Featured Alumni of the Department

Alumnus **John Bowman** *recently contacted us with some details of his interesting career path as a plant pathologist.*

I landed at UW-Madison in 1976 intending to pursue an M.A. in Ibero-American Studies. Eighteen months later, that task was completed – but why I decided to stay on for an additional three years and pursue an M.S. in Plant Pathology, is one heck of a long story. To make the long story short, having entered UW with interests in 19th century Latin American poetry, I left in 1980 as an expert in bacterial diseases of potato, and embarked upon a career in international agriculture – Go figure!?

My entry into the UW Plant Path graduate program could never have been predicted – and it would never have been possible without the support of Dr. Luis Sequiera. He took a chance in supporting my admission into the program I had no background in agriculture…. Not even a botany course! I only had a liberal arts degree from a small New England college, double-majoring in Biology and Spanish Lit – but I let him know that I was dead set to get an advanced technical degree in an agricultural science and use it as a platform from which to launch a career in international development. I am sure others on the selection committee wanted to dump me in favor of students who were already far more steeped in undergraduate agricultural excellence, but Dr. Sequiera saw some sort of interesting potential in me. He fought hard for my admission, and I was eventually accepted, on probation and sans assistantship. Despite these conditions, I turned down Ph.D. opportunities in Spanish Literature at Harvard and Princeton in order to be his grad student.



John Bowman MA'78, MS'80 with friends (bodyguards), and a high yielding TPS (true potato seed) potato crop in a remote village on Mindanao Island, Philippines

Since UW (and a subsequent Ph.D. in Plant Path at Illinois), I have acquired over 20 years of experience in the design, implementation, and evaluation of international agricultural projects. I have specialized in the transfer of agricultural technology to poor farmers in

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remote challenging environments. At five million plus frequent flyer miles, my career has been a mesmerizing potpourri of short and long term experiences outside the USA, bringing income-generating, agricultural technologies to economically depressed farmers and agribusinesses all over the world. Those people who I have served have given back so much to me in friendship and cultural insight. Those farmers have opened up my eyes, heart and mind to the fact that the world beyond the sheltered shores of Lake Mendota is exceedingly complex, dramatic, and full of challenge.

My initial career was quite steeped in Plant Pathology, post-doc'ing for two years in the Wheat Program of CIMMYT as a Pathologist/Breeder and focusing on barley scald, and then four years as a Senior Research Fellow in CIAT's Costa Rica-based Central America Bean Program. After that, I left plant path research behind and became progressively involved in managerial work for multinational food companies and international development projects – but there hasn't been a single agricultural project I have designed or managed that didn't have some sort of plant disease or pest that was a significant detriment to farmer income and livelihood. Thus my initial training in Plant Pathology was quite worth the investment.

Currently, I live in the suburbs of Washington DC and manage a global agribusiness/trade project for the United States Agency for International Development (USAID) with activities in Central America, Africa, Eastern Europe, and South East Asia. I was also recently a technical consultant to a USAID "alternative development" project in Bolivia – your tax dollars at work trying to convert coca farmers into legitimate growers of tropical fruits and vegetables. It's not an easy "conversion", and logically, there were many local interests there who wanted us out of there, or worse…

Recently, I lived and worked for two years in the Brazilian Amazon, providing technical assistance to resource-poor riverine farmers in a project funded by the Japan International Cooperation Agency (JICA). Earlier, I served in senior management positions with multinational agribusiness firms, including Technico, a world leader in potato biotechnology; Universal Robina, one of the largest food companies in the Philippines; and Frito Lay International, the worldwide leader in processed potato and corn snacks. I have also worked in over 10 countries for USAID as an Environmental/Food Safety Specialist for the Asia Regional Agribusiness Project, and as an Agricultural Project Officer in USAID's Global Office of Nutrition. I've worked on long term assignments in Brazil, China, Costa Rica, Mexico, Philippines, Nicaragua, Japan, Nepal, Turkey, Vietnam, and shorter assignments in over 20 other countries.

Truly, my 4+ years at UW were among the most enjoyable of my entire life, and I am extremely indebted to Dr. Luis Sequiera, and others in the Plant Pathology Department for allowing a liberal arts-trained student to have a crack at pursuing graduate work in one of the country's top agricultural curricula. Moral of the story, for career happiness - follow your gut, not the line up of credentials that might be more "logically" presented in your mind and in your curriculum vitae…

Debby Samac received her Ph.D. in plant pathology from the UW, but her interest in plants and agriculture is rooted in her childhood.

"My mother has always been a terrific gardener and encouraged my interest in plants from an early age," Debby said. "Also, my grandfather grew cotton and sorghum in Texas and one of my uncles was a cotton breeder."

