What’s New in Biology

The world of biology is constantly changing and so is the Department of Biology. This issue of the Bio News summarizes new developments within the department, provides an update on faculty research, and highlights the achievements of our students.

Personnel and curricular changes are at the forefront of the 2001-2002 academic year. Two new full-time faculty members joined the department. We have improved old courses, developed new courses, cemented collaborations with other departments, and established new collaborations with outside companies.

We have witnessed a steady growth of the Biopsychology major. Our introductory courses were reorganized into a three semester Principles of Biology sequence BIO-115 (Animals), 116 (Plants), and 117 (Cells) with BIO 115 and BIO 117 being team-taught. The Cell & Molecular tract was eliminated. On top of all this, we are in the final stages of filling faculty positions in Botany and Marine Biology for 2002-2003.

We continue to seek excellence in teaching and research. Our motto ‘Learning by Doing’ is perhaps more appropriate than ever (four of the faculty have current external funding). Take a look at this newsletter and let any of the faculty know what you think.

Looking through my grade books provides a backwards glance that prompts random memories and provokes thoughts about the future. Over 31 years, there were many wonderful students, those who loved to learn, even about plants, and some who as freshmen were greatly challenged but ‘caught on’ to become successful Biology majors and still others who left biology for successful careers in other disciplines.

Many made teaching memorable. I’ll only mention Kevin Graveline whose independent study project led me to the Hamilton-Trenton Marsh and to what serendipitously would become my research focus. His first trip there was in two left hip boots. I also remember his great fear of the very large wolf spiders we’d see occasionally. Kevin’s independent study of marsh seed banks, published in 1978, is still cited. Many other students also experienced the marsh and some, to my amazement, were prone to falling over as soon as they stepped on the marsh surface. Only one ever got seriously stuck, but I can honestly report that I never lost a student or a boot.

Teaching was never dull or boring although, I admit, reading lab reports was often frustrating. The quality of writing seemed to deteriorate over the years, but perhaps because as I became more convined of its importance, I became more critical. I was actually paid for doing what I loved doing, namely keeping up with the

(Continued on page 8)
New Faculty Focus: Kelly Bidle, Ph.D.
Assistant Professor 2001

Dr. Kelly Bidle’s arrival at Rider is a kind of home coming. She was raised in NJ received a BS in Biology from Cook College of Rutgers before earning a Ph.D. in Molecular and Cell Biology from the University of MD. She had three NSF grants and a research scientist position at the Scripps Institution of Oceanography in CA before Rider. She was attracted to the Biology department by the resources for student research, the small classes, and the opportunity students have to get to know the faculty. She is committed to sharing the excitement of biology with Rider students.

Dr. Bidle developed her interest in marine biology growing up a ‘beach bum’ on the NJ shore and taking midnight swims with her friends. At Rider, Dr. Bidle teaches BIO 101, BIO 215 with lab, BIO 265 with lab, and BIO 400. She advises Biology majors as well as Marine and Environmental Science students. “It is a joy teaching non-science majors” as well as science states Dr. Bidle. “I welcome the challenge of getting all students excited about microbiology, genetics, & environmental science.”

In her first year at Rider, she has submitted a $300K grant to the NSF titled Characterisation of Salinity Regulated Genes in Halophilic Archaeon Halofax volcanii. She is a member of the American Society of Microbiology and an ASM undergraduate fellowship panelist.

Dr. Bidle enjoys cooking, running, and brewing her own beer. She lives in Lawrenceville with her husband Kay (a marine biologist at Rutgers) and 3 yr old son William—with additional family members arriving in the summer 2002. Her favorite ice cream is chocolate and she drives a really cool Volkswagen stationwagon.

New Faculty Focus: E. Todd Weber, Ph.D.
Assistant Professor 2001

E. Todd Weber, Ph.D. comes to Rider from the University of Houston where he was a research assistant professor studying biological rhythms. He earned a BS in Biology from Slippery Rock University in PA as well as MS and Ph.D. degrees in Physiology from the University of IL. He feels Rider is a great place for students with diverse interests who want to be part of the scientific community. “The Biology faculty take their jobs seriously but still manage to have fun. Rider would have been a great place for me to go to college” says Dr. Weber.

Dr. Weber’s interest in biology was evident even when he was a child in central PA—he spent much of his childhood wandering in the forest with his dog. In school he thought it was cool that he could learn about the stuff he was seeing in nature. His progression from BS, to MS, to Ph.D. in biology was a natural one.

