

FALL 2002

# BIO

COLLEGE OF BIOLOGICAL SCIENCES

UNIVERSITY OF MINNESOTA

## Teaching and Research Community

College of Biological Sciences and Medical School faculty and students moved into the new \$80 million Molecular and Cellular Biology Building this summer, creating a community of biologists who will work together to push the boundaries of knowledge.

GENE WARS • DEVELOPMENTAL BIOLOGY • SUMMER AT LAKE ITASCA

## FROM THE DEAN



Robert Elde, dean

### Changes at CBS and the U

Welcome to the first issue of *Bio*, the College of Biological Sciences' new magazine, which replaces *Frontiers* and reflects the growth and change at CBS and in biology.

We chose the name *Bio*, Greek for 'life,' because life is what we are about, from understanding how it works at the molecular level to promoting quality of life on our planet. Increasingly, the world's problems are biological in nature: the effects of pollution on ecosystems; the strain of global population growth on food supplies; and the threat of

cancer, infectious diseases, and bioterrorism, to name a few. More and more, the world is turning to biologists for solutions.

As you can see, *Bio* brings us to you in living color. I was very glad to make this change because for me, biology is colors. There is nothing quite so disappointing as a black and white photo of a wild Minnesota orchid or a monarch butterfly. The cost difference between printing in black and white and color has narrowed over the past few years. And this year, we were able to close the gap by doing design, production, and printing within the University rather than using outside services.

This year is one of other important changes for the College of Biological Sciences and the University of Minnesota. Over the summer xx faculty and staff made the long-awaited move into the new Molecular and Cellular Biology Building on the Minneapolis campus. This change, which makes us the only two-campus college at the U, is an evolutionary event in our history that presents many new research and education opportunities.

A \$1.7 million grant from the Howard Hughes Medical Institute to use Itasca as a base for training more K-12 biology teachers also extends our reach. This is a distinct change from the role the station has played in its 93 year history.

There are big changes at the top, as well. With the departure of Mark Yudof, regents have entrusted Bob Bruininks and Chris Maziar with leadership of the University. As veterans of the Yudof administration, they are very knowledgeable about the University and will provide great leadership. We are in good hands. I look forward to working with them.

Please read this issue of *Bio* and let me know what you think. I welcome your feedback. Just send an e-mail to [belde@cbs.umn.edu](mailto:belde@cbs.umn.edu).

Regards,

Robert Elde, Dean



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*CBS donors for FY 2002*

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♻️ Printed on elementally chlorine-free recycled paper containing 20 percent post-consumer waste.

**On the Cover** Located between Moos Tower and Jackson Hall on Washington Avenue, the new Molecular and Cellular Biology Building is at the entrance of the Academic Health Center and across the street from the Institute of Technology. This strategic address will promote collaboration with health sciences and engineering.

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Scholarships

BIO is published three times a year by the University of Minnesota College of Biological Sciences for alumni, faculty, staff, and friends of the college. It is available in alternative formats upon request; please call 612-624-0774 or fax 612-624-2785.

## More kudos for Tilman

David Tilman, McKnight Presidential Professor of Ecology, was elected to the National Academy of Sciences in May. Membership acknowledges distinguished research and is considered one of the highest honors for U.S. scientists. He is the only U of M faculty member elected



TIM RUMMELHOFF

to the NAS this year. Tilman's research proves that grasslands with many species of plants survive drought better and produce more vegetation than land with only a few species. The NAS,

which acts as an adviser to the federal government in matters of science and technology, was established in 1863 and has 1,907 active members. Other NAS members from ecology, evolution, and behavior include emeriti professors Herb Wright, Margaret Davis, and Eville Gorham. "I did not do this alone," says Tilman. "Everything we accomplish in life is the result of team work. A lot of the credit for these accomplishments goes to my graduate students and colleagues." Tilman was also named a Regents Professor—the University's highest honor for faculty—this spring. ■



Packer will study viral transmission among prides (social groups) of lions in Tanzania's Serengeti National Park and Ngorongoro Crater.

## Less buggy world

The world is far less buggy than previously believed, according to a study involving CBS plant biologist George Weiblen. The study, which lowers the estimate from 31 million bug species (mostly insects, spiders, and crustaceans) to four to six million, is based on the finding that insects feed on plant families rather than individual plants. Weiblen, principal plant biologist on the team, says that "bringing some reality" to estimates of worldwide biodiversity will enable scientists to get a better handle on how fast species are being lost. The study, funded by the National Science Foundation, looked at 51 rain forest plants in New Guinea and more than 900 types of plant-



Caterpillars (Lepidoptera) feed on the leaves of *Ficus nodosa* in the New Guinea rain forest.

eating species. The total number of species of all kinds on the earth is unknown. Estimates range from 7 million to more than 50 million. Of the 1.8 million species documented thus far, about half are arthropods. The study was reported in the April 25 issue of *Nature*. ■

## Smaller, lighter, cheaper, DNA chip reader

Mark Sanders and Martin Blumenfeld have invented a DNA chip reader that is smaller, lighter, and cheaper than any other models on the market. An associate professor of genetics, cell biology, and development, Blumenfeld created the company Blizzard Genomics to commercialize their invention, which relies on LED technology rather than costly lasers. LED technology is used in traffic lights, tail lights of cars, and stadium scoreboard lighting. The reader, which is the size of a

toaster and weighs 15 pounds, would cost half as much as the least expensive machine now on the market without sacrificing technology. DNA chip scanners now available are about the size of a copy machine, weigh up to 100 pounds, and cost \$75,000. The U has filed three patents for the device. Blizzard Genomics has raised \$1.6 million to produce and market this invention, and is attempting to raise another \$5 million. Sanders is director of the CBS Imaging Center. ■

## Viral transmission in lions

Craig Packer, ecology, evolution, and behavior, has received a five-year grant of \$1,482,000 from the National Science Foundation for his research project, "Viral Transmission Dynamics in the Serengeti." His study will investigate the transmission dynamics of three viral pathogens: rabies, canine distemper virus, and canine parvovirus, identifying reservoirs of infection through a combination of approaches that include intervention trials, genetic analyses, and disease surveillance. Of the emerging infectious diseases, zoonotic and generalist viral pathogens pose a particular threat to public health and biodiversity. The effective control of these diseases requires both the identification of reservoirs of infection and an understanding of viral transmission dynamics within complex host assemblages. Yet for most emerging infectious diseases, reservoirs remain to be identified and little is known about mechanisms by which infections are maintained. ■



## New gene transfer method

David Largaespada, genetics, cell biology, and development, reported on a new gene transfer method in the April 2 issue of the *Proceedings of the National Academy of Science*. Largaespada and his colleagues describe the use of a transposon and Sleeping Beauty transposase, an enzyme, to genetically modify a mouse. The technique has many potential applications for treating diseases such as hemophilia and cystic fibrosis. Largaespada is co-founder of Discovery Genomics, which has exclusive rights to Sleeping Beauty technology. ■

## Biodale “shop” opens

There will soon be another “shop” opening at Biodale, CBS’ shopping mall for biotech research services. David Bernlohr received an NSF Research Instrumentation Grant of \$490,891 to establish a Proteomics Core Facility as part of the Biodale technology corridor in the College of Biological Sciences. The facility will house a robotic spot picker, digesters, and MALDI plate spotter along with a 2-D gel system and software license. It will interface with the Mass Spectrometry Facility and be located in 46 Gortner Laboratories. Bernlohr is a McKnight Distinguished Professor and head of the Department of Biochemistry, Molecular Biology, and Biophysics. ■

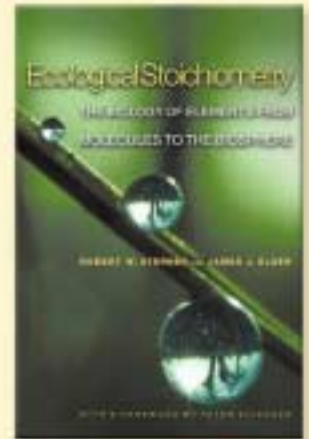


TIM RUMMELHOFF

The Advanced Genetic Analysis Center is one of several “shops” in Biodale.

