The Pennsylvania State University, College of Agriculture, Department of Plant Pathology

Plant Pathology Newsletter

FIRST ISSUE

December 1979

Greetings

With this "first issue" of the Plant Pathology Newsletter the Department is attempting to reestablish the tradition of sending an annual newsletter to our alumni, colleagues and friends. It is our hope that these newsletters will keep you informed on the activities in the Department and provide you with news on your fellow Penn Staters.

The department continues to grow and develop every year. It is amazing to many of us involved to realize the changes that have occurred following the formation of a Plant Pathology Department separate from that of Botany. With our faculty, staff and graduate students we now number over 115 individuals on a regular basis with anywhere from 20-35 part-time employees. Although there is never enough space and it is always too scattered, with the recent acquisition of an additional 20 rooms in Buckhout, we now occupy almost all of the first three floors as well as all or portions of another 8 buildings.

Within the last few years we have made several new additions to our Professorial Faculty. Following the retirement of Dr. L. R. Kneebone, Dr. D. J. Royse was employed in the area of mushroom research and extension. When I assumed my current responsibilities, Dr. C. P. Romaine was hired as a plant virologist. Dr. W. J. McCarthy, formerly of the Pesticides Research Laboratory, has joined us in the area of insect virology. Dr. J. A. Frank, formerly of the University of Maine, was relocated by the USDA into our department to work on cereal diseases. Dr. T. A. Toussoun, who has for several years been associated with this department and the Fusarium Research Center, has also joined us on a more permanent basis. Following his retirement from Federal service, Dr. C. H. Kingsolver has joined us on a part-time basis in the area of epidemiology.

Even with the usual tightening of funds we have continued to expand our base of internal and external support. The most dramatic changes have occurred in the area of external support. Since 1976 we have increased our external support by over six fold and are currently receiving funding from over 50 external sources.

Although I have tried to comment on only a few of the recent changes in the department, I am confident that as you read this newsletter you will become aware of the many individuals and activities within our department.

We owe a debt of thanks to the Departmental Newsletter Committee and hope that you will find this newsletter a means of keeping you informed about Penn State and Penn Staters.

With our best wishes,

Samuel H. Smith

Samuel H. Smith
Professor & Head of Department

Some History

The nostalgia wave sweeping the country has not missed the department. We are currently working (thanks to a grant from the Ag Alumni Council) on a detailed history of the department complete with photos and other documentation. We have a nice short history done by Dr. FRANK D. KERN at the time of the University's centennial celebration in 1955 which helps immensely.

Of course, you all know that plant pathology did not appear in the department's name until the 1950s and that only in 1963 were we separated from Botany administratively. But plant pathology was very much a part of the scene long before those dates.

We find that way back in 1907 (the first catalogue that lists courses) Bot. 8, 9 and 10 were plant path courses. This was toward the end of Dr. Buckhout's tenure and the originator of these courses was Harry Fulton. In 1909 there was a four-year curriculum in plant pathology,

but this soon disappeared. By the 1920s there was a whole set of graduate courses, including physiology of parasitism!!

More as we go along.

Research Highlights

The Department maintains three unique germ plasm collections that rank among the best in the world. This issue's research highlight will focus on those collections and the people responsible for them.

These three collections have one common theme---the need to maintain genetic material over extended periods.

Our department maintains collections of Fusarium species, cultivated and wild mushrooms, and potato clones for its ongoing research programs.

The oldest collection is that of the cultivated mushroom, which was begun in 1930. It is considered by scientists to be the finest pool of mushroom germ plasm of its kind anywhere in the world. Some of the 171 strains were selected from the mushroom testing program at Penn State; others are donations of cultures from other research institutions.

Up until recently the cultures were maintained by periodic transfer to fresh media and as "spore prints." Recently spores from a print made in 1932 were successfully germinated. In the last year the collection added a freeze-drying apparatus purchased from funds given by the Agricultural Experiment Station. This will allow the research staff of Drs. LEE SCHISLER and DAN ROYSE, and the technical staff of MILDRED JODON and BERNADETTE MYERS, to see if efficient maintenance of the collection can be through long-term freeze-dried storage.

What makes the Penn State University mushroom collection doubly unique is that it is complimented by a collection of 203 different wild species of fleshy mushrooms which is only rivaled by the American Type Culture Collection. Taken together these two collections form the largest collection of fleshy mushrooms in the world. It is from this collection that hundreds of samples are sent each year to domestic and overseas laboratories in response to specific requests. Funds for maintaining the wild collection come from royalties earned on a patent of delayed release nutrient supplements developed by our mushroom research group.

Another "biggest" is the world collection maintained by the Fusarium Research Center, numbering 5,000 isolates. The reason for the collection is for taxonomic identification of isolates not only for researchers at Penn State but for others who may wish to use them for taxonomic comparison or research.

The Fusarium collection is broken down into two groups, one of which is a

detailed ecological study of the Australian grasslands; the second group is a collection of isolates that are being studied for mycotoxin (poison) production that has become of concern in many parts of the world. Fusarium mycotoxins have been linked to several types of food and feed injury and are receiving intensive research investigation to better control the problem.

The Fusarium collection is maintained in lyophilized milk on carnation pieces. This technique greatly reduces the amount of labor necessary in transfers and allows the maintenance of this extremely large world collection by a relatively small staff.

There are other Fusarium collections, notably in Great Britain, Germany, and the American Type Culture Collection. However, none of these collections ranks with that at Penn State.

Support for the maintenance of the Fusarium collection comes from the University's Agricultural Experiment Station, as well as a sizable grant from the Public Health Administration, United States Food and Drug Administration.

Drs. P. E. NELSON and T. A. TOUSSOUN work with NANCY FISHER and LOIS KLOTZ and a half-time graduate assistant to keep the Fusarium collection going. As part of the collection, an identification service is offered to other research institutions. One benefit from offering the service is that the Fusarium Research Center gets a look at cultures from all over the world.