At Rider, Dr. Weber teaches BIO 115 lectures and lab; BPY 107, BIO 222 with lab, BIO 305 with lab, and BPY 415. In his first year at Rider, he has submitted an $80K grant to study cancer-related fatigue to the NJ Commission on Cancer Research.

When not teaching or in his lab conducting research, Dr. Weber enjoys reading, cooking, hiking, and long drives in his pickup truck (he left his gun rack in Houston however). He lives in Lawrenceville with his cat Sugar-T. His favorite barn animal is a horse. His favorite ice cream is Rocky Road.

He is looking forward to his first summer in NJ to collecting more data, mountain biking, and kayaking on the Delaware river.
**Biopsychology Major**

From its’ very humble origins, the Biopsychology major is having a positive impact as the fastest growing part of the Biology Department. The 2001-02 academic years marks the 5th year of the BPY program. We now have over 30 majors—including 6 who are double-majoring in elementary or secondary education. With the addition of Dr. Todd Weber to the faculty we have more year-round research opportunities for students interested in the biological basis of behavior.

The BPY curriculum has been streamlined to 52 credits in courses from the Biology, Psychology, Chemistry, and Math Departments. Program highlights include a freshman level Behavioral Neuroscience lecture and laboratory course (BPY 275/275L) and a menu of upper level courses in Biology and Psychology. As part of our efforts to increase awareness of the brain and behavior to non-science majors, we’ve created a non-majors Life Science course (BPY 107: Life Science Biopsychology Emphasis) which has been taught by Drs. Weber and Deni (from Psych). In addition, the psychology department has a new fulltime faculty member (Stephanie Golski, Ph.D. Johns Hopkins University) to teach Statistics (PSY 205), Sensation & Perception (PSY 238) and Biopsychology (PSY 255).

BPY graduates appear in a wide variety of places: as MS- or PhD-level graduate students, research technicians, professional soccer players, pharmaceutical sales representatives, employment coordinators, in addition to other entrepreneurial enterprises. Contact Jonathan Karp or Todd Weber for more information.

**Weber Laboratory**

Research in the Weber lab is now running full steam. The lab has preliminary data suggesting that pain sensitivity of mice is not decreased after long bouts of physical activity... so much for rodent "jogger's high"... although the addition of a wheel to the cage seems to have increased tolerance during the daytime. Those data were submitted in an abstract, "Introduction of a running wheel alters sensitivity to painful stimuli: preliminary data on tail flick latency in male BALB/C mice," to the Society for Research on Biological Rhythms meeting in May 2002.

Vincent Hohn, a sophomore biopsychology major at Rider, is in the process of setting up activity monitoring equipment to characterize the circadian rhythms of spiny mice from Dr. Deni's colony. Sarah Karmazin, a freshman biopsychology major, is gearing up to characterize the sensitivity of the spiny mouse "clock" to photic input. We’re still awaiting word on my grant to the New Jersey Commission on Cancer Research addressing the effects of chemotherapeutic drugs on circadian rhythms.

**Bidle Laboratory**

Dr. Bidle wants to discover how an unusual group of microorganisms, called extremophiles, can survive in habitats that would kill most living things. For example, she began her research career looking at hyperthermophiles, which are microbes that are found in hot springs and hydrothermal vents. These organisms can survive temperatures above 100°C!!! She has also examined deep sea microbes that survive very high pressures and is currently working with a group of extremophiles called halophiles - "salt-loving" organisms found in places like the Dead Sea and Great Salt Lake. These halophiles love salt so much that they grow very well on unsterilized salt crystals. In researching all of these unusual microbes, Dr. Bidle is interested in examining the molecular biology of exactly what types of genes enable these extremophiles to survive and thrive in their extreme environments. Current students in her lab are Sharron Hicks, Jason Neumann, Brian Redding, and Cindy Smith.

**ABOUT THE RESEARCH**
I continue to work on my project involving the effects of protease inhibitors on breast cancer cells. Specifically the hypothesis is that cell surface proteases are involved in activating specific growth factors that regulate cell proliferation. Ethan Fitzpatrick and Sarah Martin are two students working in the lab studying the cell surface protease named TACE. This work represents a long-term project that has been funded by the NIH AREA program and is a collaboration with Dr. Thomas Finlay at NYU Medical Center.

I am also interested in developing tools for studying single cells. Toward this end I have been working with Sarnoff Corporation to develop microfluidic devices that have channels that are approximately the dimensions of cells (10 microns in diameter). Cells that flow down the microchannels can be interrogated using lasers and detectors to visualize activities of whole cells. The cell surface protease TACE is being used both as an interesting target for new anticancer drugs and as a proof of concept that we can build tools that can detect enzyme activities in whole cells.