## Books by faculty

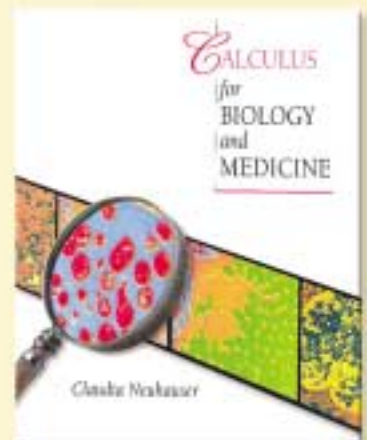
“**Ecological Stoichiometry: The Biology of Elements from Molecules to the Biosphere,**” by **Robert Sterner and Jim Elser**. This long-awaited book on ecological stoichiometry – the balance of chemical elements in ecological interactions – brings this field into its own as a unifying force in ecology and evolution. Synthesizing a wide range of knowledge, Sterner, CBS professor and head of ecology, and Elser, University of Arizona, show how an understanding of the biochemical deployment of elements in organisms from microbes to metazoan provides the key to making sense of both aquatic and terrestrial ecosystems. The book won’t be published until Dec. 1, but can be ordered now on Amazon.com.



**Michael Simmons and Peter Snustad** have published the second edition of their very successful textbook, *Principles of Genetics*. The book, which has been translated into numerous languages, is a standard genetics text in universities around the world. Simmons is professor of genetics, cell biology, and development; Snustad is professor of plant biology.

**Claudia Neuhauser**, has published the second edition of her textbook “*Calculus for Biology and Medicine.*”

Neuhauser developed a course and wrote the text to relate calculus to life sciences research. “I wanted students to understand calculus conceptually, not just to be able to differentiate and integrate functions,” she says. “And I wanted them to see how calculus is used in cutting-edge research and to enjoy it by using life sciences examples.” After discovering that no book on the market addressed this issue, she wrote one herself. Neuhauser is a professor of ecology, evolution, and behavior.



## Lake Itasca Science Teachers Institute

CBS was awarded a \$1.7 million grant from the Howard Hughes Medical Institute to support biology education in northwest Minnesota. The grant will be used to create the Lake Itasca Science Teachers Institute to ease the shortage of biology teachers in the area and to encourage more Native Americans to enter this field. Lake Itasca Forestry and Biological Station will serve as the campus for the program, which will provide rural internships for future K-12 biology teachers and professional development for current middle school and high school

teachers in the Bagley, Bemidji, Grand Rapids, Park Rapids, Waubun, and White Earth Reservation school districts. Program directors are Robert Elde, CBS dean, and Steve Yussen, dean of the College of Education and Human Development. Other partners are the University of Minnesota Science CentrUM, Itasca State Park naturalists in the state Department of Natural Resources, and the six school districts. Jane Phillips, coordinator of CBS instructional labs, prepared the grant proposal and will be involved in its administration. ■

## Celebrate Cedar Creek's heritage on Sept. 21

You are invited to celebrate the 60th anniversary of Cedar Creek Natural History Area from 1:30 to 5:30 p.m. on September 21. A living laboratory for ecologists, Cedar Creek is the site where ecological theory was born and continues to thrive today. Research conducted at Cedar Creek on the value of biodiversity is helping ecologists understand how to manage global ecosystems. Cedar Creek is also known as the place where radio-

tracking was developed to study animal behavior. We hope you will be able to join us for the day to celebrate this unique University of Minnesota resource. The event begins with a program at 1:30 p.m. followed by refreshments, tours of Cedar Creek, and a radio-tracking demonstration with Goldy Gopher. Children are welcome. For more information, contact Emily at [ejohnsto@cbs.umn.edu](mailto:ejohnsto@cbs.umn.edu) or 612-624-4770. ■

## Cargill Genomics building topped off



PAUL GERMSCHIED

The Cargill Building Microbial and Plant Genomics building, under construction on Gortner Avenue, reached its full height in July. To mark the occasion, the building was topped off with a mature corn plant rather than the traditional evergreen tree. In June, Regents approved naming the building to recognize Cargill Foundation's \$10 million gift, which covered half the cost of the building. The 65,000-square-foot facility will support genomics research to improve the food supply, clean up the environment, and develop new drugs. It will be used by faculty from CBS and the College of Agricultural, Environmental, and Food Sciences. A grand opening is planned for March, 2003. ■

### Correction:

The article "Living Laboratory" in the spring issue of *Frontiers* contained incomplete information about the development of telemetry at Cedar Creek Natural History area. In the late 1950s John Tester and Dwain Warner, Bell Museum of Natural History, and engineering professors Tom Irvine and James Hartnett explored the possibility of studying wild animals in their natural environment using equipment similar to that used to monitor Laika, the dog in the Russian satellite, Sputnik. With funding from the Hill Family Foundation of St. Paul, a research team headed by William Cochran and Larry Kuechle developed radio transmitters and receivers that were used to monitor movements and activities of many kinds of animals. Our thanks to William Schmid for calling this omission to our attention, and to John Tester and Dwain Warner for providing additional information.



## Greenhouses get \$17.7 million

\$17.7 million for Plant Growth Facilities was included in the capital bonding bill approved by the 2002 Minnesota Legislature and Governor Ventura at the end of May. Funds will be used to complete phase 2 of construction to replace obsolete greenhouses. Dean Elde thanks all faculty, staff, alumni, and students who contributed to the grass roots support effort by writing letters and making phone calls. Special thanks go to Ruth Shaw, professor of ecology, and Dave Biesboer, professor of plant biology, who led planning for the project and advocated for funding. Phase 1 of the project—a 9,600 square-foot biocontainment facility to study insects that transmit diseases—among crop plants, will be completed this fall. ■



## Undergrad research

For the 13th consecutive summer, undergraduate students from across the country participated in the Life Sciences Summer Undergraduate Research Program, (LSSURP) at the College of Biological Sciences. This year, 72 students engaged in intensive laboratory or field research experiences under the tutelage of U of M faculty, including 10 faculty mentors from the College of Biological Sciences. Objectives of the program, which is co-sponsored by the Medical School, are to increase the number of undergraduates who earn graduate or professional degrees in the life sciences, and increase the number of women and individuals of color in these pools.

## PEOPLE

**Gary Nelsestuen**, professor of biochemistry, molecular biology, and biophysics, is the first holder of the Samuel Kirkwood Chair in Biochemistry. The chair, which honors the memory of biochemistry professor Samuel Kirkwood, was created to support outstanding faculty. Nelsestuen, a former student of Kirkwood's, is a leading researcher who studies membrane-protein interactions and mechanistic enzymology. He developed a protein now licensed to Eli Lilly as the first drug to treat sepsis. Kirkwood joined the biochemistry department in 1956 and was the first professor to receive the Morse-University of Minnesota



Gary Nelsestuen

Alumni Association Award for Undergraduate Education. He became head of general biology in 1981, retired in 1987, and died in 1999.