Debby remembers going to the farm and test plots each summer when she was young.

Her passion for plant pathology came from her first job after she finished her undergraduate degree. She worked as a technician at Agrigenetics, a small start-up biotechnology company in Madison.

"Working at Agrigenetics was the first time I had been exposed to plant pathogens and symbionts. Although I worked with plants as a gardener, farm helper and student researcher, it somehow never connected with me that plants get sick, too," she said.

Debby now works for the US Department of Agriculture-Agriculture Research Service (USDA-ARS) and she has an adjunct faculty appointment with the Department of Plant Pathology at the University of Minnesota, St. Paul. She runs a lab in the department with a full-time ARS technician, several graduate students, postdocs and summer undergrad researchers.

Their research involves trying to identify genes expressed in *Medicago truncatula*, a relative of alfalfa, in response to biotic and abiotic stress.

"We are particularly interested in genes that are involved in resistance to foliar pathogens and tolerance to aluminum. I am helping to develop transgenic alfalfa and other plants that can take up and degrade the herbicide atrazine so that they can be used to remediate contaminated soil and water," Debby said.

The lab is also working on an emerging disease problem on alfalfa brown root rot caused by the fungus *Phoma sclerotioides*.

"For the past two years we have led a survey for the pathogen, are developing real-time PCR assays, assisting with field trials to identify disease resistant germplasm, and evaluating the development of symptoms over time under different environmental conditions," she said.

Looking back at her days at UW-Madison, Debby

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What's Happening? - News from Near and Far

Current grad student **Nate Schroeder** reports that the Plant Pathology Graduate Committee (PPGC) is sponsoring the Plant Pathology intramural soccer team "the Ascoscores." In addition, the PPGC put together several social events such as Choctoberfest and Pie Day (held on March 14 – i.e. 3.14!). The PPGC also organizes a weekly seminar/journal club called SAPS (Student and Post-doc seminar). And this summer they're organizing a retreat to the Kemp research station for the incoming and current graduate students.

The "Ascoscores" (in action?)

On two separate occasions in the past year **Andrew Bent** met alumni who, upon hearing that his lab occupies room 886 (originally the R. Fulton lab), immediately asked: "Is that cold room still stocked with beer?" This is not the first year that he has received these questions. So he **is** curious - who the heck used to populate the 8th floor with beer? (and can we get them to come back for a sabbatical or something?)

Last July, **Murray Clayton** attended a conference on "Life in the Cold." This conference, which is held once every three or four years, brings together researchers from around the world who study hibernation. Murray co-authored a poster dealing with analyses of torpor-arousal cycles for hibernating ground squirrels. The meeting itself was conducted on the cruise ship "Veen Dam" sailing from Vancouver, BC to Seward, Alaska. After the conference, several of the participants drove up the Dalton Highway from Fairbanks to Toolik Field Station. This station, located north of the Arctic Circle, is in a stunningly beautiful setting on Toolik Lake. Researchers at the station are involved in a wide array of projects involving plant, animal, and environmental studies. The name "Toolik," incidentally, is the native word for a species of loon that is common in the area.

Also, last February, Murray traveled to Truckee, CA where he joined up with **John Andrews** to do some downhill skiing in the Sierra Mountains. John was at UC-Davis on sabbatical working on sudden oak death and has recently returned to Madison.

Not Murray (or John)

A few bits of news from the lab of **Caitilyn Allen**: Two graduate students completed their doctorates

in my lab this year. **Darby Brown** *(seventh from left)* submitted a dissertation entitled "Life in the Xylem: The Secrets of *Ralstonia solanacearum* Pathogenesis Revealed by *In Vivo* Expression Technology". Darby is currently a research associate with J. Dangl at University of North Carolina-Chapel Hill, supported by an NIH Postdoctoral Fellowship. **Enid Gonzalez** *(third from left)* wrote a doctoral dissertation called "Plant Cell Wall Degradation and Twin Arginine Translocation: Exploring *Ralstonia solanacearum* Virulence Factors." She is currently a USDA-ARS postdoctoral fellow with D. Kluepfel at University of California-Davis.

Working in collaboration with Emeritus Professor **Doug Maxwell** and Guatemalan colleagues, we are trying to address a serious and widespread epidemic of bacterial wilt disease that is affecting Guatemalan tomato, potato, geranium, and banana growers. Using disease incidence surveys, breeding for resistance, and sociological approaches, we are developing a series of best practices for control of this destructive disease. The project, which represents an exciting new direction for our lab, has involved field work in Guatemala by several Madison researchers, as well as bench research here in Madison by visiting Guatemalan researchers. This international and interdisciplinary project is supported by the USDA's Foreign Agriculture Service, by the Association Liaison Office/ USAID, and by the Guatemalan research agency AGROCYT.

