

Biotechnology Center.

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FOR IMMEDIATE RELEASE**June 27, 2000****CONTACT:** Ronnie Hess, (608) 262-5590; rlhess@facstaff.wisc.edu**UW FOSTERS TRANS-ATLANTIC DIALOGUE ON FOOD AS CULTURE**

MADISON -- Internationally known chefs, food producers, writers and scientists will gather this September at the University of Wisconsin-Madison.

An all-day conference Friday, Sept. 8, will focus on the cultural importance of food and about questions concerning genetically modified organisms. The conference, entitled "Taste, Technology and 'Terroir': A Transatlantic Dialogue on Food as Culture," will be held 8 a.m.-5 p.m. at the Fluno Center, 601 University Ave.

The conference aims to explore the social and cultural contexts of "terroir," the idea of food as culture, and to examine the ways in which food, science and politics come together in issues such as the advent of genetically modified food. The conference will focus on the changing relationships in these areas and between France, the European Union, and the United States, with a focus on Wisconsin.

Speakers include American chef Charlie Trotter, owner of Charlie Trotter's Restaurant in Chicago; Robb Walsh, culinary essayist for National Public Radio and "Natural History" magazine; and Harriet Welty Rochefort, author of "French Toast," an irreverent examination of French and American cultural differences.

Other speakers include José Bové, a French sheep farmer and leader of the radical farmers' union, the Peasants Confederation (Confédération Paysanne); David B. Schmidt, senior vice president, food safety at the International Food Information Council; Rebecca Goldberg, head of the Environmental Defense Fund's Biotechnology Program; Julian Kinderlerer, Sheffield Institute of Biotechnological Law and Ethics, the University of Sheffield, UK; representatives from the European Union; and Jim Murphy, assistant U.S. trade representative, agriculture, Office of the U.S. Trade Representative, Washington, D.C.

The conference is sponsored by the International Institute of the UW-Madison and three member programs - the European Union Center, the Center for European Studies, and the Center for German and European Studies. Other sponsors include the Department of French and Italian; the Department of Rural Sociology in the College of Agricultural and Life Sciences; the Center for Integrated Agricultural Systems; the Department of Anthropology; the Genetics/Biotechnology Center; and the Department of Consumer Science in the School of Human Ecology. The conference is made possible, in part, with a grant from the Anonymous Fund.

The conference is free but advance registration is encouraged. Lunch at the Fluno Center is \$15, tax and tip included. Reservations are required.

For information, contact Ronnie Hess, (608) 262-5590, public affairs officer, International Institute, 321 Ingraham Hall, 1155 Observatory Drive, Madison, WI 53706. Or visit: <http://wiscinfo.doit.wisc.edu/eucenter/Conferences/index.htm>

The conference kicks off a weekend of discussions in Madison about food. The Second Annual Food for Thought Festival, sponsored by a coalition of area food and agriculture groups, including Research Education Action Policy, will be held Sept. 8-9. For information, call Chris Rietz, (608) 226-0300, ext. 206.

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FOR IMMEDIATE RELEASE
November 10, 1999

UIR PROJECTS: EXAMPLES SHOW HOW GRANTS GROW INNOVATION

MADISON -- Here are three examples of more than 200 projects funded by University-Industry Relations program grants that illustrate the leveraging of state money and the entrepreneurship of the university's research community.

KEEPING VEGGIES FRESH FOR CONSUMERS

"The seed support provided by UIR was instrumental in allowing my laboratory to receive a \$500,000 grant from the Department of Energy (DOE)," says Marc Anderson, professor in the department of civil and environmental engineering. "The DOE funds were the first federal monies granted to an academic researcher for the exploration of the basic properties of ceramic membranes."

Anderson's ceramic research has yielded 24 patents held by WARF, some of which have been licensed to companies that build room-sized air purifiers for homes and offices and equipment to keep fruits and veggies fresh in supermarket bins. Anderson is a co-founder of Microporous Oxides Science and Technology LLC, which uses Anderson's technology to degrade gas contaminants to non-detectable levels.