**Riggs Laboratory**

This past summer, Dr. Riggs gave an invited seminar, *Etymological Forays into Microbiology- Creative Wordplay Reflects a Dynamic Science*, at the Society for Industrial Microbiology meeting held in St. Louis, MO. In July, he attended the American Association of Immunologists Advanced Immunology Course at Stanford University. Dr. Riggs served as reviewer for Krieg, Pelczar, Chan, Elgert, and Roop's *The Microbial Universe*, a new microbiology textbook being developed by John Wiley & Sons. Justin Taylor and Bruce Matechin worked in the Riggs' laboratory during the summer of 2001. Justin presented the fruits of his summer research in November in a poster, *T cell proliferation inhibited by peritoneal cells*, at the 27th Annual New England Immunology Conference held in Woods Hole, MA. Bruce's summer research is being integrated with studies done by Tracey Prior, Koko Howell, and Rod Chiasson to complete a manuscript dealing with B cell lymphoma development with aging in XID mice.

Koko spent the summer of 2001 working in John Somerville's immunology lab in the Dept of Immunology and Inflammation at Bristol-Myers Squibb. Koko presented her Spring, 2001 research as a poster, *Reduced ability of B-1 B cells to present a retroviral superantigen to helper T cells*, at the Spring, 2001 American Society for Microbiology meeting held in Orlando, FL. Koko and Justin continue to work in the Riggs' lab this fall.

Kirk Hinkley, Tracey Prior, and Rod Chiasson have a paper in press, *Age-dependent Increase of Peritoneal B-1B Cells in SCID Mice*, in *Immunology*. Kirk is a second year medical student at Pennsylvania State College of Medicine in Hershey, PA. Tracey has left Ortho McNeil in Raritan, NJ and moved to Illinois where her new husband is working on his Ph.D. in chemistry at the U. Illinois. Rod is a Sr. Genotyping Technician at Orchid Bioscience in Princeton.

The Riggs lab recently received an National Institute’s of Health Academic Research Enhancement Award, "*Immunosenescence in TCR Transgenic Bone Marrow Chimeras*" totaling $132,608. These funds will support student-assisted research investigating changes in the immune system found with aging.

In January, 2002 Dr. Riggs provided a short course in immunology to patent attorneys at Bristol Myers Squibb. In spring, 2002 Dr. Riggs presented research conducted by Karen Mahon, currently at PBL Biomedical Laboratories in New Brunswick, Koko, Tracey, and Justin at the ASM Meeting in Salt Lake City, UT.

Dr. Riggs continues to work on the integration of business and science curricula. The BIO-106 Life Science: Human Disease Emphasis course, team taught with Dr. Ilene Goldberg, recipient of a Harper Professorship, was well-received by the students. Besides Dr. Riggs lectures for this course, additional content was provided by other Science faculty: John Adamovics presented information regarding the history of the pharmaceutical industry, Julie Drawbridge discussed Transgenics and Pharming, and Bruce Burnham covered the development of heart disease drugs. Business faculty provided great content as well: Hope Corman, Pharmaceutical Economics; Susanna Monseau, Patent Issues; Ilene Goldberg & James Castagnera, Legal/Business Issues. A highlight of the semester was a guest lecture on drug marketing provided by Rider Business Advisory Board Member Stephen Zollo, Vice President of Marketing for Johnson & Johnson.

Dr. Riggs is now the chair of the biology department where he gets to sign his name at least 20 times a day on lots of meaningless pieces of paper!
**Karp Laboratory**

The Karp Laboratory continues to study the effects of psychological stress on the immune system. A new (2002-2004) AREA grant from the NIH, titled *Noradrenergic Interactions and Immunity*, will examine the effects of ‘taco’ exposure on immune responses of mice who have been treated with chemotherapeutic drugs. The preliminary data for this grant was based on experiments conducted by Rider graduates Jason Smith (currently at U. Illinois veterinary school), Kris Hawk, and junior Biopsychology major Jennifer Szczytkowski. Lauren Morris (2001) presented her work on psychosocial influences on mice infected with herpes simplex virus type-1 at Thomas Jefferson University. Lauren and Heather Gordon’s research was featured in a poster Dr. Karp presented at the 2001 meeting of the Society for Neuroscience in San Diego. Dr. Karp will also be attending the Psychoneuroimmunology Research Society meeting in Madison WI in May 2002 to present data showing enhanced antibody production and elevated norepinephrine levels in mice treated with cyclophosphamide.