As for life outside the lab, my oldest daughter Cora started high school this year, while my younger daughter Lulu is in fourth grade. Caring for them and going on the occasional hike or canoe trip are my primary extracurricular activities!

Amy Charkowski's main update from life outside of work is the birth of daughter Kasia Viola January 30th.

Nancy Keller was her high school's Distinguished Alumnus this past year. She led the parade (with her excited 5 year old) from her high school to the football stadium (State College High School in State College, PA, home of the Nittany Lions of PSU so BIG football country!).

Tom German recently stepped down as chair of Entomology. Tom had previously been chair of Plant Pathology. He is looking forward to pursuing his research program which combines the two disciplines.

We heard from alumnus **Ralph H. Kurtzman**, **Jr** who received his Ph.D. in 1959 from Professors Riker, Hildebrandt and Burris**.** He wrote to tell us about his volunteer consulting work for the Citizen Network for Foreign Affairs (CNFA) and ACDI/VOCA (Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance). Ralph has traveled to Belarus, Russia and Kazakhstan on different assignments for CNFA and ACDI/VOCA. To read more about these organizations, visit www.cnfa.org/AVP/NIS/imga.htm and www.acdivoca.org.

Awards and Recognition

Craig Grau is the recent recipient of the Distinguished Service Award from the North Central Division of the APS, and is also the recipient of the 2005 Spitze Land Grant Faculty Award for Excellence, awarded in our college for the faculty member who best exemplifies the spirit of the land grant mission. Also, in Craig's lab, **Angie Peltier** recently won a travel award for the 2004 North Central meeting.

Frances Yap, in **Amy Charkowski's** lab, was the recent recipient of a travel award from the American Society for Microbiology.

Chris Martin, an undergraduate with **Doug Maxwell** has been awarded a Hilldale Research Fellowship for next year to study tagging for geminivirus resistance genes in tomatoes.

Courtney Jahn, second-year Ph.D. student in plant pathology, is the recipient of the **August M. Gorenz** Scholarship. Although she has always been passionate about science, when she started her college career at UW-Madison as an undergraduate in bacteriology, she never would have guessed she would end up a doctoral student in CALS. Courtney is from the small farming town of Black Earth just outside of Madison, and when she left for school, she wasn't looking back.

"I had my track shoes on," she said, "I put everything that had to do agriculture and farming in the 'small town' category and I never wanted to do that ever again. Who would have thought that at a large university, I'd find my way back home; to agriculture," she said.

Courtney earned her Bachelor of Science and master's degrees from the Department of Bacteriology at UW-Madison, and that is what led her to plant pathology.

"Watching how complex all the interactions are between the host and the pathogen just pulled me in," she said. Add that to her love of plants, and, "It's a perfect match."

Courtney is studying *Erwinia chrysanthemi* in **Amy Charkowski's** lab. Specifically, she is looking at biofilm formation and the role of cellulose.

"I am interested in factors, other than cell wall-degrading enzymes, which contribute to the virulence and survival of this devastating plant pathogen specifically the role of cellulose in biofilm formation and motility," she said.

She will be presenting a poster at the International Union of Microbiological Societies conference in San Francisco later this summer.

When Courtney is not busy in the lab, she enjoys salsa dancing, cooking and traveling. She would like to do a postdoc in Europe when she finishes school.

Rebecca Abler, a post-doc in **Geunhwa Jung's** lab, accepted a faculty position in the Biology Department at the University of Wisconsin-Manitowoc.

Caitilyn Allen's Ph.D. student **Darby Brown** graduated last December, and has since been awarded an NIH Postdoctoral Fellowship. Caitilyn was recently promoted to the rank of full professor, and won the 2005 APS Award for Teaching Excellence. It will be formally presented at the APS national meetings in Austin, Texas.

Tom Hammond, in **Nancy Keller's** lab, won the Richard L. Weiss Award for Excellence for a student presentation at the Asilomar Fungal Genetics Meetings in March 2004. More recently, Tom was awarded a Wisconsin Distinguished Graduate Fellowship Award, specifically, the Louis and Elsa Thomsen Wisconsin Distinguished Graduate Fellowship. Also in Nancy's lab, **JinWoo Bok** was co-awarded the distinguished scientist award for a presentation at the meeting "Advances Against Aspergillosis" in San Francisco in September 2004. **Marion Brodhagen** secured a postdoctoral award from the METC NIH training grant, and PhD student **Elyse Bolterstein** secured a predoctoral award from the same training grant.