FINDING USEFUL DRUGS -- IN DIRT

UIR funding helped bring a research project headed up by plant pathologists Jo Handelsman and Robert Goodman to the patent stage. The researchers are testing DNA from soil bacteria for useful drug activity; WARF holds one patent on the technology. The project, also involving Cornell University chemist Jon Clardy, attracted a \$1 million grant from the David and Lucille Packard Foundation. Ariad Pharmaceuticals, Cambridge, Mass. has given a \$429,000 award to support the work.

PULPING WOOD WITHOUT HARMING NATURE

Masood Akhtar, former scientist at the UW Biotechnology Center, says a key biopulping invention, inoculating wood chips with a fungus and corn steep liquor, was made possible by TIF funding. "Frankly, the entire project would have ended without this support to provide the additional research needed to gain industrial interest for biopulping," Akhtar says. The technology saves electrical energy and improves paper quality. Akhtar founded the spinoff company, Biopulping International, Inc., in Wisconsin, to commercialize the biopulping technology, and 22 pulp and paper companies, among others, have supported the research. Four patents have been awarded to Akhtar; five are pending.

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Honored

Arnold Alanen, professor of landscape architecture, and Holly Smith-Middleton, a graduate student in landscape architecture, received a 1999 national research award from the American Society of Landscape Architects for their work in documenting the cultural landscape of Sitka National Historical Park in Alaska. The award was given at the Centennial Anniversary meeting of the ASLA.

Michael W. Apple, John Bascom Professor of Curriculum and Instruction and Educational Policy Studies, has had one of his works, "Ideology And Curriculum," selected as one of the most important books in education in the 20th century by Education Week. Apple also has recently been named as one of the 50 most important writers in the world of education.

Susan Stanford Friedman, Virginia Woolf Professor of English and Women's Studies, is the recipient of the 1999 Perkins Prize for the best book in narrative studies, awarded by the Society for the Study of Narrative Literature, for "Mappings: Feminism and the Cultural Geographies of Encounter," Princeton University Press (1998).

Mary Hayney, assistant professor of pharmacy, received a Society of Infectious Diseases Pharmacists/Pfizer Award for her project, "Vaccine-Induced Cytokine Production as a Predictor of Life History and Health."

David A. Mann, a research assistant in chemistry, was awarded a Damon Runyon-Walter Winchell Foundation postdoctoral fellowship for his work entitled, "A New Era in Drug Discovery: Tapping into the Soil Metagenome for Cancer Drug Discovery." His Runyon-Winchell sponsor is Jo Handelsman, professor of plant pathology.

Julie Mares-Perlman, associate professor of ophthalmology and visual sciences, received the Research to Prevent Blindness Lew R. Wasserman Merit Award, contributing \$55,000 to her research in diet and age-related eye diseases.

Daniel H. Rich, Ralph F. Hirschmann Professor of Medicinal and Organic Chemistry, received the 1999 Merrifield Award for his research to design inhibitors of therapeutically important enzymes. He also recently received a Cope Scholar Award from the American Cancer Society for his contributions to bioorganic chemistry and chemical biology.

Two summer session programs captured top national awards for creative and innovative programming at the annual conference of the North American Association of Summer Sessions.

Exploring Biotechnology, which offered fourth-grade girls an opportunity to "do science" in a supportive, collaborative classroom setting, won first place in the noncredit division; the **Biotechnology Center** and the **School of Education** sponsored the weeklong program. A graduate course, **Chernobyl: A Theme to Integrate the Natural and Social Sciences**, won the merit award in the credit category. This one-week program was designed for sixth through 12th grade teachers and was hosted by the UW Center for Russia, East Europe and Central Asia, Wisconsin Teachers Enhancement Program in Biology and United States Friends of Chernobyl Centers.

Tien Yin Wong, a research associate in ophthalmology and visual sciences, was one of 10 recipients of "The Outstanding Young Persons of the World 1999" award, in the category of academic leadership and achievement in the Junior Chamber International.

Published

Muhammad Umar Memon, professor, Languages and Cultures of Asia, has edited and translated "The Tale of the Old Fisherman: Contemporary Urdu Short Stories" (HarperCollins).



Photo: Jeff Miller

Art as language Curator-artist expresses ideas through sculpture

Barbara Wolff

Where do you look for the essence of a person? The outward appearance? Communication style? Philosophical bent?