The Department's potato clone collection is not the largest in the world, but is perhaps unique as representing the best source of genetic combinations for processing quality to make potato chips.

The collection was begun in 1940 by Dr. W. R. MILLS as a part of the Department's potato breeding program. In the early 1950s, in cooperation with the state's potato chip companies, effort was directed at identifying potato clones that could withstand low temperature storage and still make acceptable chips as judged by their color.

The interest in low-temperature storage comes from the need to control rot and shrinkage for extended periods during the winter months prior to processing. Most processing potatoes must be stored at 55 F for extended periods to limit the accumulation of sugars in the tubers. Lower temperature storage, although it would control bacterial soft rot and physiological shrinkage, encourages the accumulation of reducing sugars which produce a black potato chip upon frying.

Four years ago the potato growers of the state of Pennsylvania voted to assess themselves one cent per hundredweight production to raise money for the creation of a potato seed farm to maintain this valuable germ plasm and expand the potato breeding program.

The site for the farm was donated by the state, and is located at Mid-State Airport. This location provides necessary isolation from agriculture and the higher elevation helps prevent the contamination of seed clones with certain diseases.

Maintaining a potato program requires that clones be grown each year to refresh stocks. The potato seed farm provides the facilities for the maintenance of these valuable germ plasm collections. Once harvested, the clones are stored at Black Moshannon State Park at the storage facility. This building was renovated from the old U.S. Navy torpedo calibration lab that extends over Black Moshannon Lake.

Dr. DAVID MACKENZIE is in charge of the project and WILLIAM CORL is the farm supervisor. Recently, GREG WIDNEY joined the project as an assistant to Bill Corl. Most of the labor for the seed farm is provided from CETA grants from the Centre County Office.

All three of these collections provide vital services for scientists throughout the world. It is not the type of research that results in many

publications or fame. But it's the type of research that's absolutely necessary, for if it is not done, many research programs throughout the world would suffer. To the individuals involved, particularly the technicians who work on a day-to-day basis in maintaining the collections, we extend a hearty "Thank you very much."

Extension Highlights

Involvement in Integrated Pest Management programs has increased greatly in recent years. Federal appropriations, available on grant bases for instituting 5-year demonstration projects, have been one of the major forces behind this involvement. Such programs have changed considerably the traditional way of "doing business" for extension specialists in plant pathology. For one, we have come to work more closely with our research counterparts as many techniques for monitoring diseases and pathogens, forecasting disease occurrence, and establishing economic thresholds are either unavailable, lack precision, or are too time-consuming and costly. Pest management programs often demand a unity of thought and effort among entomologists, plant pathologists, weed scientists, and crop production scientists. As you can well imagine, such unity may well be a great challenge in itself. But any pest management program, if it is to be adopted by farmers, must somehow fit into economical crop production.

Another challenge in pest management is program evaluation. Too often the farmer's evaluation is based heavily on the annual savings in pesticide costs. Too many, among the consuming public, see integrated pest management success as a zero need for chemical pesticides. Governmental administrators rely too greatly on numbers: acres involved, grower integrated pest management organizations formed, pest management scouts employed, and private consultants offering pest management services. While these may be aspects of evaluation, none really involves the heart of integrated pest management: a demonstrated need to take action on control of a pest and to make an economically sound management decision on the means to control the pest.

The initial integrated pest management demonstration project was on apples (1972-1977). DON ("PETE') PETERSEN, researcher FRED LEWIS and his successor, KEN HICKEY at the Fruit Research Lab, Biglerville, along with their counterparts in Entomology, were and continue to be involved in this program. The production of this crop is costly and complicated; numerous pests must be considered--diseases, insects, mites, and rodents; but the opportunity to use some biological pest control, to reduce pesticide use, and to speed development of computer-assisted programs in pest management control decisions were present.

The project was not without its biological problems. The mention of two of them will serve to illustrate some interrelations among integrated pest control practices. There was strong research evidence for a biological control of European red mites if a native predator could be encouraged to migrate into apple trees. Obviously, this meant a mite food source present in the trees as early in the season as possible. Some fungicides used to control powdery mildew reduce mite populations and thereby discourage predation. When application numbers and rates were reduced, the disease surged to serious levels. Fortunately, we have been able to correct the disease situation without seriously disrupting mite population levels. The second problem arose when provisions were made to increase the amount of orchard ground cover for overwintering and an early spring mite food source for the predators. Such management practices encouraged intolerable increases in rodent populations. Adjustments have been made in ground cover management to reduce the mice haven and maintain the predator population.

This demonstration project has greatly influenced apple pest management in the state and the apple sections to the south. While no grower organizations offering pest management services have yet formed as a result of the efforts, two people were trained in the project who are now private pest management consultants. A number of industry advisors have adopted at least portions of an apple pest management program. We estimate 80 percent of the apple acreage in the state has been influenced, and the former annual

"spray schedules" are no longer a portion of an annual tree fruit production guide, which contains instead an apple integrated pest management program. In most years, this program results in about 40 percent less pesticide use than a standard pest control program based on preventative applications of pesticides.

During 1976 to 1978, Petersen became involved in a grape pest management program in the Lake Erie district. This demonstration project also involved the research entomologist and viticulturalist at the Erie County grape research station. In 1979, the grape growers in the area formalaly organized a crop management cooperative, which now offers pest management services. The co-op manager was trained in the project and PSU extension conducts the scout training program for them.

In 1979, two new integrated pest management projects were initiated. These are in potato and mushroom production. DAVE MACKENZIE provides plant pathology leadership in the potato project, while PAUL WUEST and DAN ROYSE (LEON KNEEBONEs successor) have this role in the mushroom project. Unique features of the potato pest management project are the successful forecast systems developed for late blight disease (BLITECAST) and green peach aphid (GPA-CAST). Four methods for delivering these systems are being tested for grower acceptance and utility: a site microcomputer, a hand-held programmable calculator, a "pencil and paper" technique, and a large frame computer or TRS-80.

