



Plant Science

Says

October, 1999

Biochemistry Candidates

Dr. Weeden and the Plant BioChem search committee have invited four finalists in for campus interviews. The four finalists are Rebecca Dickstein from Drexel University (October 21-22), Andreas Fischer from Washington State University (Oct 18-19), David Long from Montana State University-Bozeman (Oct 14-15), and Ron Wilen from the University of Saskatchewan (Oct 7-8).

Below is the schedule for our first candidate. Please mark these dates on your calendars.

Dr. Ron Wilen, October 6-9, 1999

Thursday, October 7, 1999

7:00-8:00	Breakfast with Norm Weeden, Luther Talbert	Holiday Inn
8:00-8:50	Entrance interview with search committee	229 ABS
9:00 - 9:30	Sharron Quisenberry	202 Linfield
9:30-10:00	Meet with Gary Strobel	206 ABS Bldg
10:00-10:30	Coffee break	327 ABS Bldg
10:30-11:00	Seminar preparation	108 ABS Bldg
11:00-noon	Teaching seminar	108 ABS
12:15-1:30	Lunch with undergraduates in Biotechnology program	Habit
1:00-2:00	Norman Weeden, Dept. Head	303 ABS
2:00-3:00	Tour ABS and PGC Buildings with David Baumbauer	192A PGC
3:00 - 4:00	Meet the LJH PS Faculty	325 LJH
6:30	Dinner	Looie's Down Under

Friday, October 8, 1999

7:00 - 8:50	Breakfast with Tom Blake	
9:00-9:30	Don Kress	202 Linfield
9:30-10:00	Seminar preparation	108 ABS Bldg
10:00-11:00	Research Seminar	108 ABS Bldg
11:00 - 12:00	Meet with the graduate students	108 ABS Bldg
12:00 - 1:30	Lunch with Martin Teintze Dan Pierce, & Martin Lawrence	Casa Sanchez
1:30- 3:00	Meet with Mark Jutila and Veterinary Molecular Biology	Marsh Laboratory
3:00-4:00	Meet the ABS PS Faculty	327 ABS
4:00-5:00	Exit interview with Committee	229 ABS
6:30	Dinner with Dr. Weeden and some of search committee	Boodles

Lab of the Month - Dr. John Sherwood



The Lab of the Month is room 337 ABS. It is quite nice, with lots of windows, good lighting, and is nicely decorated. However, what makes 337 ABS different than every other lab in ABS are the people that work there and the work they do.

My lab (previously known as 523 LJH) has housed between 3-8 people at any given time over the last 11 years (as of Nov. 1, 1999). Shirley Gerhardt has been, by far, the most tolerant and has been working with me for about 8 or 9 of those years. Paula Kosted's patience is undergoing the test of time, and she has been in the lab about 4 years now. I've also had a number of graduate students, Cyndi Anderson and Debbie Willits being the

rain. In fact, 70-80% of the land is still in untouched rainforest, making it one of the largest continuous rainforests in the world. As such, one can only imagine what interesting microbes must lurk there. In this past week we have already recovered over 200 microbes from such tree species as Octomeles which grows to over 200 feet and is the major source tree for native canoes. We are sampling many other native medicinal plants and are hoping to find microbes with promising medicinal and agricultural



Eric is gathering samples from the crown of a fagaceous tree about 50 feet up.

applications as we have in the past in Nepal, Guyana, China and central America.

When we arrived, a war was happening between two neighboring tribes. People were equipped with bows, arrows, spears and shields.

At least 1000 people were gathered at the airport and we weren't sure if we were subjects for the pot. You may remember that New Guinea is the place where Dr. C. Gadjick worked to solve the mystery of Kuru disease. It won him a Nobel prize in the late 70's early 80's and the cause of the disease was an infectious agent carried in the brains of dead humans. Consumption of the brains resulted in the transmission of the disease causing agent.

Today, New Guinea is not far removed from the stone age. It is rare to see anyone with shoes, fire is still made by friction, and marriages are only arranged for a bride price

aid by the groom and his family in the form of pigs, money, bilum bags and other implements.

The trip there was certainly one of the highlights of my foreign travels.



Members of a highland huli tribe who helped with sample gathering. They are dressed and decorated for a native dance called a singsing.

Farewell to Joanne

Joanne Jennings, a research associate, started her retirement last Friday after 15 years in Dr. Mathre's Lab. At her farewell party she received 2 gift certificates, one to Bangtail Bicycle Shop and one to Northern Lights. Her parting gift to us was getting all the beautiful plants and trees set up in the hallways. We will miss her greatly and wish her the best.

October Birthdays

Richard Hohne	1
Hope Talbert	5
Robert Sharrock	11
Arunrut Vanichanon	11
Mary Roloff	18
Jamie Sherman	20
Doug Collins	23

Happy Birthday!