In the case of sculptor Truman Lowe, a crucial clue lies in his Ho-Chunk (Winnebago) background, specifically in his immediate family.

"Each clan has a special responsibility in the larger community," he says. "I'm a member of the Thunderbird clan. Ours is a helping clan. We're supposed to see needs and fill them."

Service always has been the foundation of Lowe's life, whether in his home community near Black River Falls, in his 24 years on the faculty at the university or as he begins a year as curator of contemporary art at the Smithsonian Institution National Museum of the American Indian in Washington, D.C.

In person Lowe is a model of elegant understatement. His signature soft-spoken restraint and modesty belie Lowe's international reputation as a master sculptor whose work effectively bridges the traditional and contemporary, abstract and representational worlds of American Indian fine art.

"He never tells you more than you need to know, either in his work or when you talk to him. It's absolutely amazing," says Jennifer Compto McNutt, curator of contemporary art at the Eiteljorg Museum in Indianapolis. In November the Eiteljorg

awarded Lowe one of its \$20,000 inaugural fellowships in recognition of his contributions to American Indian fine art. The Eiteljorg fellowship is one of the most recent honors in a career rife with accolades. For example, Lowe's installation "Effigy: Bird Mound" spent 1998 in the Jacqueline Kennedy Sculpture Garden at the White House. He also has exhibited in museums and galleries in New York, Europe, Canada, New Zealand, South America and Africa, as well as Wisconsin and other areas of the country.

Quite possibly Lowe inherited his artistic talent from his parents, who specialized in basketry.

"My father understood woods — he made the best basket handles, and other basket makers in the community would come to him for handles. My mother was a colorist. Her forte was color design. Women who were dying black ash wood for baskets would ask my mother which color combinations should be used," he says.

Many of the motifs Lowe remembers from his childhood now find their way into his art, frequently rendered as abstractions, according to Compto McNutt.

"Slender strips of pine cascade over a boxed frame to create his 'Waterfall.' Lining a skeletal canoe frame with feathers evokes the movement of a boat navigating the space between sky and water in 'Feather Canoe,'" she says.

"Truman is the quintessential sculptor. He really knows how to shape space with his art," observes art historian Jo Ortel.

Ortel currently is writing a book about Lowe and his pivotal place in the American artistic firmament. She met him in 1996 while teaching in the UW-Madison Department of Art.

"I was struck instantly by his work," she says. "When I got to know him, I also was impressed with how articulate he is. The Smithsonian is so lucky to have him — his appointment will bring tremendous visibility to American Indian fine art."

Museum director W. Richard West agrees wholeheartedly. West says the fact that Lowe is both a practicing artist and a scholar will add depth and dimension to the curatorial post, especially as the museum develops its permanent collection.

"The addition of Truman to our staff is a significant step in the development of the museum's contemporary and fine arts programs — essential components to the mission of the museum," says West.

True to his clan's service calling, Lowe also feels a great responsibility to younger artists, according to Compto McNutt of the Eiteljorg.

"He's one of the second generation of fine artists of American Indian descent, so he's an heir to older artists like George Morrison, while also in a position to be a mentor to younger artists like Joe Feddersen and Bentley Spang," both graduates of UW-Madison, she says.

A primary source of people to be mentored are found in Lowe's UW-Madison sculpture classes, according to Laurie Beth Clark, professor of art and current chair of the department.

"He is a dedicated teacher and committed mentor who has given special attention to the recruitment and retention of Native American students," she says.

In fall 1999 Lowe taught about 60 students, ranging from freshmen to graduate level. Maggie Svetich, a junior majoring in biology, took a beginning class. It was her first art course, and she says it was a revelation.

"Sometimes the work got so frustrating — I had a picture in my head of what I wanted the finished piece to look like, and I wanted to hold to that," she says. "But Truman encouraged me to just let the work evolve. He got me to explore the possibilities of the piece. Now I'm more open to new ideas and experiences."

Students like Svetich return the favor by enhancing his own artistic perspectives, Lowe says.

"They make ideas new; they're very enthusiastic about new artistic and intellectual terrain," he says. "When I was about to graduate from college myself, somebody asked me what I wanted to do. I said, 'I want to go where ideas are new every day.' I've been fortunate enough to find that place at the university."