The goal of the mushroom IPM project is to replace the present piecemeal remedial pest control practices of the mushroom industry with a methodology that is integrated into the total crop management operation. For this reason, the data gathering system currently operational is focused on crop quality information. This may allow for greater integration into the total crop management system than is possible with other agricultural crops.

To gain acceptance for the concept of integrated pest management, the American Mushroom Institute Research Committee has helped establish an advisory committee. It is composed of mushroom farmers, consultants to the industry, pest controllers who service the industry, extension specialists and others. The mushroom industry already is accepting the concept of pest monitoring and appears receptive to a pest management program. Such a program will be carried out by consultants, special personnel on the larger mushroom farms, and by extension personnel in the mushroom growing areas. The mushroom industry is eager for a workable pest management system and only awaits the outcome to this project.

Faculty and Staff

Award to MacNab

The department is proud to report that Dr. ALAN A. MACNAB was given the CIBA-Geigy Award at the 71st Annual Meeting of APS. The award is given to plant pathologists for significant recent contributions. The citation read in part, as follows:

> "Alan A. MacNab is honored with the CIBA-Geigy Award for his contributions to the vegetable and small fruit industry of Pennsylvania and the northeast United States through his extension education programs and definitive, problem-solving research.
>
> "Dr. MacNab's highly successful, cooperative efforts to involve industry, county agents, and extension specialists from other disciplines in program planning and establishing work priorities, through specific year-by-year planned steps, are unique. He has established an ideal balance between (1) developing sound educational programs, including short-term adaptive research in support of these programs, and (2) service to the county agent system, agribusinesses, growers, homeowners, and other extension specialists. Specific examples include his

Faculty and Staff

Bottom row, left to right: James Bloom, Richard Schein, Harry Muthersbaugh, Charlotte Keene, Stanley Pennypacker, Rebecca Peplinski
2nd row: Donald Davis, Peter Romaine, John Boyle, Daniel Royse, Kenneth Leath, Samuel Smith
3rd row: Paul Nelson, Felix Lukezic, John Ayers, Kay Moore, Winand Hock
4th row: Robert Sherwood, Kenneth Zeiders, Herbert Cole, Mildred Jodon, Wayne Pedersen, John Peplinski
5th row: Richard Nelson, James Frank, David MacKenzie, Susanne Hart, Peg Blair
6th row: Lois Klotz, Patricia Zarkower

studies on the control of fruit rots of mechanically harvested tomatoes; determination of the cause of a muskmelon decline; evaluation of numerous vegetable cultivars for resistance to diseases; evaluation of possible alternatives to ethylene bisdithiocarbamate fungicides for the chemical control of vegetable diseases; joint studies on the epidemiology of early blight of tomato and Stewart's bacterial wilt of corn relative to developing cooperative, computerized forecasting systems for these diseases; development of multi-disciplinary, integrated pest control, and cultural guides for vegetable and small fruit crop production; coordination of a northeast regional publication on identifying diseases of vegetable crops; initiation of a multidisciplinary newsletter for county agents; restructuring of educational meetings, which resulted in a significant reduction in the number of meetings with an accompanying increase in attendance; and development of tapes and slide sets that allow county agents to conduct meetings in his absence. His new publication, "Plant diseases in home gardens," received an award of excellence from the American Association of Agricultural College Editors in 1978."

Dr. MacNab is presently coordinating a color-illustrated vegetable disease identification guide, has largely completed the photography for a movie on identifying vegetable diseases, and with Arden F. Sherf is co-authoring a new edition of "Vegetable Diseases and Their Control," to be published by John Wiley & Sons.

Etcetera

Dr. J. E. VANDERPLANK, distinguished Visiting Professor in 1966, received the Ruth Allen Award at the 71st Annual Meeting of APS. The department is proud of its "gilt by association."

R. D. SCHEIN is co-author, with frequent visitor J. C. Zadoks, of a new work, EPIDEMIOLOGY AND PLANT DISEASE MANAGEMENT, published by Oxford University Press in May, 1979. The book is available in both hardcover and paperback. Here at Penn State it is the text for our new course, PPATH 403, Introduction to Epidemiology, taught spring terms by R. Schein.

Faculty members continue to receive luring invitations to important national and international conferences. D. R. MACKENZIE traveled to Vancouver, British Columbia in July, 1979, to attend the Potato Association of America Meetings, and recently returned from Bellagio, Italy, where he attended a Conference on Graminiaceous Downy Mildews sponsored by The Rockefeller Foundation. This Conference was an experiment in applying nominal group techniques to identification of research problems. Dr. MacKenzie also spent October 20-November 5, 1978 in Luzon, The Philippines teaching a short course on Integrated Pest Management.

Dr. JOHN BOYLE attended the 11th International Symposium on Fruit Tree Virus Diseases in Budapest, Hungary, from July 3-11, 1979, and Dr. R. R. NELSON was an invited speaker and panel moderator at the Plant Breedng Symposium II held in March, 1979 at Ames, Iowa, as well as giving a Sigma Xi and departmental lecture in the Plant Pathology Department, Oklahoma State Universty, Stillwater, in March, 1979.

Missing: (Faculty) Kenneth Hickey, Alan MacNab, William McCarthy, William Merrill, Lester Nichols, Nancy Pearson, Eva Pell, Donald Petersen, Patricia Sanders, Lee Schisler, Richard Stouffer, T. A. Toussoun, P. J. Wuest. (Staff) John Coppolino, William Brown, William Corl, Harold Gummo, Brenda Holcomb, Larry Jordan, Leona Price, Janet Robertson, James Spicer, Jerry Stover, Robert Struble. Roslyn Levine (faculty) and James Correll (staff) are in the graduate student photograph.