Jo Handelsman has been asked to serve on the National Academies Board on Life Sciences. Meanwhile, **Sarah Lauffer**, **Chris Pfund**, and Jo were named "National Academies Education Mentors in the Life Sciences," and **Tom Isenbarger** and **Katherine Butler** have both been awarded NIH postdocs.

Continued on p. 9

Awards and Recognition

In **Bob Goodman's** lab, **Kristin Becklund** has received a Hilldale Research Fellowship and **Merry Schumann**, also an undergraduate in the lab, has been awarded a Fullbright Fellowship. **Mark Liles** will begin a position as an assistant professor at Auburn University, and **Holly Simon** has started as an assistant professor at the Oregon Graduate Institute at Oregon Health and Sciences University. **Ena Urbach** has been appointed as Director of Research at eMetagen.

Peter Rogers is the recipient of the **A.J. and Adelaide E. Riker** Plant Pathology Graduate Award. He is a Ph.D. student in **Walt Stevenson's** lab.

Peter received his master's degree in May 2004 from UW-Madison, working in the same lab he's in now.

"I finished that degree working on developing a carrot production system that reduces pesticides in the commercial production of processing carrots. It was primarily a field-based master's project, looking at ways to reduce chemical applications and the control of foliar diseases of carrots," Peter said.

Peter was considering other schools for his Ph.D. work and checking into job opportunities in the private industry when Walt offered to keep him on as a Ph.D. student to look at another aspect of his master's project.

Where his master's project was primarily field-based and focused on controlling the diseases, his Ph.D. project is more lab-based and is now focused on the fungi themselves.

"We feel like we know somewhat about disease control and we know quite a bit about the environment and the host, the carrot itself. But now, we're kind of looking at the weak link in the chain. We really don't understand the fungus very well," he said.

When his research is too much for him, Peter plays the guitar to relax. It's a skill he's taught himself, but he admits he also learned a few things from his dad, who is a musician. Peter also plays on the department intramural soccer team and he enjoys many other sports, including hockey and golf.

Later this summer, Peter will present some of his research from his master's work at the American Phytopathological Society annual meeting in Austin, Texas. In mid-September he is going up to Montreal, Canada to present data to the International Carrot Conference.

Amber Boynton has been awarded the Irving W. Gerhardt Scholarship

Two graduate students in the lab of Glen Stanosz have been honored. **Maria Newcomb** received the William T. Dible-Terra International Fund Scholarship and **Isabel Munck** is a recipient of the Albert J. and Adelaide E. Riker Plant Pathology Academic Merit Award

Jian Yao, in **Caitilyn Allen's** lab has also received the Albert J. and Adelaide E. Riker Plant Pathology Graduate Award. As many of our readers know, **A. J. Riker** was a faculty member in the UW Department of Plant Pathology from 1922 to 1964. The Riker's donated money to the department with a special focus on supporting students studying plant tissue culture and diseases of forest trees.

Amy Vande Voort is the recipient of the Hagedorn Plant Pathology Scholarship. This scholarship was established in 1997 by **Don and Eloise Hagedorn** in honor of Don's retirement (Don joined the department in 1942). This scholarship is used to support a Plant Pathology student entering their senior year, especially those focusing on vegetable pathology.

Sarah Potts is the recipient of the 2005 Chair's Distinguished Service Award. In recognizing Sarah, **Murray Clayton** commented on how grateful he was for her outstanding assistance to him as chair and for her many excellent contributions to the department. He added "It would simply have been impossible for me to make the transition to being department chair without Sarah's steady presence and support."

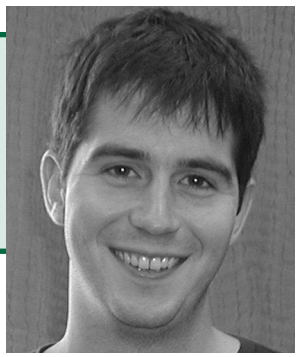
Recent Graduates - August 2004 to May 2005

Gerald Weiland
Ph.D. August 2004
Glen Stanosz Lab
Thesis title: Poplars and *Septoria musiva*: Host response and pathogen persistence

Dimitrios Tsitsigiannis
Ph.D. August 2004
Nancy Keller Lab
Thesis title: Conserved cross-kingdom oxylipins modulate *Aspergillus nidulans* development, secondary metabolism and seed colonization

Noah Rosenzweig
Ph.D. December 2004
Walter Stevenson Lab
Thesis title: Prediction of fungicide sensitivity shifts in fungal populations

Ken Frost
M.S. December 2004
Douglas Rouse Lab
Thesis title: Variation of *Verticillium dahliae* population sizes in breeding clones of potato



Darby Brown
Ph.D. Microbiology Doctoral Training Program December 2004
Caitilyn Allen Lab
Thesis title: Life in the xylem: Secrets of *Ralstonia solanacearum* pathogenesis revealed by *in vivo* expression technology

Enid Gonzalez
Ph.D. Microbiology Doctoral Training Program May 2005
Caitilyn Allen lab
Thesis title: Plant cell wall degradation and twin arginine translocation: Exploring *Ralstonia solanacearum* virulence factors.