The year Lowe will spend away from campus at the Smithsonian will provide him with fresh opportunities to introduce an entire world to American Indian cultures. He says the visual arts, both traditional and contemporary, are more than examples of visceral beauty and interest, and he is eager to exploit their potential.

"Art is a language," he says. "It reflects thoughts, ideas, philosophies and even projections into the future. Art captures the way we are thinking about who we are at a given moment." ■

Ethicists provide insights on biotechnology advances

Terry Devitt

As biologists press toward a greater fundamental understanding of the basis of life, ethical conundrums trail in their wake.



From the ability to screen for genetic predisposition to disease to the creation of genetically altered foods, a host of ethical dilemmas has surfaced for society to contend with.

The issues are difficult ones with no clear-cut right or wrong answers, says Norman Fost, professor of pediatrics and a founder of UW-Madison's quarter-century-old program in medical ethics.

Some of the first ethical manifestations derived from the increasing power of modern biology surfaced in the medical field as, for example, intensive care technology improved to the point where patients with little or no hope of long-term recovery or even survival were being kept alive indefinitely with the help of new machines and medicines.

The technology, says Fost, provoked a lot of questions: "Who should be kept

alive? How long should people be kept alive? Who should make the life or death decisions?"

Those were questions, Fost says, that were new and chillingly uncomfortable to physicians. In the past 25 years, as biologists have nudged ever closer to knowing the intimate genetic details of life, those questions have been amplified and extended to other social realms such as agriculture.

With the help of the governor and the Legislature through the Madison Initiative public-private funding partnership, UW-Madison is in the process of hiring new faculty to strengthen what is already one of the world's preeminent centers of bioethics.

The goal is to provide the expertise and insight to help society and policy-makers tackle the difficult questions posed by modern biology. As part of the university's program in medical ethics, faculty in the Law School and the Department of Philosophy engage in scholarly explorations of bioethics issues — journeys that will help society make the larger decisions about the use of the



A research assistant examines a culture growing in a campus lab. The university has a half-dozen biotechnology-related graduate programs ranked in the top ten by the National Research Council. UW-Madison generates more than \$200 million each year in funding for biological research. Photo: Jeff Miller

powerful new technologies emerging from labs worldwide.

In addition to scholarly research, faculty are engaged in training a new generation of bioethicists and extending their expertise through service on national committees such as the National Bioethics Advisory Commission and through such organizations as the World Health Organization. ■

Biotechnology disciplines rank among nation's best

■ Several UW-Madison biotechnology-related departments are ranked among the nation's best. Graduate programs in biochemistry, molecular biology, molecular and general genetics, chemistry, computer science and biostatistics all are ranked in the top 10 by the National Research Council.

■ In 1998, UW-Madison conferred the most doctorate degrees in science and engineering in the nation. The total number for that year was 537 degrees awarded.

■ Interest in the biological sciences is strong among incoming students. Approximately 30 percent of 1999 incoming freshmen reported they intended to major in a biology-related department.

■ In 1998-99, nearly 70 percent of all faculty in the biological sciences were receiving either federal or non-federal extramural funding support for their research.

■ More than half of UW-Madison's \$417 million in extramural research support in 1998-99 went to faculty affiliated with the biological sciences. Total research grants in genetics and genomics topped \$57 million in 1999.

■ New initiatives are under way in genetics research, starting with the formation of the Genome Center of Wisconsin last year. The center will draw together faculty from diverse fields to participate in national-scale genetics research.

■ A strategic hiring initiative in genetics has attracted four new, highly accomplished faculty to Madison. They include experts on mapping of genomes, cereal crop genetics, the evolution of corn and the genetics of vertebrate development.

Campus is home to national bioscience leaders

Brian Mattmiller

Here are just a few examples of the many leading figures in bioscience research who work at UW-Madison:

Professor of biochemistry **Richard Amasino's** studies of plant genetics has led to a better understanding of how plants regulate flowering time and senescence, the process of aging in plants. His work has far-reaching implications in agriculture, and could lead to crops with greater tolerance to frost and less spoilage.



Jillian Banfield, professor of geology and geophysics, is pioneering a new field of science known as geomicrobiology, the study of microorganisms at the boundary of earth and its biosphere. Some of the microbes she studies have potential value in environmental cleanup. She is a 1999 winner of the prestigious MacArthur Foundation Fellowships, known as "genius grants."