Drs. LEE SCHISLER and PAUL WUEST traveled to Europe in May and June, 1978, to attend the 10th International Congress on Science and Cultivation of Edible Fungi in Bordeaux and Paris, France, and then visited mushroom farms in The Netherlands, Belgium, Germany, Switzerland, Italy and France.

In addition to these travels, Drs. MACKENZIE, R. NELSON and S. H. SMITH have recently traveled to South America. Drs. MacKenzie and Nelson visited with the Rice Research and Administration of CIAT in Cali, Colombia, from October 4-8, 1978, and Dr. Smith recently returned from Barquisimeto, Venezuela, where he presented a series of lectures in plant virology.

Several members have recently had sabbatic leaves: Dr. F. L. LUKEZIC spent his sabbatic leave from July 1-December 31, 1977 at the University of California, Berkeley, while Dr. JOHN E. AYERS spent his leave at the University of Minnesota, St. Paul, from March 1 through August 31, 1978. Dr. D. D. DAVIS spent September 1, 1978 through March 1, 1979 at the Institute of Plant Protection, Wageningen, The Netherlands for his sabbatic leave, and Dr. A. A. MACNAB is currently on leave through March 31, 1980 at Cornell University.

Workshops

Three international workshops were presented this past summer, timed to be available to participants in the IX Plant Protection Congress and the 71st annual meeting of APS in Washington, D.C. in August.

The FUSARIUM RESEARCH CENTER, with a grant from the Science and Education Administration of the USDA, prsented a Fusarium Workshop August 13 to 16 for 30 participants from 20 states, Puerto Rico and Venezuela (the number limited by space and facilities available). The whole show was repeated for graduate students from PSU and three other universities on August 20-22.

An idea of the magnitude of the undertaking is shown in the following statistics: 80 liters of agar and 5000 single-spore cultures of 160 isolates were used. This required eight people full time for one week and four people full time for two weeks. Obviously, our hats are off to P. E. NELSON, T. A. TOUSSOUN and their staff, NANCY FISHER, LOIS KLOTZ, BARBARA STUEHLING, ROGER KAISER, ELLEN LAWRENCE, and JANET BURGOON, and to visiting instructors L. W. Burgess, Thor Kommedahl, and Carol Windels, as well as to Professor of Plant Pathology Dr. JOHN W. OSWALD.

An epidemiology workshop, organized by S. PENNYPACKER, assisted by Drs. Ayers, MacKenzie, R. Nelson and Schein, was held for about 40-50 participants July 29-August 3, with a strong assist from the USDA epidemiology group under Adjunct Professor C. H. KINGSOLVER and staff at Fort Detrick. The theme was the current status of predictive systems and their applications to disease management. A morning session on teaching epidemiology was added. Scientists from eight nations as well as the USA attended.

Graduate Students

One of the long-term projects undertaken by the graduate students was completed this fall. Chapters, written by several graduate students past and present, for the Plant Pathology Correspondence Course have been collected and are presently being edited by Dr. Donald Petersen. The chapters will become a short course to be offered by the College of Agriculture.

Another recently completed project undertaken by the graduate students is the department picture bulletin board. Color pictures of faculty, staff and graduate students are on display outside the Plant Pathology offices in Buckhout Lab. It really helps us keep track of each other.

The graduate students organized the department's annual picnic which was held July 28 at Stormstown Park. The highlight

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Name	Degree Sought	Advisor	Research Interest
Anzola, David	M.S.	C. P. Romaine	Virus diseases
Biggs, Alan	Ph.D.	D. D. Davis	Air pollution-plant disease interactions
Bookbinder, Mark	Ph.D.	J. R. Bloom	Interactions among alfalfa-pathogenic nematodes and bacteria
Burgoon, Janet	M.S.	T. A. Toussoun	Fusarium wilt of chrysanthemum and cowpea
Castano, Jairo	Ph.D.	D. R. MacKenzie & R. R. Nelson	Rice blast
DeVos, Neal	M.S.	E. J. Pell	Breeding and genetics of air pollution resistance
Douglas, Sharon	Ph.D.	R. T. Sherwood	Disease resistance mechanisms; papillae formation
Elliott, Vern	Ph.D.	R. R. Nelson & D. R. MacKenzie	Epidemiology
Fisher, Nancy	M.S.	T. A. Toussoun	Mycology--diseases of ornamentals
Gettig, Russell	Ph.D. (Genetics)	W. J. McCarthy	Insect virology
Gregory, L. Vann	Ph.D.	J. E. Ayers & R. R. Nelson	Disease resistance, epidemiology, yield loss assessment
Hamid, Ali Haji	Ph.D.	J. E. Ayers	Disease resistance
Illman, Barbara	Ph.D.	E. J. Pell	Resistance and susceptibility of potatoes to ozone
Kaiser, Roger	Ph.D.	P. E. Nelson	F. moniliforme; corn stalk rot
Kaufman, Ted D.	Ph.D.	J. R. Bloom	Nematology
King, Eileen D.	Ph.D.	D. R. MacKenzie	Crop loss/potatoes
Lalancette, N.	M.S.	K. D. Hickey	Epidemiology/disease control of tree fruit diseases
Lathrop, Larry	Ph.D.	S. Pennypacker	Epidemiology, data acquisition and analysis, remote sensing, meteoro-pathology
Lawrence, Ellen	Ph.D.	P. E. Nelson	Genetics of Fusarium
Lotstein, R. J.	M.S.	D. D. Davis	Air pollution
Madden, L. V.	Ph.D.	S. Pennypacker	Yield loss modeling; comparative epi-demiology
Nass, Herman	M.S.	R. R. Nelson	Powdery mildew on wheat
Newhart, Susan	M.S.	C. P. Romaine	Geranium viruses and indexing
Nolt, Barry	Ph.D.	S. H. Smith & C. P. Romaine	Virus replication
Nutter, Forrest	Ph.D.	H. Cole & R. D. Schein	Epidemiology, diseases of turfgrass, disease forecasting
Palazzolo, Nicole	M.S.	E. J. Pell	Qualitative effects of proteins from ozone injury in alfalfa
Pawloski, Judith	M.S.	E. J. Pell	Air pollution
Raid, Richard	M.S.	S. Pennypacker	Epidemiology
Royer, Matthew	Ph.D.	R. R. Nelson	Epidemiology
Schroeder, Gary	M.S.	L. C. Schisler	Factors affecting size of the commercial mushroom
Stevenson, R. E.	M.S.	S. Pennypacker	Environmental epidemiology
Stockwell, C.	M.S.	R. T. Sherwood	Effect of temperature on papillae formation and composition in wheat and corn roots
Stuehling, B.	M.S.	P. E. Nelson	Pathological anatomy, Fusarium wilt of chrysanthemum
Stutz, Jean	Ph.D.	K. T. Leath & F. L. Lukezic	Fusarium root rot of alfalfa
Tavantzis, S. M.	Ph.D.	S. H. Smith & C. P. Romaine	Plant viruses diseases and their management
Théberge, R. L.	Ph.D.	D. R. MacKenzie	Epidemiology
Thomas, Garfield	M.S.	S. Pennypacker	Tomato fruit rot control
Villareal, R.	Ph.D.	D. R. MacKenzie & R. R. Nelson	Rice blast disease
Zang, Larry	M.S.	W. Merrill	Forest pathology