**Palmer Rogers**, professor emeritus of microbiology, died suddenly in May from an aneurysm at the age of 74. Rogers received his Ph.D. from Johns Hopkins University in 1957 and served on the faculty at the University of Minnesota from 1962 until his retirement in 1999. A dedicated teacher and researcher, he was much admired by his students and associates. Rogers served the College of Biological Sciences as the Director of Undergraduate Studies for Microbiology and was recognized in 1998 with the Stanley Dagley/Samuel Kirkwood Undergraduate Education Award. An active researcher in the area of microbial physiology, he focused on genetics of organic acid production by bacteria. With assistance from his wife, Donna Gunderson Rogers, CBS has established a Palmer Rogers Microbiology Undergraduate Scholarship Endowment. Contributions can be sent to: College of Biological Sciences, 123 Snyder Hall, 1475 Gortner Avenue, St. Paul, MN 55108, attention Janene Connelly.

**Bill Herman**, genetics, cell biology and development, retired this spring after 36 years at CBS. After earning his Ph.D. at Northwestern University and gaining postdoctoral experience in endocrinology at the University of California-Berkeley, Herman joined the zoology department at the University of Minnesota in 1966. He joined the genetics and cell biology department in 1976 and served as head from 1980-89. Herman was devoted to teaching and research in invertebrate endocrinology. His classes were very well received and filled a clear need in this area. According to his long-time colleague, Ross Johnson, "If you ever wanted to see Bill wax enthusiastic, all you needed to do was ask him about the mode of action of a hormone." He also enjoyed his studies of monarch butterflies. ■

# Gene wars – the evolutionary struggle between crop plants and pests



Georgiana May helps crop plants stay one gene ahead of pests.

“I see myself as providing evolutionary information that will help people manage genetic resources to provide more durable resistance for crops and develop more ecologically sustainable systems.”

—Georgiana May

**If you think the world’s energy resources are being gobbled up too fast, ask**

Georgiana May what’s happening to our genetic resources. The genes that allow crops to resist pests also challenge the pests to evolve new means to pull an end run around the resistance mechanism. The result: a constant cycle of “gene warfare” in which crop breeders must run to stay one step ahead of whatever “bug” is breathing down their necks.

“Most major resistance traits last about five years,” says May, an associate professor of ecology, evolution and behavior and of plant biology. “After that, scientists have to scour the wild and cultivated relatives of crop plants to find new genes that confer resistance.”

Overuse or misuse of different forms of pest control leads not

only to vulnerable crops, but to vulnerable people, says May.

Antibiotics used inappropriately to treat human infections or in livestock feed have been implicated in the rise of drug-resistant bacteria, some of which have wreaked deadly havoc. The cycle is bound to continue, but May is out to slow it down. She is using her skills as an evolutionary biologist to find genes that will protect plants while evoking

milder or slower counter-evolution of resistance in the pests and pathogens that afflict them.

As part of two efforts funded by the National Science Foundation’s Plant Genome Project, May looks for promising genetic material in several major crop species. One project focuses on the plant family that includes potatoes, tomatoes, eggplant, tobacco, and peppers. She has studied resistance genes and the molecular mechanisms by which the plants have evolved many and varied copies of the genes. Now, May is drawing on her knowledge of those evolutionary mechanisms to predict which genes will protect the crops against future threats in a more sustainable manner. “We look for DNA sequences that are similar to known resistance genes but occur in different species,” says May. “These are genes that have

already been ‘hanging around’ for a long time.”

In contrast to crops and pathogens at war with each other, corn and the fungal pathogen known as corn smut seem to have declared a truce of sorts, and this forms the basis of a second project. Working with Ron Phillips, Regents Professor in agriculture, May is investigating why the smut isn’t a serious problem for corn, even though the crop is usually planted in large monocultures—the classic “sitting duck” for any pathogen that comes along.

“We’re trying to understand why certain pathogens haven’t evolved hypervirulence,” says May. “Corn breeders early in the century must have done something right.” Because the genetic makeup of smut is part of this equation, May and Phillips are examining its genome, too.

As efforts to protect both valuable plants and nature’s reserves of genetic resources continue, May regards her evolutionary approach as the best because it gives a “big picture” of what’s going on. “I see myself as providing evolutionary information that will help people manage genetic resources to provide more durable resistance for crops and develop more ecologically sustainable systems,” she says.

—Deane Morrison



# Fruit fly genes provide cancer development clues

**A**t first glance, a fruit fly seems distantly related to those of us with backbones. The multi-faceted eyes and elaborate bristle patterns on body parts, which have appeared in many a science fiction movie, are outright alien.

Yet, as is often the case, appearances can be deceiving. At the cellular and molecular level, the similarity between fruit flies and humans is stunning—a fact that new faculty member Scott Selleck uses to better understand, diagnose, and treat cancer, the second leading cause of death in the U.S.

Selleck joins a distinguished team of *drosophila* genetics experts, including Michael O'Connor, holder of the Ordway Chair in Developmental Biology and a Howard Hughes Medical Institute scholar. Alumnus Ed Lewis won the 1995 Nobel Prize in Medicine for pioneering work in fruit fly genetics and human development that he began at the University of Minnesota.

Of the roughly 64 human genes linked to tumor development, 70 percent have a corresponding gene in the fruit fly. "That means that for more than two-thirds of human cancers you can look to fruit flies for insight," says Selleck, who has been studying *Drosophila melanogaster* for the past nine years as a professor at the University of Arizona at Tucson.

This fall, Selleck joins the faculty at Minnesota with appointments in

pediatrics and in genetics, cell biology, and development. He will also hold the Martin Lenz Harrison Land Grant Chair in Pediatrics. A developmental biologist with an interest in diseases, Selleck holds M.D. and Ph.D. degrees from Washington University School of Medicine in St. Louis. And he spent four years as a post-doctoral fellow at M.I.T and Brandeis University, studying cell division in fruit flies, before setting up his own lab in Tucson, where he also served as director of molecular genetics at the Arizona Cancer Center.

Fruit flies are an ideal tool for studying cancer development, he says. "The basic mechanisms of how cells talk to one another, how development proceeds, and how tissues are assembled, are all conserved in the evolutionary tree," he says. Whether human or fruit fly, the genes that control cell division operate in similar ways. Understanding how cell division is controlled during fruit fly development has led to a number of discoveries relevant to human cancer.

"The first fruit fly gene we identified at Arizona corresponded to a human gene that affects tumor development," Selleck says.

Humans who inherit a mutation in that gene are more susceptible to tumors, and loss of the gene is



Scott Selleck will join a distinguished team of *drosophila* experts.

associated with a number of malignancies. The gene Selleck discovered encodes a cell-surface protein that affects how cells respond to messages from neighboring cells. "These molecules are important regulators of how cells receive instructions governing many biological processes, from cell division to the assembly of blood vessels" Selleck adds. "I am confident that understanding this new class of molecular receptors will have many medical implications."

Selleck was attracted to Minnesota by opportunities to collaborate, as well as the joint appointment and endowed chair. The U offers him the chance to bridge the gap between pediatrics and development biology, as well as work with colleagues across a wide range of disciplines.

Genetics of *drosophila*, or fruit flies, has long been an area of strength at the University of Minnesota. ▶

"If I want to explore the function of these genes in vertebrate model systems, such as zebrafish and mice, on the way toward studies in humans, all I have to do is walk down the hall and say, 'Hey, I have this idea, let's work on it together.'"

—Scott Selleck





CBS faculty members David Kirkpatrick, Pete Magee, and Judy Berman all conduct research on various forms of yeast, including *Candida Albicans*, a pathogen that causes a variety of infections in humans. Their labs are now joined, which enables them to work together more easily.