Emily Mueller
M.S. May 2005
Craig Grau lab
Thesis title: Investigative studies on alfalfa mosaic virus and soybean in South Central Wisconsin

training and then for us to be able to take students to Guatemala for an international experience," Doug said.

Carolina Rosales-Zea and **Luis Montes** are Guatemalans in the lab right now.

Caitilyn Allen explaining some of the details of bacterial wilt to Doug Maxwell and CALS Dean Elton Aberle in the bacterial wilt plot in Agua Blanca, Guatemala.

"This program has made us better professionals because we have learned new things that we maybe wouldn't have without this program," Carolina said.

Additionally, three students will have been placed in Ph.D. programs by mid-August.

"My goal was to have four, so that's one more to go," Doug said. "I'm quite happy with that."

Currently there are no UW students in Guatemala, but there are plans for the future.

"We're going to take 10 students on a two-week international exposure in January, and so Dr. Allen and I are teaching a class this fall on tropical plant diseases," Doug said.

Also working on the same kind of disease problem but in the Middle East, Doug has a project that involves research institutions or universities in Jordan, Lebanon, West Bank, Israel, Egypt, Tunisia, and Morocco.

"The objectives for both of those two projects are quite similar; that is to breed tomatoes that have resistance to this group of viruses, and for the one in the Middle East, it also involves using recombinant DNA strategies," he said.

Doug's international work began in 1984 when faculty member **Don Hagedorn** asked Doug to join him on a project in Brazil. Doug did not plan on getting involved in international work before that.

"It definitely just happened; I didn't even have a passport," Doug said. "That's what started it all." Now an emeritus professor, Doug travels about three to four months a year.

Caitilyn, who has always been interested in living and working outside the US, travels about twice a year. "It could be more, but my kids are still young," she said.

Like any other kind of work, international efforts present certain limits or frustrations. Although most of the researchers' colleagues speak English, language barriers sometimes get in the way.

"Even though my colleagues speak excellent English, when I go to Guatemala, I still have to have somebody translate everything when I talk to growers, and I know I miss a lot," Doug said. "They try hard to keep me informed, but it doesn't compare to knowing another language."

Caitilyn said other frustrations are more bureaucratic. "Working across two or more institutions can complicate budgets," she said. "And our country's visa policies make it increasingly difficult to bring collaborators and students to work in our labs."

Moreover, international work often requires a lot of time away from home and long hours.

"These trips are never easy; you're up until midnight writing reports and it's a lot of hard work trying to work out the details of what you've seen and heard," Walt said.

Guatamalan students Carolina Rosales-Zea and Luis Montes work in the Allen lab

Despite these limitations, the researchers understand the importance and advantages of working internationally.

"What's fun is applying solid pathology to solving their production and pathology problems and out of that you get to bring real-life examples back for use in classes here at the UW," Walt said.

One advantage is the "enormous satisfaction that comes from knowing that one is doing something useful for people who are really in need," Caitilyn said. "And I have met wonderful colleagues."

The Perils of International Work

Uninvited Visitor

As you might expect, traveling to other countries can bring about many interesting situations. Caitilyn Allen shares a story from one of her trips to Guatemala.

One morning in my hotel in a small town in Guatemala, a big brown snake came slithering out from under my bed. I'm no snake fan, so I hopped up onto my bed and started hollering out the window, which gave onto an inner courtyard, but I couldn't think of the Spanish word for snake: "Vipera! Serpento! Snake! Help!" A nice man came in, picked up the snake on a stick, and took it away. I could tell he thought I was a bit of a sissy.

Lost (and Found)

When Walt Stevenson and Kevin Bula were ready to return to the US from Poland, they found that Kevin's ticket was for a flight one day later than Walt's. There was NO ability to make a change so Walt left Kevin, and had to phone Kevin's wife and tell her that he'd "lost" Kevin in Warsaw. Kevin did make it back the next day and joined his family in progress as they started on vacation.

Welcome New Grad Students!