Graduate Students

Botton row, left to right: Christine Stockwell, Alan Biggs, Roger Kaiser, Janet Burgoon, Ellen Lawrence
2nd row: Richard Stevenson, Larry Lathrop, Richard Riad, David Anzola, Ted Kaufman
3rd row: Matthew Royer, Vern Elliott, Herman Nass, Sharon Douglas, Barbara Stuehling
4th row: Jean Stutz, Ali Hamid, James Correll (staff), Jairo Castano, Stylianos Tavantzis
5th row: Forrest Nutter, Nicole Palazzolo, Robert Theberge, Nancy Fisher, Roslyn Levine (faculty)
6th row: Gary Schroeder, Laurence Madden, Barry Nolt, Barbara Illman

Missing: Mark Bookbinder, Neal DeVos, Russell Gettig, Vann Gregory, Eileen King, Norman Lalancette, Richard Lotstein, Susan Newhart, Judith Pawloski, Garfield Thomas, Reynaldo Villareal, Larry Zang

of this year's event was a pig roast, with the guest of honor being a 120-pound pig named Oscar. Approximately 70 members of the faculty, staff, graduate students and their guests attended. In addition to the traditional softball, frisbee and volleyball games, sack races, three-legged races and an egg toss were on the agenda.

The graduate students are currently involved in the writing and editing of a Manual for Incoming Students. The purpose of the manual is to introduce the department to the new graduate students and to explain various services available to the students. Many students have been involved in writing sections for the manual, which is being edited by JEAN STUTZ and CHRISTINE STOCKWELL.

Elections for graduate student officers were held this fall. The current officers are JEAN STUTZ, Graduate Student Representative to the Faculty; SHARON DOUGLAS and ELLEN LAWRENCE, Graduate Council Members; and SUSAN NEWHART and GARY SCHROEDER, Graduate Student Association Representatives.

Since this fall the department has welcomed six new graduate students into its ranks. These include TED KAUFMAN who received his BS at Slippery Rock State College in biology and pursued additional course work at Millersville State College and Penn State, York Campus. He is working on his MS degree with Dr. Bloom in nematology. NORMAN LALANCETTE completed his BS degree at Cornell University and will be working on his MS degree with Dr. Hickey at the Biglerville Fruit Research Lab. JUDITH PAWLOSKI and RICHARD LOTSTEIN both recently completed their BS degrees at Penn State and both will be working on their MS degrees in the area of air pollution. Judy received her degree in Environmental Resource Management and will be working with Dr. Pell. Rich received his degree in Horticulture and will be working with Dr. Bloom. RICHARD RAID recently received his BS degree in Entomology from Penn State and was selected the outstanding senior in Entomology in 1979. He is pursuing his MS degree with Dr. Pennypacker in the area of epidemiology. ROBERT THEBERGE is a prospective PhD candidate in the area of epidemiology with Dr. MacKenzie. He has completed his BS degree at Florida Tech University and MS degree at Miami University, both in Botany.

Many PhD candidates have completed their degrees and left the department within the past year. LEE CAMPBELL is presently an Assistant Professor in the Department of Plant Pathology at North Carolina State. RICHARD LATIN is a Research Associate in crop loss in the Department of Plant and Soil Science at the University of Idaho. DAVID LAMBERT has recently accepted a position with the Laboratory for Environmental Studies at the Ohio Agricultural Research and Development Center at Wooster, Ohio. DOUGLAS ROUSE is presently an Assistant Professor in the Department of Plant Pathology at the University of Wisconsin. STYLIANOS TAVANTZIS will be leaving Penn State this winter to accept an assistant professorship in the Department of Botany and Plant Pathology at the University of Maine.

Several Masters degree students have also finished their programs and left Penn State in the past year. JOHN DAVIDS is working in mushroom production for Castle & Cooke in Santa Cruz, California. DAN LOUGHNER is a Research and Development Representative for Rohm & Haas in Philadelphia. JANET ROBERTSON is employed as a Project Assistant at Penn State and recently became the mother of a son, Jay. JANICE SCALZA is a Development Representative for the duPont Company and is based in Albany, New York. MARK ZICK is working for the Rhone-Poulenc Company in Brooklyn Park, Minnesota as a Product Development Representative. JEFFREY MORRELL is pursuing a PhD degree in Forestry at Syracuse University.