Current students in the lab are working on a variety of stress-related projects. Jennifer Szczytkowski presented her work on the effects of stress and cyclophosphamide on norepinephrine, epinephrine, and dopamine levels in the spleen and adrenal glands of mice at TJU and won an undergraduate research award. Jennifer was accepted into the summer research program at TJU and will be spending 8 weeks this summer in a neuroscience research lab in Philadelphia. Phil Spies has discovered a sexually dimorphic immune response of KLH-immunized Spiny mice after 3 min on an elevated-tube maze. Sara Steinberg is making some exciting observations about antibody responses of ‘tacoed’ mice to live versus dead herpes virus. Dawn Cook (S01 and F01) and Rani Vesudiva (S02), students from Mercer County Community College, are examining the effects of stress and chemotherapeutic drugs on antibody titers in mice after ovalbumin administration.

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**Karp Laboratory**

The Karp Laboratory continues its preoccupation with nearly microscopic translucent beasts that you can smooch. Four avenues of research are being explored: 1) determining the spatio-temporal expression patterns of c-ret, GDNF and GFRα1 (a signal transduction complex) in frogs and salamanders; 2) determining the function of the above in kidney duct formation in frogs, salamanders and (with the help of Dr. Marcia O’Connell at TCNJ) fish; 3) determining how the cloacal diverticulum (butt duct) fuses with the kidney duct in frogs; 4) working out an in vivo electroporation method for introducing transgenes into the migrating kidney duct of salamanders.

The NSF-funded laboratory received $7,700.00 supplement from the NSF to support Monica Fonseca and Becky Lumpkins last summer. Student currently working in the lab with Lean include Dianne DeRiggi, Jen Olson, Becky Lumpkins, and Melissa Bosak.

The article *Axolotl Pronephric Duct Migration Requires an Epidermally-Derived, Laminin-1-Containing Extracellular Matrix and the Integrin Receptor alpha6/beta1* which Drawbridge co-authored with colleagues A. Morris (Emory University) and M. Steinberg (Princeton) will appear soon in the journal Developmental Biology.

Recent meeting attended by Dr. Drawbridge and her students include the 2001 Annual meeting of the Society for Developmental Biology in Washington, DC where Dr. Drawbridge, Maxwell C. Lloyd and Bryant Chen (under the auspices of SELECT) presented a poster titled ‘Integrating Biotechnology Teaching Laboratories with Current Events: A Simple PCR Assay for Genetically Modified Corn’. Aspects of this well received poster have been incorporated into the BIO116L curriculum and the data collected showing transgenes in popcorn will be published in the journal Cell Biology Education. Becky presented on her work with the butt duct and Melissa presented her in vivo electroporation method at the 2001 Annual Meeting of the Society for Developmental Biology. Dr. Drawbridge, Mary E. Kite, Christopher M. Meighan and Rebecca Lumpkins also attended the 2002 Northeast Regional Society for Developmental Biology Meeting in Wood’s Hole where they presented a poster ‘The Ret signaling system and pronephric duct migration in *Ambystoma mexicanum* and *Xenopus laevis* embryos.’

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**Axolotl Ret and GFRα1 are expressed in the PND but not the pronephros. In situ hybridization of whole mount axolotl embryos with probes to AxoRet (A-C) and AxoGFRα1 (D, E) reveal that both are expressed throughout the length of the PND. Note that stain for both molecules is more intense in the posterior PND. Also note that the pronephros (arrows) is not stained at any of the stages shown here. A, stage 26; B, stage 30; C, stage 34; D, stage 27; E, stage 31.**
MOVING FORWARD

New Biology Courses

**BIO 206: The Pharmaceutical Industry.** Covers topics related to the pharmaceutical industry including: history of drug discovery, product development, marketing, patent process, and regulatory procedures. Offered by Dr. John Adamovics in the fall 2002.

**BIO 215/215L: Environmental Microbiology.** Introductory examination of the microbial world of oceans, soil, atmosphere, and extreme habitats. Will be taught by Dr. Bidle in the fall 2002.


**BPY 275/275L: Behavioral Neuroscience.** Freshman level introduction to nervous system regulation eating, drinking, reproduction, emotions, learning, memory and sickness behavior. Taught by Dr. Karp beginning in the spring 2001.