Fred Blattner, professor of genetics, is director of the new Genome Center of Wisconsin, a concentration of faculty who are developing tools to sequence the complete blueprints of life forms and determine the functions of individual genes. Blattner achieved a milestone in the field in 1997 by sequencing the complete genome of *E. coli*.

Alta Charo, professor of law and history of medicine, is a leading scholar of bioethics and public policy on biotechnology. She has brought a unique interdisciplinary background to controversial topics such as cloning and embryonic stem cell research.

James Dahlberg, professor of biomolecular chemistry, is a pioneer in a number of molecular studies involving the health of cells. His work is influential in understanding how cells develop and protect themselves from disease.

Norman Fost, professor of pediatrics, is the founder of the program in medical ethics, and has garnered national recognition for his leadership in the field. His opinions are sought nationally on subjects such as health care access, testing for genetic diseases, cloning and patient's rights.

Laura Kiessling, professor of chemistry and biochemistry, has pioneered studies into the causes of inflammation, the body's response to injury or infection that causes pain and swelling. Her work may lead to new treatments for inflammation in its most serious forms, such as arthritis. She is another MacArthur Foundation "genius grant" recipient.

Judith Kimble, professor of biochemistry, focuses on the molecular basis of embryonic development and sex determination. She recently authored an influential study that elucidated how organ shape is directed and controlled.

Ann Palmenberg, professor of animal health and biomedical sciences, is doing influential studies of the genetic structure, function and evolution of viruses that are human health threats.

Tomas Prolla, professor of genetics, studies how cancers can develop from various genetic defects in DNA repair pathways. His work may shed light on the

molecular pathways that cause cancers to grow.

Ron Raines, professor of biochemistry, studies the molecular makeup of proteins in the body. In particular, his research on the stability of collagen — a protein that gives the body its structure and shape — could lead to novel therapies for collagen-related disorders such as arthritis. He has also studied how a common protein first discovered in frogs can act as a potent killer of cancer cells.



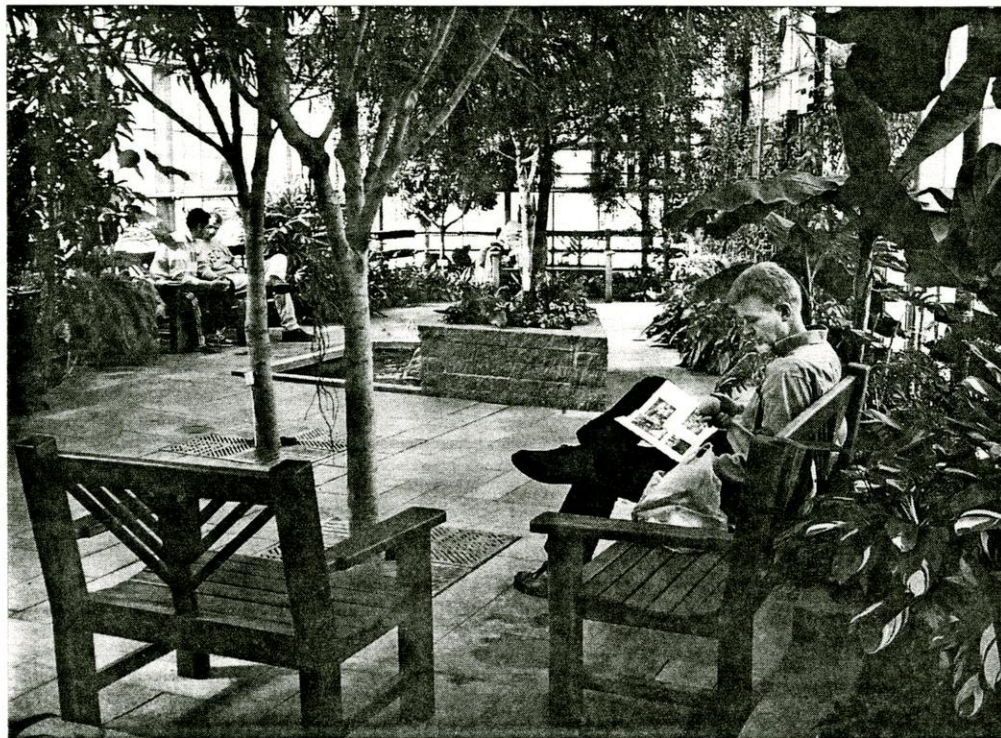
David Schwartz, a professor of chemistry and genetics, is a national leader in the development of better, faster ways to decipher genetic information in plants and animals. His optical mapping technology creates whole genome maps in a fraction of the time of comparable technologies. His technology is in use in mapping the human genome, the rice genome, and was recently used in completing the genome for malaria.