Many graduate students have participated in professional society meetings within the past year. The award in the graduate student presentation competition at the meetings of the Potomac Division of APS last April was presented to STYLIANOS TAVANTZIS. He presented the paper "Purification and characterization of the bacilliform virus from Agaricus bisporus," by himself, Dr. C. P. Romaine and Dr. S. H. Smith

Three people presented papers on their graduate research at Penn State at the IX International Congress of Plant Protection in Washington, D.C. this past August. C. LEE CAMPBELL presented the paper "Is bean root rot a simple interest

disease" by himself and Dr. S. P. Pennypacker. LARRY LATHROP presented the paper "GEN, A computerized statistical procedure for creating large data sets from small data sets for training discriminant functions" by himself and Dr. Pennypacker. LAURENCE MADDEN presented the paper entitled "Yield loss in crops: a theoretical approach" by himself, S. P. Pennypacker, C. E. Antle and C. H. Kingsolver.

The annual meetings of the Northeastern Division of APS were held on October 31-November 2 in Chicopee, Massachusetts. Eighteen graduate students attended these meetings and 13 of the graduate students presented papers on their research at Penn State. These include: MARK G. BOOKBINDER, J. R. Bloom & F. L. Lukezic on "Interactions of Nematodes and Bacteria on Alfalfa"; MARK G. BOOKBINDER on "A sand-plate technique for determination of phytopathogenicity of bacteria"; JANET BURGOON & T. A. Toussoun on "Host range and races of the pathogens causing Fusarium wilt of chrysanthemum"; NANCY L. FISHER, & T. A. Toussoun on "The use of carnation leaves as a substrate for Fusarium species"; L. VANN GREGORY & J. E. Ayers on "The influence of maize dwarf mosaic virus on yield of sweet corn"; ROGER P. KAISER & P. E. Nelson on "A histological study of the initial stages of infection of Zea mays by Fusarium moniliforme" SUSAN R. NEWHART & C. P. Romaine on "Protocol for the detection of tobacco ringspot virus in geranium by ELISA"; BARRY L. NOLT, C. P. Romaine & S. H. Smith on "Partial characterization of a membrane-associated RNA-dependent-RNA polymerase in tobacco ringspot virus-infected cucumber"; FORREST W. NUTTER, JR. & H. Cole, Jr. on "Preliminary results concerning the feasibility of developing a forecasting program for chemical control of Pythium Blight"; MATTHEW H. ROYER & R. R. Nelson on "The effect of host resistance on relative parasitic fitness"; BARBARA STUEHLING & P. E. Nelson on "Histology of a resistant chrysanthemum infected with Fusarium oxysporum f. sp. Chrysanthemi" STYLIANOS M. TAVANTZIS, C. P. Romaine & S. H. Smith on "In vitro translation of the single-stranded RNA of the bacilliform virus from Agaricus bisporus" and LARRY ZANG & W. Merrill on "Control of Naemacyclus minor needlecast with difolatan."

News of Alumni

It has been good to hear from a number of our alumni and friends - both near and far. It would be difficult to go to most traveled places on Planet Earth without running into someone who has spent a few years in the shadow of Mt. Nittany and what the "locals" have come to call "Happy Valley." We appreciate being brought "up-to-date" and feel certain that by sharing this information with others who have passed through the halls and classrooms of Buckhout Lab it will bring back memories--most of which we are sure are pleasant.

Looking eastward, P. A. SHINDE (PhD '72) writes from Pune, India, that his teaching requirements include courses in "Techniques," "Plant Bacteriology," "Soil Microbiology," and "Microbial Technology." To round out his schedule he assists with the Plant Disease Clinic and plans to organize training programs for mushroom growers. His daughter will complete her B.Sc. program in March, 1980. The elder soon has followed his father with a degree program in agriculture and the youngest is in the 7th Standard.

LOUIS SHAIN (MS '60) and family are spending a year's sabbatical at the New Zealand Forest Research Institute, Rotorua, working on the resistance of Pinus radiata to Dothiostroma blight. Lisa (16) and Danny (14) have adapated well to the environmental area which is a center for Maori culture and has geothermal activity, numerous lakes, extensive exotic forests and trout fishing (and who among us couldn't?). Wife Bobby is scheduled to teach English to newly arrived Vietnamese.

H. E. KAUFFMAN continues his work with the International Rice Research Institute (IRRI) after completing a year's sabbatical at Penn State in 1977. As coordinator of the International Rice Testing Program, conducted in 75 countries, he has traveled to 13 countries in South and Central America, several

countries in the Middle East, most of the South and Southeast Asian countries and the People's Republic of China. Mrs. Kauffman is becoming proficient in Chinese and watercolor painting while the three boys continue studies at The International School in Manila. Jay (14) is also doing well with classic guitar while Rich (13) and Tim (8) enjoy tennis (and possibly in time will succeed--Borg?).

Indirectly we hear that LESTER BURGESS and family are again safe and well in Australia after their recent sabbatical at Penn State where Lester was working with Drs. P. E. NELSON and T. A. TOUSSOUN in the Fusarium Research Center. Lester returned for the IX International Congress of Plant Protection held in Washington, D.C. August 5-11, and then to assist with the post-session Fusarium Workshop at Penn State in August before returning home.

Many of you know that JAMES F. TAMMEN served as co-chairman for the program of the IX International Congress of Plant Protection. Jim and Marilyn are now starting their fourth year (and wow, fourth winter) of residency in St. Paul, Minnesota. As Dean of the College of Agriculture, Jim has been involved in the operation and negotiation of exchange programs in agriculture in Morocco and most recently, Cuba. He reports that while he hasn't seen Fidel, he spent the afternoon with his older brother who manages an extensive dairy farm. Marilyn is serving as vice-president of the Women's Faculty Club and this along with College activities keep her so fully occupied that she has not as yet established a "Country Sampler of the West." Knowing how cold it gets in St. Paul, one could have deep sympathy for the Tammen's, were it not for the fact that rather frequent trips, mostly in the winter, are necessary to check on the programs in Morocco, daughters Jeanne in State College and Janice in Wayzata where she manages a tack shop and trains thoroughbreds, and now a full-fledged operation in Cuba. Perhaps, even so, two weeks of St. Paul winter are enough to equal 12 weeks of Happy Valley Winter?