# molecular & Cellular Biology BUILDING

**The \$80 million Molecular and Cellular Biology Building provides exceptional facilities for CBS faculty and students. More importantly, it creates a community of scientists where open labs and meeting spaces encourage collaboration, the key to discovery, and where biology students rub elbows with top life sciences faculty.**

**O**n the upper floors of the gleaming new Molecular and Cellular Biology Building on Washington Avenue in Minneapolis, lab benches stretch along the length of each wing, flowing one after another without walls or doors to separate them. In the words of David Bernlohr, Head of the Department of Biochemistry, Molecular Biology, and Biophysics, "it's impossible to tell where one person's lab stops and another starts."

Welcome to the University's newest academic building, where the traditional boundaries between colleges and scientific disciplines blur, and researchers

form new alliances based on their interests in addressing specific questions about life's most basic processes.

A joint project of the College of Biological Sciences and the Medical School, the seven-story, 270,000-square-foot Molecular and Cellular Building was designed and constructed with state funding, at a cost of \$80 million. Four upper floors are dedicated to research, and two lower floors are devoted to undergraduate and graduate instruction. There is also one floor of research resources. On the outside, red brick and pre-cast concrete integrate the building into its campus neighbor-

hood, which includes Jackson Hall, the Basic Sciences and Biomedical Engineering Building, and Moos Tower on the South side of Washington Avenue and Institute of Technology buildings across the street. Lots of windows let ample light into laboratories and meeting areas.

In this new building, scientists from the College of Biological Sciences and the Medical School work side by side, applying the latest technologies in molecular and cellular biology to answer a variety of research questions. Faculty from three departments are the primary tenants: About half are in the Department



Instructor Mark Decker leads a class in one of the new General Biology labs. The General Biology program offers basic biology courses for undergraduates throughout the University.

of Genetics, Cell Biology, and Development; 40 percent in the Department of Biochemistry, Molecular Biology, and Biophysics; and 10 percent in the Department of Neuroscience. The first two are joint departments of the College of Biological Sciences and Medical School; Neuroscience, which is affiliated with CBS, is part of the Medical School. Researchers are clustered along programmatic rather than departmental lines. Cross fertilization is a primary objective in bringing these disciplines together.

The opening of the MCB Building culminates years and in some respects decades of discussion and planning. Similar academic departments, such as biochemistry and genetics, developed separately on the St. Paul campus (to support agricultural research) and Minneapolis campus (to support medical research). Creating duplicate departments to support different programs was common practice at large

research universities. The separation was maintained when the College of Biological Sciences was created in 1965. But with advances in biology, the differences between basic biological research in agriculture and medicine gradually faded.

“Over the years there was talk of merging the departments,” says Bernlohr, whose father was a professor of microbiology in the Medical School from 1961 to 1974. “But because they reported to separate deans on separate campuses, administrative hurdles got in the way.”

In 1997, when President Mark Yudof identified molecular and cellular biology as a major university initiative, faculty-driven plans for merging similar units re-surfaced. Deans Robert Elde, CBS, and Al Michael, Medical School, took the lead

in crafting a plan to create joint basic research departments. And the University’s commitment to win funding from the Legislature for a new building to house the departments catalyzed the reorganization.

The Molecular & Cellular Biology Building takes the reorganization process one step further, giving 70 researchers a strategically located home at the intersection of medicine, liberal arts, and engineering. On the simplest level, the new building allows them to share expensive equipment, making research more efficient economically. More importantly, it enables them to share and discover knowledge. Discoveries are often made at the boundaries where disciplines intersect.

Below is an overview of research in the new departments that occupy the building.

#### **Department of Biochemistry, Molecular Biology, and Biophysics (BMBB).**

Scientists in this department focus on the structure and functions of molecules and assemblies. Their basic science investigation provides new insight into fundamen-



The lobby of the new building provides a comfortable, quiet, and attractive study area for students.

tal biological and chemical processes and the foundation for clinical research programs in cancer biology, aging, diabetes, and other metabolic diseases.



**Department of Genetics, Cell Biology, and Development (GCD).** Many faculty researchers seek to understand how genes function in normal and abnormal cell and organism development. These programs are clustered around model organisms, such as yeast, worms, zebrafish, and mice. In addition, cell biologists study functional mechanisms and structure of cells.

**Department of Neuroscience.** Neuroscience faculty study the control of sensation, movement, and thought at the molecular and cellular level. Their work has profound implications for understanding and treating chronic pain, addiction, and disabilities caused by stroke and spinal cord injuries.

Students at all levels also benefit from the state-of-the-art labs and classrooms. The General Biology Program, which provides basic biology instruction for students University-wide, and the CBS Instructional Laboratories which serves students majoring in biology, are both housed in the new building. There are also instructional laboratories for medical and dental students. Graduate students and post-doctoral researchers work in the new laboratories. The building is a powerful lure to faculty members and graduate students who are being recruited into the University's molecular and cellular biology programs.

But it's the building's expected boost to research that administrators most look forward to. The open design is at the core of that excitement.

"One of the most important things a dean can do," says Bob Elde, dean of the College of Biological Sciences, "is bring people together. The new building is a magnet for bringing people together and encouraging them to interact in new ways."

"Scientists used to live their lives inside a box—an individual lab with walls," says David Bernlohr. People talk about 'thinking outside the box.' In this new building, there are no boxes. The implicit assumption is that the combination of people and facilities will serve as a catalyst for thinking outside the box."

Brian Van Ness, head of the Department of Genetics, Cell Biology, and Development, expects the open design to enable scientists to apply lessons learned from simple organisms, such as yeast and zebrafish, to more complex organisms. "The open format of the building is uniquely designed to promote those interactions," he says.

Because biology is advancing at such a rapid pace, a key advantage of the

building is its flexibility and openness. "As technologies change in the decades ahead, we can re-configure the space to support them," Bernlohr says. "The assembly of exceptional scientists and combination of facilities, programmatic organization, and open floor plan assures that the Molecular and Cellular Biology Building will be among the top research facilities in the country," says Van Ness.

*The Molecular and Cellular Biology Building opened this summer. A dedication ceremony will be held October 9, 2002. If you would like to attend, please contact Janene Connelly, [Connelly@cbbs.umn.edu](mailto:Connelly@cbbs.umn.edu), or 612-624-7496.*

—Frank Clancy



TIM RUMMELHOFF

David Bernlohr head of Biochemistry, Molecular Biology, and Biophysics (front); Tim Ebner, head of Neuroscience (back left); and Brian Van Ness, head of Genetics, Cell Biology, and Biophysics, take time out in a beautifully designed break room. Faculty in their departments occupy the building's four floors of research labs. Break rooms are located on each floor to encourage interaction.

# Summer at Lake Itasca

“By the time fall session starts, students already have friends and faculty they’ve met, they’ve made s’mores with, counted the stars with... You can’t do that here in the Twin Cities.”

—Stephen Ekker

**M**ajestic pines . . .  
pristine lakes . . .  
lifetime friendships gained and lessons learned . . . such are the images Jon Ross carries from the first year he spent at the Lake Itasca Forestry and Biological Station as an undergraduate in 1973.

Thirty years later, Ross—now resident biologist and assistant director of the station—enjoys watching the next generation of students build memories of their own.

The Itasca station, established in 1909, is high on the list of features that make the University of Minnesota a great place to be a budding biologist. Perched on the

edge of the headwaters of the Mississippi River, surrounded by 32,000-acre Itasca State Park, it offers an invigorating venue for education and research for some 1,000 station visitors each year. Located at the convergence of three great biomes—northern coniferous forest, prairie, and hardwood forest—the field station is a unique resource for biologists.

Prominent among academic offerings is the summer biology program. Two sessions give students the opportunity to take a rich variety of classes focusing on topics such as botany, animal behavior, photography, insect diversity, and telemetry. Other upper Midwestern colleges bring their own students for similar courses in spring and fall.