Corn Transplant Successful

Graduates from the late 1980’s and 1990’s may recall their Introductory Biology lectures, freshman labs, or Genetics with Dr. Michael Benner. Some students may recall trying to get spots to appear in appropriate places on gels. Future students however will be spared these fates. Dr. Benner has taken an administrative position as the Academic Coordinator of the Teaching & Learning Center (see article below).

As part of his mid-career crisis, Dr. Benner now proudly wears a tie to work and makes sure his socks match every day. He and his colleagues from the School of Education have secured extramural funding (including the largest grant ever given to Rider) to renovate the third floor loft and initiate a formal program of science education for K-12 teachers.

You can still view Dr. Benner in his glass-enclosed office in the Teaching & Learning Center on the third floor.

An Invitation to Campus for Alumni and Friends

Some really great things have been happening in the Sciences at Rider in the last few years. We have finished renovating the ‘loft’ on the third floor of the new science wing and have created the Bristol-Myers Squibb Center for Science Teaching and Learning. Dr. Michael Benner, our geneticist (Dr. Carlson’s replacement) has become a science education guru. His work has been recognized by the National Science Resource Center (NSRC) which is an education arm of the National Academy of Sciences. His program at Rider has been held up as a national model for how Colleges and Universities can interact with area K-12 schools particularly in the area of science education.

On Friday, April 12, 2002 there will be a dedication of the BMS Center for Science Teaching and Learning. Dr. Bruce Alberts, President of the National Academy of Sciences will give the keynote address on issues concerning science education and literacy. There will also be a panel discussion.

In order for you to see the facility (and us faculty of course) we are having a cocktail party for our science alumni from 4:30-6:30 in the Fireside Lounge in the Student Center. This will be followed by departmental mini-symposia (6:30-8:00) so you can hear about some of the research activities going on here at Rider.

We continue to strive for an undergraduate experience that is rich in showing the excitement of DOING science and not just talking about it!!

Mustard and Crabs

**Laura Hyatt** will join Rider's faculty in the fall of 2002. A plant ecologist with interests in biological invasions and population dynamics, she received her PhD from the Univ. Pennsylvania in 1996, and has done postdoctoral work at the Univ. NM and SUNY Stony Brook. She will be teaching Field Natural History, Ecology and Botany in the 2002-3 academic year. Dr. Hyatt will be studying garlic mustard beginning late this summer and in the fall.

**Paul Jivoff,** a marine biologist, will join the faculty in the fall of 2002. Dr. Jivoff research in marine ecology includes evaluating reproductive behaviors of blue crabs. He has a Ph.D. from the Univ. Maryland at College Park and is currently a Research Associate at the Smithsonian Environmental Research Center in MD. Dr. Jivoff will engage Rider Students in research in the summer 2002.
Science-Business Liaison: new minor anticipated

To provide opportunities for students to combine the study of business and an appreciation of science, a new life science minor in Science & Business is under consideration. Drs. Joe Nadeau, CLAES Dean, Jim Riggs, and Hope Corman, professor of Economics, are spearheading efforts to work this proposal through the formal administrative process.

This minor is in response to a growing demand for Rider students to be fluent in the vocabulary and theory of both business and scientific investigation. As highlighted in the last edition of the BioNews Rider hopes to be at the forefront of preparing this type of interdisciplinary student.

Required science courses for the minor will include: one Life Science course (BIO 100: Human Emphasis, BIO 101: Cell & Genetics Emphasis, BIO 106: Disease Emphasis, or BPY 107: Biopsychology Emphasis) as well as CHE 115: Chemistry & Contemporary Society and BIO 206: The Pharmaceutical Industry. In addition, students will need to complete two laboratory courses in Biology. Suggested lab courses include BIO 115/115L: Principles of Biology: Evolution, Diversity, and Biology of Animals, BIO 117/117L: Principles of Biology: Evolution, Diversity, and Biology of Cells, BIO 221/221L or 222/222L: Human Anatomy & Physiology I or II, or BPY 275/275L: Behavioral Neuroscience.

Required business courses for the minor will include HTH 205: Introduction to the Health Care Sector or ECO 336: Health Care Economics. The majority of these courses will be offered in the evenings and/or summer to accommodate working students.

In the fall 2001, Dr. Riggs in association with Ilene Goldberg, as a recipient of a Jesse Harper Professorship, initiated the first cross-disciplinary Life Science course. Bio 106 was transformed into a course that studied disease biology and business attitudes and approaches to dealing with disease. Outside speakers from the Rider business and scientific community, pharmaceutical scientists, as well as marketing executives from local pharmaceutical companies presented different approaches to dealing with the business of treating human diseases. In the spring 2002, Dr. Kelly Bidle’s BIO 101 class focused on the biological and biomedical use of information being gathered in the current genomics revolution. Again, lectures were provided by faculty of various departments from Rider and outside speakers from the local pharmaceutical and drug-development industries. For the fall 2002, BIO 206: The Pharmaceutical Industry will be offered for the first time.