C. GARDNER SHAW (MS '40) has rejoined the faculty at Washington State University after an absence of two years. WSU has had a USAID contract with the University of Jordan and Professor Shaw served as Chief of Party of a developmental program which saw an increase from ten to forty in the faculty of agriculture, the strengthening of existing programs and the inception of new ones, and finally the equipping of teaching and research facilities. En route to Pullman, Gardner visited his son Charles G. III, Forest Pathologist with the U.S. Forest Service, Juneau, Alaska. Being in the right place at the right time, Professor Shaw took his fully allotted month's vacation and caught fish! Halibut, king salmon, coho salmon. Superb!!, he reports (which means the eating was good, too). A second son Mark and family are in Christ Church, New Zealand, heading a program in drug and alcohol rehabilitation, and a daughter, Sharon Anne Tabor, is circulation librarian at the University of Maryland.

A rather large number of our alumni and friends have found their way south, with almost enough for an association calling Georgia home base. WILLIAM A. CAMPBELL (PhD '35) and wife ELEANOR RUTH EBERT (M.Ed. '35) (married 1936), have lived in Athens, Georgia, since 1946, except for two years at Chapel Hill, North Carolina. Dr. Campbell was in California in the Guayule research project from 1942-46. Two of their three children also live in Georgia; Bill, the eldest, near Atlanta, Kathleen (Mrs. James Spencer) in Athens, and George Ebert (PhD, Georgia) teaches history at Eastern Kentucky University. In the October issue of Phytopathological News it was also noted that Dr. Campbell is a past recipient of the Southern Forest Pathologists' Achievement Award which is given for superior research on the diseases of forest trees in the southern United States.

THOMAS E. STARKEY (PhD '77) has been at Athens since graduating and has found a happy home, "not missing the snow, nor minding the heat!" Could be that he also likes those early Georgia peaches which he surely has access to since he is working on the epidemiology of apple fruit rots and peanut leafspot. Activities which also include wife Pat and daughter Kim are centered about a good Southern Baptist Church.

MERVE REINES (PhD '53), Professor of Forest Resources, also calls Athens home.

BARRY CUNFER (MS '67, PhD WSU '73) has been at Experiment, Georgia, since 1973. His research area is small grain diseases with primary emphasis on Septoria glume blotch of wheat and halo blight of rye. Recently he visited the International Maize and Wheat Improvement Center (CIMMYT) at El Batan, Mexico, to begin a cooperative research project on bacterial stripe of Triticale incited by Xanthomonas transluscens. He was promoted to Associate Professor in July.

JIM DEMSKI (PhD '66) is also an Associate Professor of Plant Pathology at Experiment, Georgia, having worked on virus diseases of cucurbits, soybean and vegetables with current projects on viruses of cowpeas and forage crops. After a brief vacation from P.H.T.G.S. (putting hubby through grad school), Marilyn is back teaching fourth grade in the Griffith School system. Daughter Barbara finishes high school this year with unresolved plans, while Brenda is in the 11th grade with visions of employment in commercial aviation. A few activities which vie for Jim's time are care of a Christmas tree farm (15,000 trees), director for the Georgia Christmas Tree Growers Association, Church Deacon, Church Treasurer, Boy Scout Leader, volunteer basketball coach, and several TV programs on plant viruses in Georgia agriculture. Ev so, we see Jim at many national Phytopath meetings and know that he still finds time to hunt, fish and take care of numerous Experiment Station committee assignments.

W. J. STAMBAUGH (Phd '57) remains affiliated with the School of Forestry, Duke University, where he teaches forest pathology, phytopathological techniques and co-directs a M.F. program in insect and disease management. Current research is concentrated on ectomycorrhizae (herbicide effects), endomycorrhizae (energy-wood production), and hypovirulence in Endothia parasitica as a possible control of the chestnut blight disease. As time permits he is also working on a textbook in collaboration with BOB SCHMIDT (PhD '64), Dave French, and Ellis Cowling. The marriage of daughters Amy, Linda and Nancy within 1 1/2 years will have mentally prepared Bill and wife Shirley for an extended summer vacation, but as many of us know, significantly reduced the means with which to do it.

C. LEE CAMPBELL (Phd '79) and wife Karen have settled in Raleigh, North Carolina with Lee embarked on a research program to study the epidemiology and losses from forage diseases induced by soil-borne pathogens and viruses. To make certain that he has enough to do, his teaching responsibilities include an undergraduate lab "Diseases of Field Crops," a course in the "History of Phytopathology" with Bob Aycock, and preparation for an "Introductory Epidemiology" course to be offered in the spring. While Lee's occupied thusly, Karen has found solace as a teacher and bookkeeper at the Singer Sewing Company in Raleigh.

Virginia Polytechnic Institute and State University provides employment for a number of ex-Penn Staters, and JOHN M. SKELLY (PhD '68) reports that his research program has shifted to study the impact of air pollutants on forest tree growth with eight students currently working in this area. Wife Linda has taken on full-time employment as a secretary in the College of Education while still coordinating many of the activities of four teenagers. John Jr. has grown into a 6 foot, 1 inch, 215-pound defensive tackle playing at James Madison University and contemplating a career in criminal justice or environmental law. Becky has elected a program in nursing at New River Community College, while Patty, a senior in high school, aspires for a career in special education. David, a junior in high school, likes to play baseball and as a sophomore won three and lost none with an ERA of 0.00. One might say that since he got his start at Penn State we should try to bring him back.