Lloyd Smith, professor of chemistry, is a world leader in the design and development of technologies used in the race to sequence the genetic material of plants and animals. He has recently made big advances in demonstrating the potential of DNA-based computing. He is also a co-founder of Third Wave Technologies, one of Wisconsin's most successful biotech companies.

Michael Sussman, director of the Biotechnology Center, leads a center at the heart of the biosciences on campus, with active programs in public education and service to Wisconsin's thriving biotechnol-

ogy industry. The center is meant to be a core service facility for biology faculty campus-wide, and a guidepost for the economic and ethical challenges in the field.

Tom Zinnen, director of biotechnology education for the **Biotech Center**, has trained hundreds of Wisconsin teachers and educated thousands of school children about the social and technical issues of biotechnology. He teaches a range of workshops from "Defining Biotechnology" to "Exploring Enzymes and Bacteria," and runs a wildly popular experiment showing students how to extract DNA from a plant. ■



Faculty, staff and students, as well as plants, bask indoors in the winter sunlight of the College of Agricultural and Life Science D.C. Smith Greenhouse.
Photo: Jeff Miller

Biotechnology seen as key to growth

Brian Mattmiller

Pinning Wisconsin's economic growth to the potential of biotechnology, Gov. Tommy Thompson has proposed a \$317 million investment in cutting-edge research centers at the university.

Thompson outlined the new "BioStar" initiative during his annual "State of the State" address on Jan. 26. The campaign features a unique public-private partnership to fund four new bioscience research centers during the next eight years.

"These facilities will allow us to hire 100 new faculty members and strengthen our world-renowned team of scientists," Thompson says. The initiative will strengthen UW-Madison's national leadership in biological research, he adds.

"This proposal gives us the chance to keep pace with the explosive growth in biotechnology research," agrees Chancellor David Ward. "Biotechnology is a powerful force in the new economy."

An addition to the **Biotechnology Center** could be started this year. Other buildings may house microbial sciences, biochemistry and interdisciplinary biology.

Funding would include a combination of state tax support and private funds raised by the university. This public-private approach was used extensively in the 1990s to help UW-Madison modernize its science and medical buildings.

Thompson also proposed a new masters degree in biotechnology, which would provide capstone-style work force training. ■

SPECIAL REPORT
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Institute formed to distribute human stem cells

Terry Devitt

In an effort to move human embryonic stem cell technology into the mainstream of academic and corporate research, the Wisconsin Alumni Research Foundation has established a private subsidiary whose primary purpose will be to distribute the cells to qualified scientists.

Embryonic stem cell lines were first successfully established late in 1998 by a team of scientists from the UW-Madison. The patents that govern the technology and use of the cells are held exclusively by WARF, a private not-for-profit corporation that manages intellectual property in the interest of the university.

Stem cells are the parent cells of all cells in the body. An ability to grow the cells in the laboratory and, someday, to direct them to become specific kinds of cells — blood cells, muscle cells or brain cells — has the potential to revolutionize transplant medicine and underpin lifelong treatment for a host of debilitating diseases, especially cell-based disorders such as diabetes mellitus, Parkinson's disease and some forms of leukemia.

The primary mission of the new non-profit institute, to be known as WiCell Research Institute, Inc., will be "to supply cells to support research for both academic and non-academic researchers," says

Carl Gulbrandsen, WARF's managing director.

The institute's scientific director will be James Thomson, the UW-Madison developmental biologist in whose laboratory human embryonic stem cells were first isolated. Thomson will remain on the Wisconsin faculty, however.

"Our intention is to make these cells widely available, and at a low cost for academic researchers," Gulbrandsen says.