Kudos to Biology & Biopsychology Students

The following Biology and Biopsychology students were invited to join Sigma Xi, the International Honor Society for Scientific Research and/or the Rider University Chapter of Tri-Beta, the Biological Honor Society. An induction ceremony & luncheon was held on Sunday March 10, 2002 at the Green Acres Country Club. Students and their families experienced a fine meal that was capped off by a lecture on the significance of biological rhythms in our everyday lives by Dr. Todd Weber. Congratulations to all.

Sigma Xi Inductees: David, Storey, Richard Crosswicks, Daniel Smith, Justin, Taylor, Koko Howell, Jen Olsen, Melissa Bosak, Jill Brown, Russell Burke, Robert Mack, Matt Wotjko, and Sharon Feldstein

Tri-Beta Inductees: Aidedotun Ajagunna, Alison Weaver, Amina Shareef, Andrew Skow, Anthony Pennello, Brooke Smith, Diana Gonzalez, Diane DeRiggi, Jason Neu- man, Jennifer Menzel, Jennifer Nannen, Mardel Cooper, Marefa Siddique, Mark Buckalew, Meghan Shanely, Monica Fonesca, Richard Crosswicks, Robin Matlack, Robyn Cromen, Ryan Reber, Saltanat Najma, Sarah Karmazin, and Sarah Martin.

The following Biology, Biopsychology, and Biochemistry students made the Dean’s List in the School of Liberal Arts and Sciences in the Fall semester 2001. Keep up the good work!

Dean’s List Fall 2001: Aidedotun Ajagunna, Jane Altemus, John Alvarez, Eleni Angelopoulos, Melissa Bosak, Mark Buckalew, Richard Crosswicks, Diane DeRiggi, Monica Fonesca, Christopher Gentile, Tiffany George, Diana Gonzalez, Vincent Hohn, Koko Howell, Sarah Karmazin, Jennifer Lauhutte, Rebecca Lumpkins, Sarah Martin, Bruce Matechin, Robin Matlack, Jennifer Menzel, Thiahang Nguyen, Jennifer Olsen, Teresa Paulish, Ryan Reber, Brian Redding, Amina Shareef, Brooke Smith, Cynthia Smith, Sara Steinberg, Jennifer Szczykowski, Brett Taylor, and Justin Taylor

The Faculty Phi Beta Kappa Club of Rider University inducted the following students into the Honor Key Society in a ceremony at Rider University on April 24, 2002:

John Alvarez, Koko Howell, Rebecca Lumpkins, Tiffany George, and Justin Taylor.
new botanical discoveries, spending time out-of-doors (all those Field Natural History, Botany, and Biology field trips!), and ‘doing research’. Research challenged me to learn a bit about computers and resulted in my meeting many interesting people from around the world. Collaborators include Margaret Brock, an Australian, and Wolfgang Schutz from Germany.

The Biology Department over the years, even as it changed, provided a milieu in which I could thrive. In the 1970’s and early 1980’s I had colleagues with whom I did research. Bob Simpson and Dennis Whigham initiated Hamilton – Trenton Marsh studies in 1972. When Dennis left to go to the Smithsonian Environmental Research Center, he was replaced by Tom Parker, also a botanist. Then when Tom left to go to San Francisco State, the position changed focus and Jonathan Yavelow came in 1982 to teach a modern cell biology course. In the late 1980’s, when Bob left to become dean of science at William Patterson College, the opportunity was taken to help develop the marine science program and Dave Campbell, a marine biologist, was hired. Other colleagues, Marvin Talmadge (microbiology), Jim Carlson (genetics), Tom Mayer (developmental biology), and Leroy Oddis (vertebrate physiology), who were here when I was hired, all retired in the 1990’s. Changes in faculty have provided opportunities to modify programs as the field of biology changed and to provide students with up-to-date teaching and techniques.

In 1970 expectations for faculty revolved primarily around teaching. Now, recently hired faculty are expected to have postdoctoral experience that translates, e.g., into a greater opportunity for students to become involved in faculty research projects and availability of specialized, sophisticated equipment bought with grant money. Their successful research programs are to some extent coincident with a reduced faculty workload (from 12 to nine contact hrs/semester). Frankly, after 12 contact hours plus time spent prepping labs, I was too exhausted to think much about student summer research or funding for a personal research program.