LANCE W. KRESS (MS '72, PhD, VPI '78) has been working with John Skelly as a Research Associate. He and his wife now have three children, Nicole (8), Kerri (6), and Nathan (4).

ROBERT B. CARROLL (PhD '71) joined the faculty of the Plant Sciences Department, University of Delaware, in July, 1971 as Extension Plant Pathologist and continued in this position until 1977. He was advanced to Associate Professor in

1977 and assigned teaching and research responsibilities in the area of soybean root and stem diseases and potato pink rot. The experience gained in extension was unquestionably important as a factor in his teaching effectiveness, for he was recipient of the award for "Outstanding Teaching in Agriculture" in the spring of 1979. Bob rounds out his responsibilities with service in the University Senate, Assistant Chairman of the Plant Science Department, now comprising 21 faculty members. The Carroll's have three children, Tiffany (11), Brent (10), and Bradley (4). Wife Ruthalee, while busy with the family, works "part-time" at the University directing student teachers in home economics, writing projects for the College of Human Development, and preparing to teach a course in the area of "Nutrition and Gerontology" for continuing education. Church activities, refinishing old furniture, and camping take care of any "extra" time.

SAMUEL W. BRAVERMAN (PhD '57) is now Assistant Area Director, USDA-SEA-AR, North Atlantic Area, Ithaca, New York. Sam was research plant pathologist with the USDA Plant Introduction Project, NY State Agricultural Experiment Station, Geneva, New York, from 1957-1972. In 1972 he and his wife Sandy and two sons went to Kenya, Africa, where Sam served two years as Head, Division of Plant Quarantine Services, East African Agriculture and Forestry Research Organization. His assignment required travel to western, southern and eastern Africa, a broadening and unique experience for him and his family.

RODNEY H. VARGO (MS '76) left the Pesticide Screening Program of the Boyce Thompson Institute, Ithaca, New York in March, 1979 to resume graduate studies at the University of Minnesota, working with Drs. R. D. Wilcoxson and H. Bissonnette. Those Fusarium problems never seem to go away and Rod indicates that he may be working on the biology of Fusarium spp. in wheat. Rod and Kar[illegible] Fisk (M.Ed. PSU '79) were married April 21 in Ithaca.

ROBERT FISHER (MS '72) is now employed by the Pa. Department of Environmental Resources, Bureau of Air Quality Control, Region IV, Williamsport, Pa. as an air quality specialist. He is responsible for the compliance of industries to air pollution regulations in Clinton, Lycoming and Union counties. He was married in 1970 and has two sons, ages 8 and 5. In his off hours Bob operates a small commercial greenhouse and orchard.

The latest word from FEDERICO CARLOS MEYER (PhD '72) indicates that he no longer works for INTA (the USDA of Argentina) but has joined the Faculty of Agriculture, Univ. Nac. del Comahue, 8303 Cinco Saltos (R.N.) Argentina, as Professor of Plant Pathology. Carlos recently spent six months at Long Ashton, England, where he studied fruit tree understock capabilities. In the summer of 1977 he arranged and guided a tour for approximately 20 fruit growers (producers of near 3 million boxes of apples, pears and peaches) from the Rio Negro Valley to the main fruit growing areas of the United States. While on assignment to the Penn State USAID program in Uruguay, JOHN BOYLE had an opportunity to visit Carlos in the Rio Negro Valley and was impressed with the production and quality of fruit produced in this region. The most recent news from Carlos also notes that Dr. FRED LAST, who spent six months with us in 1968, was soon to be a visitor.

An opportunity to see "first hand" the program of PADRUOT FRIED (PhD '77) was provided John and Nellie Boyle in a short stopover on their return from Budapest, Hungary, where John attended the 11th International Symposium on Fruit Tree Viruses Diseases. Padruot and wife Ursina Fried-Turnes (PhD '79, PSU) live in Zurich, conveniently located near the Swiss Federal Research Station for Agronomy. Padruot is breeding wheat and other small grains for disease resistance and the facilities are extremely good to accomplish this objective. One could almost say that, next to central Pennsylvania, Switzerland would be the place to live. There is a sense of exhilaration and euphoria generated by the brilliance and air of the Alps which makes one want to shout (the Swiss call it yodel).

At home, LEON R. KNEEBONE (PhD '50) retired as Professor Emeritus of Botany and Plant Pathology on October 1, 1978.

He is continuing to work as a consultant to the commercial mushroom industry, domestically and internationally. The Kneebones are continuing to reside in State College and are maintaining all the old ties to campus and community. Leon still throws a "wicked" ball and when "on the ground" and around can be counted on as needed by the Plant Path Bowling Team of the Wednesday League. Also, when the "pipes failed" on the organ at St. Paul's United Methodist Church, Leon headed the successful, just completed drive for restoration.

PATRICIA FARRELL (Mrs. M.A.) is at home with husband Mike in the shade of old Mt. Nittany for six months and then south to a condominium at Fort Myers Beach, Florida. In these best of two worlds Pat notes that even being "damn Yankees," dealing with plants they don't know the names of, in soil they don't understand, they live in an area where U-pick tomatoes are 20 cents a pound and successive crops are available all winter. Arrival back in State College is timed to plant the garden and "eat their way thru the summer and fall in this lovely spot." The Farrells are close neighbors of Dr. and Mrs. HENRY POPP, also gardeners who take the growing of plants seriously.

P.S. Most of you were favorable in your comments with regards to the desirability of a newsletter. However, we could get no concensus on frequency or format. We'll make an effort to keep a better account of your activities, so write us as you see fit and we'll try to include them in our next edition.

We are sad to note the passing of HARRY L. KEIL (BS '37, MS '39, PhD '46) and OTTO SCHULTZ (PhD '62). Dr. Keil spent most of his career with the USDA. Dr. Schultz was Extension Pathologist at Cornell. A full obituary of Dr. Keil appears in the July, 1979, issue of Phytopathology.

Our thanks to

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