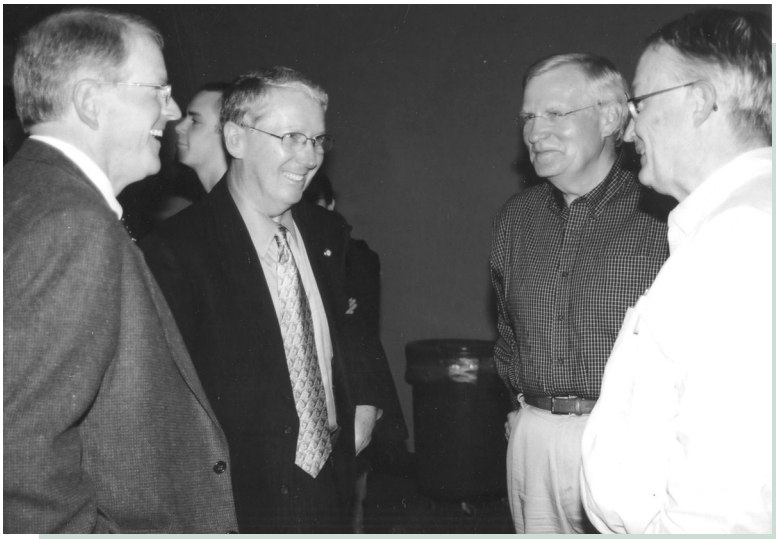
Entering Fall 2004

Name	Professor	Degree	Program
Elyse Bolterstein	Keller	Ph.D.	Molecular and Environmental Toxicology
Barrett Gruber	McManus	Ph.D.	Plant Pathology
Hye Sook Kim	Charkowski	Ph.D.	Plant Pathology
Zhenyu Liu	Halterman	Ph.D.	Plant Pathology
Amilcar Sanchez Perez	Allen	M.S.	Plant Pathology
Keats Shwab	Keller	Ph.D.	Plant Pathology

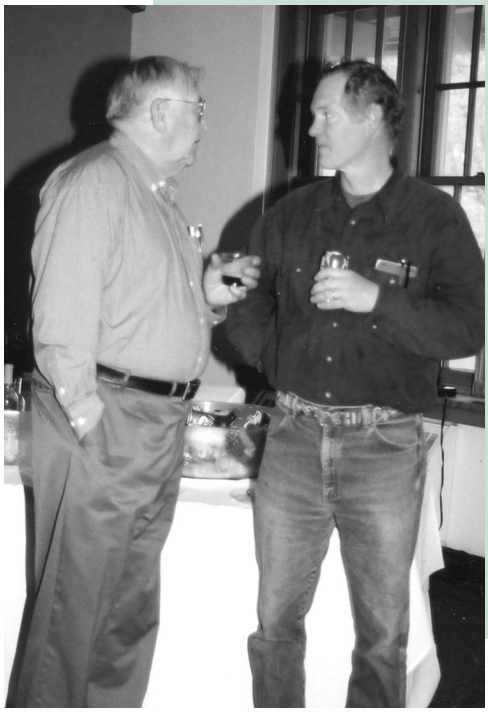
Entering Spring 2005

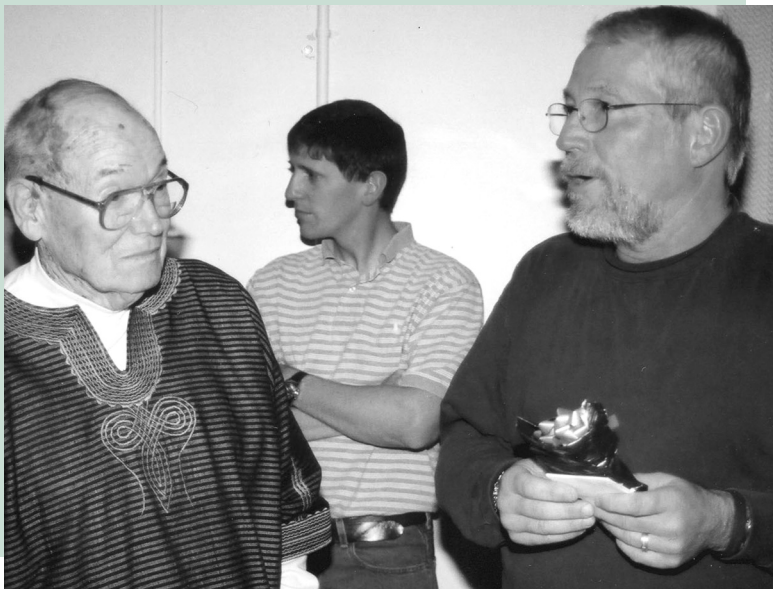
Terri Hughes	Grau	Ph.D.	Plant pathology

Departmental Recognition Reception, Spring 2005



Left: CALS Executive Associate Dean David B. Hogg, CALS Dean Elton Aberle, Craig Grau, Walt Stevenson; Below left: Al Ellingboe and Doug Rouse; Below: Dean Arny, Dennis Halterman and Bob Goodman.