Other changes have occurred. In 1970 the Biology Department offered only a biology major. The biochemistry major, a joint endeavor of the Biology and Chemistry Departments, was followed by the Marine Science and Environmental Science majors, offered through the Geological and Marine Sciences Department, and most recently Biopsychology. Biology is now exploring the interface with business, especially in health-related fields. Another interface that has long been obvious is the development of science education that effort was underscored by the dedication of the Bristol Meyers Squibb Center for Science Teaching and Research this spring.

Beyond the classroom, the kinds of opportunities available for students have increased over the years. Bob Simpson and Dennis Whigham’s summer field research program at the Hamilton - Trenton Marsh employed many students, but that was unusual. Now faculty research grants, which incorporate undergraduate research experience by design, support students during the summer. Co-authorship with faculty on publications continues. There are also many kinds of internships available.

Now, some observations regarding facilities. Imagine Science Hall in 1970. It was a linear brick and cinder block building. There was a small greenhouse near the lecture hall used concurrently for student projects, research, as well as for growing display plants. The ‘new’ greenhouse, built in 1979, has had ongoing research nearly continuously since then. The Science and Technology Center became a reality in 1993 with completion of a wing where chemistry labs, faculty research labs, and an animal care facility are located. With renovation of the ‘old’ wing, space on the third floor was converted to faculty office suites. Two computer labs also appeared on the third floor.

This reminds me that in the ‘old days’ we had no computers nor did faculty have individual phones. Instead, messages were taken by the secretaries and replies to messages were made at a secretary’s phone, literally hanging over her desk. This was followed by a single faculty phone that was in a closet. It is truly a luxury having a personal phone, one that records voice mail..... who would have ever thought such a thing was possible in 1970? Similarly, computers were phased in (The computers may have come before the faculty phone). The first two computers and a printer were housed in a tiny room near the Science Hall office; in the mid 1980’s Biology had four of its own terminals in S124; and

It continues to amaze me that I was actually paid for doing what I loved doing, namely learning about plants, spending time out-of-doors, and ‘doing research’.

Mary Leck

(Continued from page 1)
**Where is the sign-up sheet?**

Dr. Paul Kayne, a senior research investigator from Bristol Myers Squibb, visited Rider on April 1, 2002 and spoke to a filled Yvonne Theatre about strategies and implications of genome research. His lecture was titled ‘Applying genomics: getting from here’. Dr. Kayne’s presentation covered both business and scientific issues involved in the ongoing human genome project.

**Surviving members of Dr. Bidle’s BIO 116 Laboratory during a field trip to the Hamilton-Trenton Marsh on May 1, 2002.**

Dr. Bidle, what were you thinking?

**From L to R. Sharon Feldstein (Bio 01, Education grad student), Jonathan Yavelow, Jonathan Karp, Mike Rutkowski (University grants coordinator), and (kneeling) Jim Riggs pose for a photo in ‘The Marsh’ while on tour of the local environs with Mary Leck.**

**Fred Turek, Ph.D. From Northwestern University joins J. Karp, J. Drawbridge, and T. Weber at a reception after the**
Alumni & Student Updates

Nataliya Prokopenko, Rider Biology alum (2000) and second year medical student at UMDNJ, RWJ, has just received a prestigious Howard Hughes Medical Institute Fellowship to conduct research in immunology at the NIH next year. Congratulations Natasha- we're all very proud of you!!!!!!

Heather Gordon has completed her Ph.D. qualifying exam at Dartmouth College where she is in the Cognitive Neuroscience Program

Keith Wilson, Rider alum who is currently conducting HIV vaccine research at Merck appeared as a co-author on a paper in the top tier journal Nature (Replication-incompetent adenoviral vaccine vector elicits effective anti-immunodeficiency-virus immu-

Senior Kellianne Wargo will attend the Ph.D. program, Medicinal Chemistry and Molecular Pharmacology at Purdue University beginning in the fall

Senior Justin Taylor will enter the Ph.D. program in Immunology at the University of Pennsylvania begin-

Kevin Duffy is a 3rd year graduate student in pharmacology at Thomas Jefferson University. He is studying the effects of antisense oligonucleotides against the K-Ras oncogene in an ovarian cancer

Heather Gordon has completed her Ph.D. qualifying exam at Dartmouth College where she is in the Cognitive Neuroscience Program

Steven Rushford will be graduating from medical school in June 2002 and will begin a UMDNJ-affiliated pediatric residency in July at Morristown Memorial Hospital/Overlook Hospital in NJ.