Sarah Suskovic had a blast taking the mammology course this year. “We watched beaver, caught and observed bats, tracked small rodents with fluorescent dye, and howled for wolves and coyotes,” she says. “I enjoy the opportunity to be out in the field, to intensively concentrate on an area without everyday distractions, and to interact with others who share my interests.”

The summer field biology program is one of many offerings at Itasca. Others include international exchange programs, neuroscience courses, and before-school orientation programs to enable new undergraduate and graduate stu-

dents to get to know each other and faculty. The station, particularly during the summer, is also a magnet for researchers because of the abundance of flora and fauna represented within the park.



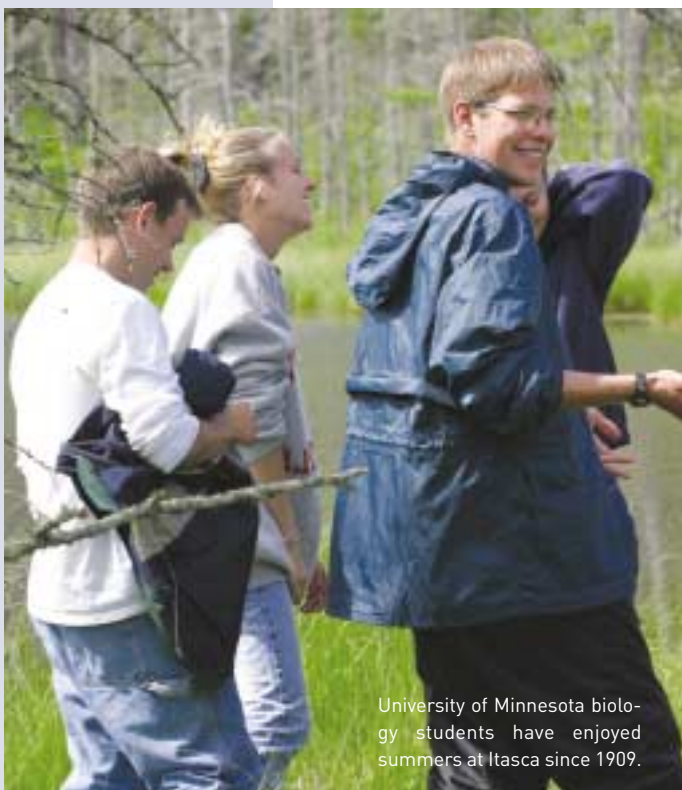
DONALD RUBBELKE

The field station is a valuable complement to campus-based classrooms and labs says station director David Biesboer.

The away-from-it-all atmosphere also creates a learning-enhancing camaraderie among individuals from a variety of backgrounds

“It’s a terrific experience,” says Stephen Ekker, a faculty member in the Department of Genetics, Cell Biology, and Development, who co-directs the molecular biology session. By the time fall session starts, he says, students “already have friends and faculty they’ve met, they’ve made s’mores with, counted the stars with. . . . You can’t do that here in the Twin Cities.”

—Mary K. Hoff



University of Minnesota biology students have enjoyed summers at Itasca since 1909.

DONALD RUBBELKE



# Behind the scenes of “Wild Chimpanzees”

**Y**ou won't see Anne Pusey on screen in the film “Wild Chimpanzees” when it premieres at the Science Museum's IMAX Theatre this fall. But she had a substantial behind-the-scenes supporting role in the making of this film about Jane Goodall and her studies of chimpanzees.

Pusey took that role on a few years ago when she accompanied a group of Science Museum filmmakers to Tanzania and gave them a tour of Gombe Stream National Park where Goodall's research is based. A student of Goodall's in the early 1970s, Pusey now heads up the Jane Goodall Institute's Center for Primate Studies—housed at the College of Biological Sciences.

This fall, “Wild Chimpanzees,” which evolved from that initial visit, will premier in IMAX theaters across North America. Slated for worldwide tour, the 42-minute film tells Goodall's story, features lots of shots of cute chimps, and champions the ongoing work of scientists such as Pusey and her students who study chimpanzee behavior and work to preserve their habitat.

Though she doesn't appear onscreen, Pusey served as principal scientific adviser for the filmmakers and she reviewed the final script for scientific accuracy. CBS doctoral student Elizabeth Vinson Lonsdorf makes her screen debut in the film.



See Jane Goodall and friends in the IMAX film “Wild Chimpanzees,” opening at the Science Museum October 17. Anne Pusey, director of the Goodall Center for Primate Studies at CBS, was scientific adviser.

As part of the film's promotion, Lonsdorf will serve as a science educator and guest speaker, visiting classrooms and science centers across the country in the coming year.

The release of the film coincides with an extensive redesign of the center's Web site ([www.discoverchimpanzees.org](http://www.discoverchimpanzees.org)). Funded by the Science Museum, the new Web site is an educational tool and an interactive showcase for the center's work.

Pusey hopes the film and Web site will bring the center more visibility and attract financial support for its mission. In 1995 Jane Goodall entrusted all of her hand-written field notes, some in Swahili, and photographs (38 years worth) as

well as videotapes to the center, making it the archives for her research and an important resource for primate researchers worldwide. But the records must be cataloged, translated, and scanned before they can be made available electronically. Pusey is raising funds to make this possible.

*Contributions may be sent to the Center for Primate Studies c/o Janene Connelly, 123 Snyder Hall, 1475 Gortner Ave., St. Paul, MN 55108. For more information about making supporting the center, contact Janene Connelly at [connelly@cbs.umn.edu](mailto:connelly@cbs.umn.edu).*

—Joel Hoekstra

Though she doesn't appear onscreen, Pusey served as principal scientific adviser for the filmmakers and she reviewed the final script for scientific accuracy.



# CAMPAIGN COUNTDOWN

AS CAMPAIGN MINNESOTA WINDS DOWN, MANY GOALS HAVE BEEN REALIZED. BUT SUPPORT FOR STUDENTS REMAINS A CRITICAL NEED. IN FACT, LEADERS HAVE IDENTIFIED IT AS A TOP PRIORITY.

**S**tate support for the University is shrinking and tuition is increasing. Although the University of Minnesota is a land-grant institution, it is rapidly becoming a *hybrid university*—a cross between a public and a private university—as its dependence on private support increases. That’s why contributions for scholarships and fellowships are more important than ever before.

Here at the College of Biological Sciences, the need is particularly acute. CBS’ scholarship and fellowship endowment is much smaller than those of most other U of M schools and colleges because it is a relatively young school. Dean Elde hopes to increase this endowment to \$10 million.

The College’s future is tied to building the endowment because competition for the best and brightest students is keen, Elde explains. Top high school students are recruited by other universities and offered generous scholarships. At the University of Minnesota, only 18 percent of new freshmen receive academic scholarships while more than half have financial need. Thus Minnesota is at risk of losing gifted young people to other states with more scholarship resources. Even though Minnesota may be the first choice of these students, their need for financial assistance may lead them elsewhere.

The College of Biological Sciences offers approximately 70 scholarships and fellowships each year. There are many others who need and deserve this support. And CBS students are among the most qualified at the University.

Gifts are needed for both endowed and

annual scholarships and fellowships. While the former insures that the future will be strong, the latter meets needs of CBS’ growing number of current applicants.

You could help a student like Melinda Buck, a senior majoring in genetics, cell biology, and development, who will be the first person in her family to graduate from college. Melinda received the Biological Sciences Alumni Society scholarship and the Paul Morris Scholarship.

Born in Bay City, Wisconsin, she became interested in genetics in a seventh-grade science class. After attending Bethany College in Mankato for two years, she transferred to the University of Minnesota because of opportunities to participate in research. She was also attracted by the small-college feeling of CBS.