In Memorium

Robert F. Patton (1919 - 2004)

Robert F. Patton, emeritus professor of the University of Wisconsin, died July 10, 2004 at the age of 85. Bob was born on Oct. 28, 1919 in Albuquerque, New Mexico. After attending the University of Chicago and the University of Michigan, he earned his bachelor's degree in Forestry. In 1942 he received his master's degree in forest pathology from the University of Idaho. In 1951 he received his Ph.D. in plant pathology from the University of Wisconsin, and later joined the faculty to study forest pathology. He earned the title of professor in 1965. Among the classes he taught were Introductory Plant Pathology and Forest Pathology, and he assisted with many other courses. Bob was regarded as a great leader in the Department of Plant Pathology. He was extremely involved in many scientific, professional and honorary societies, including the American Phytopathological Society and the Society of American Foresters as well as various committees for the Department of Plant Pathology, including the Graduate Student Admissions Committee. His dedication to this committee helped attract some of the best students to the department. He attended many major international meetings throughout his career, which took him to Italy, Norway and The Netherlands. During World War II, Bob served in Italy with the Army Photo Intelligence Unit. He retired in 1987, and throughout his retirement, Bob enjoyed photography and traveling with his wife, Jeanne (Myrick) Patton. He is survived by his wife Jeanne; his son, Robert; and his daughter Camella.

Earle W. Hanson (1910 - 2004)

Earle W. Hanson, emeritus professor of the University of Wisconsin, died Tuesday, Oct. 5, 2004 at the age of 94. He was born in Wheaton, MN on Oct. 18, 1910. He received his master's degree from the University of Minnesota-Saint Paul in 1939 and he received his Ph.D. from the University of Minnesota-Minneapolis in 1941. His career began with the U.S. Department of Agriculture in 1937 where he worked as a plant pathologist and plant breeder. During World War II, Earle worked for a government program that was created to find alternative sources of rubber. In 1946 he came to Wisconsin to work on diseases of forage crops and began his teaching career in 1951. From 1968-1971, Earle worked on a project in West Africa that was designed to help with the development of a college of agriculture at a new university. The purpose of the project was to recruit and train staff, develop curricula and initiate research and extension programs. Earl was chief of party for the Wisconsin team for this project. He was an active member of many professional and honorary organizations, including the American Phytopathological Society, the American Society for the Advancement of Science and the American Society of Agronomy. Earl also authored more than 120 papers in scientific journals and wrote several book chapters. Since his retirement in 1976, he actively volunteered at the Oakwood West Retirement Center. Earle is survived by his wife, Maryan; two daughters, Paula Jean (Tom) Baumgarten and Ruth Ann (Larry) Copely and three grandchildren, Douglas Copely, and Troy and Erin Baumgarten.

Charles R. Drake, Alumnus of UW-Madison, died Jan. 5, 2005 at the age of 87. Charles received his Ph.D. degree from the University of Wisconsin in 1956 and was a professor emeritus of the Department of Plant Pathology, Physiology and Weed Science at Virginia Polytechnic Institute and State University. He retired on September 30, 1989.

Robert Davies Tinline, Alumnus of UW-Madison, died Jan. 15, 2004 at the age of 78. He received both his Master of Science and Ph.D. degrees in plant pathology from the University of Wisconsin. He worked as a research scientist and Section Head of Plant Pathology at the Agriculture Canada Research Station in Saskatoon. He retired in 1989.

News from the Plant Pathology Memorial Library

The Plant Pathology Library won a $1000 grant from the Friends of the UW Libraries recently. With this money we will be buying new titles to keep our collection fresh and even more relevant to the needs of our customers.

I was also the recipient of a grant from the Wisconsin Library Association to attend their statewide conference in April at Monona Terrace. I got to meet many of my colleagues in academic librarianship and hear about trends in our profession.

We should be getting some new computers in the Library soon.

I've also updated the Plant Path Library website (www.plantpath.wisc.edu/library) Please note that one of the pages is in Spanish, a language I like to hear and speak. *Steve Cloyd, Librarian*

Summer: Sun, Fun... and Research??

(Cont. from p. 1)

libraries and athletic facilities and have plenty of free time to enjoy the culture and outdoor activities.

Participants receive a $3,000 stipend and additional allowances for housing, travel and food.

Angie Peltier is a graduate student in Craig Grau's lab. She participated in the program in 1999. "The program provides you with an experience you wouldn't necessarily get at a small college," she said.