Heather Estebanez reports that she is still working for Berlex Pharmaceuticals and has been promoted from product representative to a coordinator for new drug representatives.

Debbie Cinco is earning a Masters Degree at UMDNJ and considering staying on to join the Ph.D. program next fall.

Tracey Prior recently moved to Illinois and is working in a research lab at the University of IL at Champaign Urbana.

Gennaro Dito is working in a research laboratory at Thomas Jefferson University in Philadelphia.

Jason Smith is in his first year of University of Illinois College of Veterinary Medicine. Jason writes that he is happier than ever and near the top of the first year class. Jason and Renata Lieberchuk married before moving west. Renata is working as a technician in a hematology lab at the university.
Rider University and the NJ Commission on Cancer Research through the efforts of Jonathan Yavelow co-sponsored a free conference for cancer patients, survivors, students, and the public on December 1, 2001. The day-long conference represented a unique opportunity for internationally recognized cancer experts to get together and discuss promising research and practice in cancer care. The conference also provided an opportunity for anyone who life has been touched by cancer to have interactive discussions with cancer experts.

The many discussion groups included:

- **Research Highlights from the American Society of Clinical Oncology Conference** by Robert Wieder, MD, PhD, UMDNJ Medical School
- **A Better Way to Treat Cancer: The Gleevec Story** by Sandra Silberman, MD, PhD, Novartis Oncology
- **East Meets West in Cancer Care** by Michael Cirigliano, MD, FACS, U Penn School of Medicine
- **Pain Control & Symptom Management: You Are in Control!** by Jack Goldberg, MD, Cooper Health System
- **Quality vs. Quantity of Life: What’s Really Important** by Barbara Rabinowitz, PhD, Meridian Health Systems
- **Where’s Shirley?** An educational play addressing many of the myths and fears that a number of women have about breast cancer.
Mary Leck

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now each faculty member has a computer at her / his desk. What did we do in the ‘old’ days? Well, there were TYPEWRITERS! (I recently gave my still functional Olivetti to Rider for its antique typewriter collection)! The secretaries typed exams, letters, and research papers for us. The computer is a most significant invention. To be able to do statistical analyses, plot graphs, as well as write, or virtually instantaneously have a conversation with a colleague in Australia, for example, are not trivial.

So, what hasn’t changed? Determining grades at the end of each semester never got any easier. I complained for 31 years. More fundamentally, the department’s commitment to teaching continues to be important, but, as noted above, research opportunities provide a significant hands-on educational experience. Rider science, in general, is still a well-kept secret; local high school students don’t think of coming to Rider to major in science. There continue to be institutional constraints in recruiting students interested in science. From my perspective, balancing ‘need’ scholarships with ‘enticement’ scholarships would mean additional excellent students. Advertising in the education supplements of regional newspapers could be useful in changing our image.

I spent considerable time last year, debating whether to retire, or as I preferred to call it, ‘redefining my job’, but after 31 years it was time to write up some marsh studies (one being revised, two new ones in the works), to think about an edited book project that has been on the back burner for more than 10 years (not much progress here yet), and to take some time for photography (yes, I am buying more film and I’m moving toward getting a fancy tripod as hand-held moon photos make one nauseous. But just how much equipment can a retired botanist carry in a backpack??).

What is unimagined now will be reality in 30 years as Biology at Rider changes, programs evolve, and technological advances are made. Students experience a rapidly changing world. Many important advances will come from research on the International Space Station. But this is likely to be the decade, if not the century, of genomics. The human genome was published in February 2001. The map of our genes will provide scientists with tremendous opportunity to understand what makes us human and for developing therapies for genetic diseases. The genomes have also been worked out for a number of bacteria and higher organisms. The possibilities for good are limitless, but exploitation of these advances will raise many ethical and moral questions. Science literacy is critical for all in order to make informed decisions about gene therapy, genetically modified crops, and other scientific innovations.

The state of the world impacts us all. Globalization, the extremes of famine and poverty, ruination of rain forests and wetlands, the decline of biodiversity, the over-use of resources from the Arctic to the Antarctic and in the oceans and elsewhere on the planet will compromise the advances of science. What we do has broad impact for humans as well as for ecosystems and the whole biosphere. We need to understand that interconnectedness and to make informed decisions and behave accordingly. We each need to cut the umbilical cords to the TV and the computer and spend more time appreciating the out-of-doors!