“It’s been easy to make friends here,” she says.

Now president of the Genetics, Cell Biology, and Development Club, she

passes a friendly welcome along to many other students. She also sings with the University of Minnesota gospel choir, and last summer recorded her own CD.



Melinda Buck, the first member of her family to graduate from college, received the BSAS and Paul Morris scholarships from CBS.

RICHARD ANDERSON

This year, Melinda is doing a directed research project in cancer genetics. After she completes her education, she plans to be a genetic counselor or to work as a scientist for a biotechnology company.





# Meet BSAS President Phill Lawonn

**M**et Phill Lawonn, the new president of the Biological Sciences Alumni Society. A native of Milwaukee, Wisconsin and die-hard Green Bay Packers fan, Phill received his B.S. degree in microbiology from CBS in 1984. He is now manager of analytical and regulatory services of Cellresin Technologies.

Phill lives in New Brighton with his wife, Mary, sons Andrew and Benjamin, and German Shepherd Shelby. Phill is involved with his church, enjoys most sports, and plays

**“I decided to become involved with BSAS because I felt my college and career experiences might enable me to help other young biologists wrestling with the same questions and decisions as I did.”**

—Phill Lawonn

golf and tennis as often as he can. He also enjoys gourmet cooking, wine tasting, and listening to jazz.

Phill decided to join BSAS to share his experiences with students and reconnect with CBS alumni, he says. “I’ve had a great time so far, and I’m looking forward to many years of promoting the University while having fun meeting and networking with other alumni.”

He’s particularly interested in helping students as they make important education and career decisions.

“I decided to become involved with BSAS because I felt my college and career experiences might enable me to help other young biologists wrestling with the same questions and decisions as I did,” he says. “I’m impressed by the caliber of today’s CBS students, who are very bright and motivated. I have had a great time giving back, and encourage others to do the same.”

As this year’s president, Phill has outlined three goals for the board: increase active involvement and membership in BSAS; provide events that are useful and interesting to a broad alumni base; and strengthen connections with CBS students.

“The common thread among these goals is drawing on our diverse alumni group to provide opportunities for career growth, networking, socializing, and mentoring students,” he says.

“If you are currently a member of BSAS, let me say thank you for your involvement. I hope we can continue to be a group that you find fun and interesting. If you’re not a member, I ask you to think about those times when you got some helpful advice, and to consider passing that along. You may find it as rewarding as I have.”

RICHARD ANDERSON



BSAS President Phill Lawonn is a manager at Cellresin Technologies.

## CBS Homecoming

Don’t miss the CBS Homecoming Extravaganza on Friday, October 11. There will be fun and games for all to enjoy. There will be a barbeque on the lawn in front of Snyder Hall as well as the bonfire later that night. So mark your calendar and get out the maroon and gold. Homecoming with CBS is just around the corner! Watch for your invitation in the mail

## CBS Mentor Program

Attention mentors! The 2002-2003 mentor program will begin on November 7 with the Mentor Program Kick-off at 6:00 pm. Enjoy a light reception and take this opportunity to meet your student, discuss your goals for the relationship, and plan your activities. If you haven’t signed up yet, contact Emily at 612-624-4770 or [ejohnsto@cbs.umn.edu](mailto:ejohnsto@cbs.umn.edu) or [www.alumni.umn.edu/cbsmentor](http://www.alumni.umn.edu/cbsmentor).

# Julie Anderson Kirihara

## receives alumni honor



TIM RUMMELHOFF

Julie Anderson Kirihara is founder of ATG Laboratories and president of MNBIO.

**“Julie is an extremely talented scientist. More importantly, she is simply a wonderful person.”**

**—Pete Snustad**

### **A** s a U biochemistry student in the 1980s, Julie

Anderson Kirihara earned a reputation among her peers and professors as researcher who was going places. This fall, the University will acknowledge that she has arrived. Kirihara, now president of the biotechnology company ATG Laboratories, Inc., and head of the trade group MNBIO, will receive a 2002 Outstanding Achievement Award for her work in cloning and her efforts to promote Minnesota’s biotech industry.

Kirihara will accept the award at the CBS Recognition and Appreciation Dinner at the McNamara Alumni Center on October 10. The honor, approved by the Board of Regents, is conferred upon graduates who have attained unusual distinction in their professions or in public

service, and who have demonstrated outstanding achievement and leadership.

“Julie is an extremely talented scientist,” says Peter Snustad, professor of genetics and associate head of the department of plant biology. “More importantly, she is simply a wonderful person.”

In 1994, Kirihara founded ATG Laboratories with a former coworker, Laura Torborg Kakach. Based in Eden Prairie, Minnesota, the company now employs eight people and provides services in gene cloning and expression. Specifically, ATG clones genes and expresses recombinant proteins in bacterial and insect cells for work in a variety of research fields, chiefly pharmaceuticals. The company’s clients include Fortune 500 companies, government labs, smaller businesses, and academic researchers.

ATG was a significant contributor to the work of researcher Gary Nelsestuen, professor of biochemistry. His recent findings about the role mutant proteins play in blood clotting required experiments with nearly 60 different protein samples, all created by ATG.

“Julie’s company was very important,” Nelsestuen says. “Access to biological services is a central feature of what I think of as the new science, which emphasizes outsourcing so that a small research team can focus on solv-

ing their specific problem.”

Kirihara also serves as the volunteer president of MNBIO, an industry association representing biotechnology companies in Minnesota. Over the years, her efforts to promote biotech have even involved the U: She has hired several U graduates and often returns to campus to talk to students about careers in biotechnology.

A Minnesota native, Kirihara obtained a bachelor’s in biochemistry from the U in 1981 and a Ph.D. in biochemistry in 1988. As an undergraduate, she developed methods for purifying cysteine-rich protease inhibitors from soybeans. Her dissertation research examined genes encoding proteins in corn that are high in the amino acid methionine. The work earned Kirihara a U.S. patent and may eventually lead to the commercial production of maize lines with elevated methionine levels, making them better as livestock feed.

Laid-back and soft-spoken, Kirihara seems embarrassed by all the attention that goes with leadership and public honors. Her company’s track record is the result of simple hard work, and the dedication of her staff, she says. “Our clients want high-quality, rapid turnaround,” she says. “We have high levels of customer satisfaction.”

**—Joel Hoekstra**



## Class Notes

**Allen B. Schlesinger (B.S. in Zoology, 1949, M.S. in Zoology, 1952 and Ph.D. in Biochemistry, 1957)** was a student of Magnus Olson's, former head of zoology, who passed away in March. After reading about Olson's death in the spring issue of *Frontiers*, Schlesinger wrote "Magnus was an outstanding field biologist. He once told me that he learned to be at home in the field when he and his brother lived off the land during the Great Depression. I was most fortunate to have been instructed by some of Minnesota's great life scientists: Burr Steinbach, Nelson Spratt, Sam Eddy, Fred Smith, Paul Boyer, and Dwight Minnich."

**Richard F. O'Neill (B.A. in Zoology, 1954)** attended the June 4<sup>th</sup> CBS reception and UMAA annual celebration. While majoring in zoology at the University, Dick obtained his pilot's license and after graduation became a pilot with North Central Airlines. He later joined Pan American Airlines as a captain. Retired since 1990, he and his wife, Lynn, spend summers in Duluth and winters in Naples, Florida.

**Merle S. Olson (Ph.D. in biochemistry, 1966)** has been appointed dean of the University of Texas Health Sciences Center Graduate School of Biomedical Sciences. Olson has served as professor and chairman of the UTHSCSA Department of Biochemistry since 1983.