At its inception eight years ago, the program was

SSP participant Nicole Johnson and Mentor Nichole Broderick at work in the lab.

originally known as the Plant Microbe Interaction Program (PMIP) and students were placed primarily with faculty from the plant pathology department. Since its partnership with the Wisconsin Program for Scientific Teaching (WPST), which is funded by the $1 million Howard Hughes Professorship that was awarded to Jo Handelsman in 2002, the program has expanded.

"This is the second year that we have partnered with the WPST program. In the past the program was limited to a maximum of five participants. We now serve a larger population with the additional funding," Gray said.

Students are now placed across other disciplines in the biological sciences where symbiosis is the central theme of the research.

Other sources of funding for the program include: the Graduate School, the McNair Program and department gift funds, including the **John Brann** Undergraduate Internship, **Arthur Kelman** Undergraduate Research Internship, **A.J. Riker** Undergraduate Research Scholarship, **Paul Taylor** Undergraduate Research Scholarship and **J.C. Walker** Undergraduate Research Scholarship.

Mentors for the Symbiosis Summer Program attend a training course through the WPST.

"The course addresses knotty problems in mentoring and provides participants with the skills and tools needed for becoming effective mentors," said **Sarah Miller Lauffer**, co-Director for the WPST.

This training program began in the Plant Pathology Department in 2002 and has spread to a national level. It is now required for mentors of all the UW-Madison Summer Undergraduate Research Programs in biology, and has been replicated at 20 other research universities nationwide.

The WPST has published a guidebook for teaching the seminar, "Entering Mentoring: A Seminar to Train a New Generation of Scientists" by Handelsman, Pfund, Miller Lauffer, & Pribbenow. The book is available through HHMI or for free as a PDF version online at http://www.hhmi.org/grants/pdf/labmgmt/entering_mentoring.pdf

While in recent years the name changed to Symbiosis Summer Program, the original intent still stands. Like the topic they are studying – the biology of symbiosis – students and researchers alike benefit from the program. Students gain knowledge and an invaluable experience on their resume while researchers and the study of symbiosis are infused with new and exciting ideas from the students.

"The program benefits the participants at many levels. The first benefit is to the mentors who get to mold and shape young investigators. I have never learned more than when I was teaching a new student. The students benefit from the exposure to a real lab environment where experiments are not cookbooked out of a lab manual," Borlee said.

Featured Alumni

(Cont. from p. 6)

remembers a time much different from today. "My class was one of the first to produce their theses using a word processor. There were two Wang PCs in Russell Labs for students to use down in a very small basement room. We had to load the word processing program each time and save our documents frequently on "floppy" disks as there was very little in way of a hard disk."

Debby was one of the founders of Choctoberfest, a tradition still carried on today by the Plant Pathology Graduate Committee. She remembers winning a prize for her 12-layer chocolate torte.

Debby makes it back to UW-Madison about once year for different meetings and said she keeps in touch with several of the current faculty. She also hears from many alumni on a yearly basis.

Outside of work, Debby enjoys gardening, cooking, quilting and birding. She hopes to go to Arizona in the fall to go birding. "If I am lucky, I could reach 550 species identified on my North American bird list," she said.

To Our Donors: Thank You!

A view across Lake Mendota from the Howard Temin lakeshore path.

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 Sandra Brown at the UW Foundation (Phone: 608/265-2925; e-mail: sandra.brown@uwfoundation.wisc.edu).

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

Department of Plant Pathology Fund

I/we wish to join other students, alumni, industry and friends in enhancing the teaching, research and outreach programs in the Department of Plant Pathology by contributing to the department as indicated below. Make check payable to : UW Foundation - Department of Plant Pathology

❑ Enclosed is my/our contribution of $ _____ I choose to specifically designate my gift for the following:
- ❑ The greatest needs of the department
- ❑ Student support
- ❑ Faculty/research/extension support
- ❑ Facility replacement and enhancement

❑ I/we wish to pledge $_____ each year for_____ years beginning in _____ (year). Please remind me of the annual amount I have pledged in _____ (month).

❑ Please charge my gift of $_____ to my: __ Master Card __ Visa __ American Express
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Cardholder's name (please print) _____
Cardholder's signature _____ Date _____

Name: _____ Phone: _____
Address: _____ City, State, Zip: _____

Return form to: Sandra Brown, UW Foundation, 1848 University Ave., P.O. Box 8860, Madison, WI 53708-8860

Where Are They Now???

Do you have news to include in the 2006 Pathogen? New job? Family news? 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: mkc@plantpath.wisc.edu.

Name _____ Street _____

City, ST _____ Zip _____ Country _____

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