Grants

Habernicht, Deb

USDA grant related to the Follow the Grain Course

Rick Bates

"Native Plant Propagation and Land Restoration"; Tribal College Curriculum Development, USDA

Mark Young

Thermal Biological Institute, NASA

"Development and Testing of a Novel Approach for Cancer Drug Delivery and Bio-imaging Using a Virus Protein Cage", Sheridan Research Institute

Recipe of the Month

Chicken Green Bean Casserole

- 3 cups frozen French-style green beans (from 16 oz package)
- 1 can (10 3/4 ounces) condensed cream of chicken or cream of mushroom soup
- 2 cans (5 ounces each) chunk chicken, drained
- 1/2 cup sour cream
- 1 package (6 ounces) chow mein noodles
- Paprika, if desired

1. Heat beans, soup and chicken to boiling in 2-quart saucepan over medium heat, stirring occasionally. Remove from heat; stir in sour cream.
2. Serve hot chicken mixture over noodles; sprinkle with paprika

most recent (and I'm looking for at least one new student, if anyone knows of any qualified individuals floating around out there). Gene Ford also winters in the lab from time to time. I usually have a couple of undergraduate students working in the lab also. Currently, Nathan Sayre (Biology) and Deena Hendrickson (Biotechnology) are starting projects.

My major research focus for the past 9 years has been looking at mating of *Ustilago hordei*, which is, of course, abbreviated as "Sex and Smut". Over the years, we have characterized mating in this fungus, obtained mutants, were the first to describe the role of pheromones in a fungus other than *Saccharomyces cerevisiae*, have cloned the pheromone and pheromone receptor genes, and are currently using site-directed mutagenesis to define some of the structural requirements of the pheromone. While trying to chemically purify the pheromones, we discovered a mating inhibiting activity in culture supernatants. Being plant pathologists, we saw this as a strategy for preventing smut diseases, since these fungi must mate to be pathogenic. After some struggle, these inhibiting factors were identified as pheromone breakdown products, which apparently act as competitive inhibitors of the interaction between the pheromones and their receptors. These findings have been extended to the bunt fungi, including *Tilletia indica*, the cause of Karnal bunt, because the compounds that inhibit mating in *Ustilago sp.* also inhibit teliospore germination in the bunt fungi. Greenhouse and field trials using these compounds as seed treatments have been inconsistent but promising. This work has been funded over the years by USDA and the Montana Wheat and Barley Committee.

I have recently started a collaboration with Mike Giroux looking at the anti-microbial activity of the puroindoline proteins that Mike studies because of their involvement in wheat seed hardness. Krish has shown that rice transformed with these wheat genes show increased tolerance to sheath blight and blast, while we have demonstrated a reduction in common bunt with wheat in which the genes are expressed in the whole plant, not just the seed. It looks like it could develop into a promising line of research.

Employee of the Month - Paula Kosted (337 ABS)



My husband and I moved to Northwestern Montana about 20 years ago from Austin, Texas. We lived in the Eureka area for 5 years where he worked for the Forest Service. We were caretakers of a fish hatchery property, that is now a resort called Loon's Echo, which had originally been a fish

hatchery. Our main job was to keep the beavers and muskrats from eroding the damn of a private lake and washing out the tiny town of Stryker below us. Both our boys were born there, believe it or not, in the homesteader's log cabin. We own a small stump culture Christmas tree farm which has mostly become very nice timber. I attended Flathead Valley Community College before coming to Bozeman to finish a Bachelors degree in chemistry. I worked on campus doing trace metal, enzyme and vitamin E analyses on human blood samples as related to the eye disease, macular degeneration. After several years I started graduate school and did my thesis on the effects of electromagnetic fields on biological systems using several standard DNA damage reporting systems to monitor those effects. I finished my PhD in Biochemistry in 1995 and started a postdoc with John Sherwood. His lab had been working on extracting the mating pheromones from the smut fungus *Ustilago hordei*. Instead of finding the pheromone, they found something which inhibited the mating of this fungus. I was hired to elucidate what compounds were responsible for mating inhibition. Since then we have synthesized the pheromones and determined this inhibitor to be part of the pheromone. We have expanded our interests to bunts and work with *Tilletia spp.* including Karnal bunt. We have shown these fungi produce something which will inhibit some portion of their life cycle and therefore inhibit their reproduction also. Our goal now is to determine the mechanism of action of these inhibitors.

For fun our family likes to travel. We recently took a trip to



Scandinavia. In Helsinki, Finland there are many large parks. One city park had botanical gardens and a botanical museum with the Victorian glass house seen in the picture.

Papua New Guinea by Gary Strobel

The rainforest of New Guinea offers an excellent opportunity to find and eventually study plant associated microbes. New Guinea has enjoyed independence for only 25 years and it is a struggling country trying to find its way in the modern world. Strangely enough, there are 800 languages spoken there which represent 20% of the world's total. This is probably related to the fact that the mountainous island has difficult and heavily forested