**Pearl Bergad (M.S. in Botany, 1968)** was honored by President Bush during his July 11 visit for her volunteer work promoting Chinese culture in the Twin Cities. Born in Honk Kong, Bergad came to the U.S. in 1962. She was a key planner of "Bridge of Souls," a musical tribute to Asian victims of World War II. "Bridge of Souls" was presented last year by the Chamber Music Society of Minnesota. Bergad volunteers with the Chinese Senior Citizen Society, the Chinese Min Hua Chorus, and the annual Asian Pacific Heritage Festival.

**Henry Colvin (M.S. in Microbiology, 1976) and his wife, Claudia (B.A. from CLA, 1969)** are volunteers with Metropolitan Youth Symphony Orchestra in Atlanta. They recently took 85 musicians to New York City, where they played in Carnegie Hall.

**Dee McManus (B.S. in Microbiology, 1977)** was elected to the National Board of Directors of Sigma Delta Epsilon-Graduate Women in Science in June 2002. SDE-GWIS is an international group that provides fellowships, grants, mentoring, and networking for women in science. Dee is currently the Administrative Director of the Lillehei Heart Institute.

**Haile Meshansho (Ph.D. in Biochemistry, 1980)** was recently featured on the cover of the annual report of the American Chemical Society. The article highlights his work at Proctor & Gamble Co. Haile is credited with eight patents and was named an ACS Hero of Chemistry in 2000.

**Douglas Light (M.S. in Zoology and Ph.D. in Physiology, 1986)** an associate professor of biology at Ripon College, received the James Underkofler Award for Excellence in Undergraduate Teaching during the college's 2002 awards convocation.

**Amelia Birney (B.S. in Biology, 1987)** is principal investigator on several grants to develop and test the efficacy of computer-based health and patient education products related to cancer. Amelia recently completed a CD-Rom on treatment options for prostate cancer patients.

**Jon Benson (B.S. in Microbiology, 1988)** manages IT Systems for Neurome, a life sciences company in La Jolla, CA. Inc. Neurome specializes in neuroimaging and analysis.

**Lisa Lumbao (B.S. in Biology, 1990)** is working part time as a business development consultant for PADCO Inc., an environmental consulting firm based in Washington, D.C., and is developing a publication on poverty in Papua, New Guinea for the Asian Development Bank in Manila.

**Lisa Schneider (B.S. in Genetics and Cell Biology, 1991)** recently became a partner at Sidley Austin Brown & Wood. She practices intellectual property law in the firm's Chicago office and specializes in patent litigation involving pharmaceuticals and medical devices.

**Dat Nquyen (B.S. in Biology, 1993, M.D. 2000)** is finishing up his residency in Internal Medicine at the University of Southern California Medical Center.

**Katherine Koehler (B.S. in Biology, 1995)** has traveled, finished over two years in the Peace Corps, and is now finishing a master's degree in public health in Tucson, AZ. Katherine works for a professor who studies the health effects associated with exposure to organophosphate OP-pesticides.

**Mazen Abbas (B.S. in Genetics & Cell Biology, 1996)** has started his 4<sup>th</sup> year of medical school at Ohio University College of Osteopathic Medicine. He is also a member of the U.S. Army as a Health Professional Scholarship Program recipient. His wife, Corrie, and their son, Jad, are expecting another addition to their family in November.

**Henry Park (B.S. in Biochemistry, 1996)** is an attorney at Fitzpatrick, Cella, Harper & Scinto, specializing in pharmaceutical litigation and intellectual property.

**Matthew Finke (B.S. in Biochemistry, 1997, M.P.H. 2000)** began medical school at the University of South Dakota in August 2002. Prior to that he was an epidemiologist for the Colorado Department of Public Health and Environment, where his responsibilities included disease surveillance and public health practices under the Emerging Infections Program. Last fall he was involved in dealing with the anthrax threat.

**Joy Wavra (B.S. in Microbiology, 2000)** is attending the University of Minnesota Pharmacy School and hopes to graduate in May, 2005. She is interested in clinical or rural pharmacy practice and is considering a residency. Joy also has plans to marry another U of M grad, David Ward, this December.

**Paul Pease (B.S. in Biochemistry, 2001)** has begun working on a Ph.D. in the molecular and cell biology at UC-Berkeley this summer. Previously, he was a protein biochemist for R&D Systems.

*Submit your news to [alumni@cbs.umn.edu](mailto:alumni@cbs.umn.edu)*

## BSAS Board Members for 2002-2003

**Phill Lawonn, President**  
B.S. Microbiology, 1984

**Mervyn de Souza, President-Elect**  
M.S. Microbial Engineering, 1997  
Ph.D. Biochemistry, Molecular Biology, and Biophysics, 1998

**Dick Osgood, Past-President**  
B.S. Biology, 1977  
M.S. Biology, UMD 1979

**Carol Pletcher, National Board Representative**  
Ph.D. Biochemistry, 1979

**Carolyn Bagne**  
B.S. Biology, 1997

**Jeff Carpenter**  
Ph.D. Cell and Developmental Biology, 1991

**Jennea Dow**  
B.S. Biology, 1999

**Laura and Scott Erickson**  
Laura: B.S. Zoology, 1977  
M.D. Medical School, 1981  
Scott: Friend of the college

**Curt Henry**  
B.S. Biochemistry, 1996

**Jane Johnson**  
B.S. Biology, 1976

**Douglas Pratt, Ph.D.**  
B.S. Natural Science, 1952  
M.A. Botany, 1959  
Ph.D. Botany, 1960

**Joan Schroeder-Dale**  
B.S. Biochemistry, 1997

**Jennifer Seffernick, Ph.D.**  
Ph.D. Biochemistry, Molecular Biology, and Biophysics, 2001

**Tom Skalbeck, Ph.D.**  
Ph.D. Entomology, 1976

**Kevin Waddick, Ph.D.**  
B.S. Microbiology, 1976  
M.S. Microbiology, 1983  
Ph.D. Biophysical Sciences, 1993

**O**ur sincere appreciation to all of our donors and corporate/organizational partners! Your contribution to the College of Biological Sciences during fiscal year 2002 will have a long-lasting effect. Together we can ensure that current and future generations of students will experience high quality education. Every gift makes a difference!

If your name is missing or incorrectly listed, please notify us by calling 612-625-7705 or email [lgreen@cbcs.umn.edu](mailto:lgreen@cbcs.umn.edu).

### 1930s

**Dr. Claude H. Hills** M  
**Max A. and Erika E. Lauffer** M  
**Pamela H. and Edward B. Lewis**  
 Mrs. Evelyn W. Moyle  
**Dr. Edgar P. and Ruth R. Painter**



CBS alumni, faculty, students, and staff enjoy a gathering at Gabes-by-the-Park before attending a St. Paul Saints game this summer.

### 1940s

**Carrell and Grenaviere Kucera**  
**Dr. Richard W. Luecke** M  
**Dr. Frank W. Putnam**  
**Mr. Max L. Schuster**  
**Dr. and Mrs. Nathan Sperber**  
**Mr. Kenneth L. Tannehill** M

### 1950s

**Mr. Aaron W. Burchell**  
**Dr. Milton H. Fischer** M  
 Dr. Irwin J. Goldstein  
**Dr. Robert C. Hodson** M  
**Arthur A. and Martha K. Johnson**

**Marjorie H. and Bruce L. Larson** M  
 Rex E. Lovrien  
 Joan O. and Joseph D. Novak  
**Dr. Gerald and Kathleen Probst**  
 Ethel L. and Paul A. Rebers  
**Dr. Orlando and Gloria Ruschmeyer** M  
**Melvin P. and Dorothy B. Stulberg**  
**Dr. C. Ivar Tollefson** M  
**Janet B. and A. Vincent Weber**  
**Janice M. and Curtis M. Wilson** M

### 1960s

**Ms. Margaret Johnson Barch**  
**Dr. A. Linn and Margaret P. Bogle**  
**Dr. William C. Buhi**  
 Dr. Bryce A. Cunningham \* M  
**Ms. Kathleen G. Fahey** M  
**Drs. Mikul and Aparna Ganguli**  
**Dr. Norman R. Gould** M  
**Susan A. and Roy H. Hammerstedt**  
**Drs. Richard N. and Meredith S. Hill**

Dr. Gordon L. Houk  
 Drs. Sally B. and Charles R. Jorgensen M

**Drs. Susan C. and John R. Jungck** M

**Dr. Richard J. and Patricia L. Kirschner** M

Mr. James G. Mackie  
**Dr. John A. Mayo** M

Dr. Richard H. Northrup \*  
 Miss Amy Oganeku

**Professor Douglas C. and Beverly A. Pratt** M

Mr. Gerritt Rosenthal  
 Mr. Richard V. Schedin \*  
 Beverly L. and Murray B. Schomburg M

**Mrs. Marcia M. Tholen** M  
 Mr. John Francis Wetzel \*

### 1970-1974

**Lynda and Gary Ackert**  
 Kay and Richard Allen M

**Mr. James D. Anderson**  
 Dr. Karl J. Aufderheide  
 Dr. Kathleen M. L. and Sabri Ayaz \* M

Mr. Philip A. Balazs M

**Mr. Thomas E. Boelter**  
**Dr. Cindy J. Brunner** M  
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**Dr. Alan E. Comer**  
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**David and Wendy Devin** M  
**Shayne E. Dizard and William H. Kojola** M

Timothy and Caroline Donakowski  
**Mr. Mark A. Einerson** M  
**Dr. Roger H. Erickson**  
**Susan J. and Gunnar J. Erickson** M  
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 Dr. James Martin Hogle \* M  
 Drs. C. L. Hult and C. B. Godfrey M

**Dr. John D. Jackson**  
 Bradley P. and Nancy B. Jahnke M  
 Drs. Nancy J. Jarvis and James J. Wheeler \*

Mr. Terrance J. Kaase \*  
 Dennis L. Keierleber and Pamela K. Kaufman M  
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**M. G. Lindberg and M. J. Hansel**  
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**Dr. Gary B. Silberstein** M  
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 Dr. Craig and Dolores Solberg \* M

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**Mr. Dennis N. Thaden**  
**Dr. Jeffrey Thorkelson**  
 Dr. Cheng-Hsien Tsai \* M  
**Elizabeth C. and Roger Tsang**  
 Mr. Strand L. Wedul \*  
 Dr. Jane I. Wenger M  
 Merle and Mary Wovcha M  
**Mrs. Judith L. Wulff**  
**Dr. Thomas H. Zytkovicz**

### 1975-1979

Kent J. and Susan M. Anderson \* M

**Mr. Robert A. Arntsen**  
 Ms. Marcia J. Bains-Grebner \*  
 Dr. Laurence C. Berg

**Professor David and Suzanne Bernlohr** M

**Dr. Paul C. Billings**  
 James L. and Louanne S. Brooks  
 Dr. Lillian P. Burke M

**Patrick J. and Anne D. Byrne** M  
**Henry M. and Claudia B. Colvin** M  
 Mr. Kevin W. Custer

**Carole N. and James F. Drake, Jr.**

**William K. and Suzanne M. Drehmel** M

**Mrs. Milta Rabell Dudek**  
**Susan M. and Mark E. Edstrom** M  
 John M. and Marsha M. Eibert, Jr.

**Ms. Kathleen A. Ferkul** M  
**Drs. Colleen Fitzpatrick and John Griswold**

**Mr. David L. Flaten** M  
**Ms. Cynthia K. Folland** M

Maura A. Gage and Phillip V. Vanderschaegen M

**Dennis Garin and Mary Connolly** M

Ms. Myrna M. Halbach M

**Dr. James M. Haynes**  
**Dr. Paul W. Hladky**

Dr. Jeffrey P. Houchins M  
 Dr. James C. Hunt, Jr. \*

**Mr. Jerome L. Johnson**  
**Dr. Thomas A. Jones** M

**Drs. Mary Kemen and Brian Randall** M

**Mary M. and Daniel S. Knudsen** M  
**Dr. Jeffrey A. Kohen** M

Linda C. and Jon B. Korshus  
 Dr. Richard A. Krzyzek

Dr. Bruce A. and Stephanie K. Kudak M

Rodney and Beth Kuehn

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**Ms. Patricia J. Neal**  
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Deans and department heads do the cooking at the CBS Year-end picnic on the last day of classes. About 550 students, faculty, alumni, and friends attended the event.

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RICHARD ANDERSON

**Winners Circle** – Outstanding CBS alumni and faculty were recognized by the University during commencement. Awards were presented by Dean Robert Elde and Regent Robert McNamara. From left to right are Rebecca Goldberg, Ph.D. ecology, Honorary Doctor of Laws; Robert McNamara, Regent; Ruth Shuman, Ph.D., genetics, Outstanding Achievement Award; Dean Elde; Margaret Davis, professor emeritus of ecology, Honorary Doctor of Science; Bernice Folz, Ph.D., biology, Outstanding Achievement Award; and Franklyn Prendergast, Ph.D., biochemistry, Outstanding Achievement Award. Goldberg was recognized for her public policy role; Shuman for biotechnology leadership; Davis for paleoecology research; Folz for software engineering; and Prendergast for cancer research leadership at the Mayo Clinic.

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## CBS Calendar

### Cedar Creek Natural History Area 60th Anniversary Celebration

Saturday, September 21, 1:30 to 5:30 p.m. at Cedar Creek Natural History Area in East Bethel. Program, refreshments, tours, radio-tracking demo with Goldy Gopher. Bring a picnic lunch at noon.

### Molecular and Cellular Biology Building Dedication

Wednesday, October 9, 11:00 a.m. at the new Molecular and Cellular Biology Building on Washington Avenue and Church Street. Program, tours, time capsule, refreshments.

### Recognition and Appreciation Dinner

Thursday, October 10, 5:30 to 9:00 p.m., Memorial Hall, McNamara Alumni Center, University Avenue and Oak St., Minneapolis, for donors and recipients of CBS scholarships and fellowships.

### Homecoming Picnic

Friday, October 11, Snyder Hall, 1475 Gortner Avenue, St. Paul, 4:30 to 8:00 p.m. Food, prizes, games, hayride, and bonfire.

### Homecoming Game

Saturday, October 12, 1:30 p.m., Metrodome. Tickets are \$20 lower deck; \$10, upper deck. Join other CBS alumni to cheer on the Gophers.

For more information, contact Emily Johnston at [ejohnsto@cbs.umn.edu](mailto:ejohnsto@cbs.umn.edu) or 612-624-4770.

## CBS Year-End Picnic

**The College of Biological Sciences Year-End Picnic** won the 2001-2002 Program Extraordinaire award from the University of Minnesota Alumni Association. The event, held on May 10 on the lawn in front of Snyder Hall, was attended by about 550 students, faculty, staff, and alumni who gathered to celebrate the last day of school. CBS deans and department heads grilled burgers. Radio K was on hand to play requests. And a photo was taken of the senior class. The award will be presented at the UMAA Volunteer Appreciation Reception and Awards Program on September 14, 2002. More than 50 volunteers contributed to make the picnic a success.



TIM RUMMELHOFF