So far, more than 100 requests for the cells have been received by Thomson's lab and at least a dozen companies have

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PeopleSoft: We'll work harder on records system

Erik Christianson

Meeting with university officials, PeopleSoft President Craig Conway reaffirmed that his company is committed to helping UW-Madison implement and run its students records software.

"The meeting with Mr. Conway was successful on several fronts," says Paul Barrows, vice chancellor for student affairs. "We were able to make the case in person that while UW-Madison has experienced some success with the PeopleSoft software, much is yet to be done. There are issues that must be resolved, and PeopleSoft must redouble its commitment to solve

the pressing needs of this university."

Conway met Jan. 18 in Chicago with representatives from UW-Madison and six other Big Ten universities. The purpose of the meeting was to follow up on a letter sent to PeopleSoft in November by the provosts of each institution (UW-Madison, Indiana, Iowa, Michigan, Minnesota, Northwestern and Ohio State).

In that letter, the provosts indicated their desire to keep working with PeopleSoft as each university implements the company's software as part of their various computer systems. The provosts also said the company needs to improve how

the software works and outlined several specific software issues.

Of particular concern to UW-Madison, Barrows says, is PeopleSoft's Student Administrative system, which has been implemented during the past three years as part of the Integrated Student Information System (ISIS). While the initial implementation is done, considerable work still must be done to stabilize and expand the functionality and performance of the system, he says.

"The university implemented the Student Administrative system with mini-

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Musical campus

ADVANCES

Advances gives a glimpse of the many significant research projects at the university. Tell us about your discoveries by e-mailing: wisweek@news.wisc.edu.

Gas clouds seed galaxy

Massive clouds of gas, discovered long ago but only recently identified as being within the margins of the Milky Way, play a key role in the ability of the galaxy to churn out new stars by raining gas onto the plane of the galaxy, astronomer **Bart P. Wakker** and colleagues suggest, chipping away at a three-decade-old mystery. The team has discovered a mechanism by which the galaxy is seeded with the stuff of stars and solved a long-standing question of galactic evolution. "You don't need any other explanations anymore," Wakker says, "because we now know that this gas is raining down onto the plane of the galaxy."

AIDS variability explained

Scientists working with monkeys have taken another step toward developing a vaccine for AIDS. They have discovered new evidence explaining why retroviruses such as HIV in people and SIV in rhesus monkeys are so variable and difficult for the body's immune system to target and kill. A key finding: Killer cells called cytotoxic T lymphocyte cells (CTLs) likely play a greater role than previously thought in controlling infection in both humans and monkeys, says **David I. Watkins**, professor of pathology and laboratory medicine. The finding is another step toward the development of effective vaccines to prevent AIDS.

Path to dairying takes detour

Compared with established dairy farmers, new dairy farmers in Wisconsin are much less likely to be taking over the farm from their parents, and they're more likely to use off-farm income to supplement their farm income, according to researchers with the Program on Agricultural Technology Studies. The findings contradict long-held assumptions about Wisconsin's dairy farmers, and how farms pass from generation to generation, says researcher **Douglas Jackson-Smith**. Only 18 percent of new entrants farmed land that was part of their parents' farms, versus 62 percent of established farmers. New entrants were more likely than established farmers to run single-family or individual operations (85 percent versus 72 percent).

Ergonomics gets attention

Workplace ergonomics, in the national spotlight with new standards proposed by the Occupational Safety and Health Administration, are a prominent research focus at the university. **Robert Radwin**, chair of the Department of Biomedical Engineering, is a member of a National Academy of Sciences panel on musculoskeletal disorders and the workplace, and he has done influential studies on carpal tunnel syndrome and other work-related disorders. **Pascale Carayon** and **Michael Smith**, industrial engineering professors, ran projects at the Wisconsin Department of Transportation and Lands' End, respectively, that reorganized office space to produce a better ergonomic fit for employees.

Web-surfer, heal thyself?

Professor **Patricia Brennan** says the Web is driving big changes in the doctor-patient relationship and placing more responsibility with health care consumers. "Patients are now required to be smart—they no longer have a choice," says Brennan, an industrial professor of nursing and engineering. "There is a bigger assumption now that patients are getting more health information online." The long-term trend, Brennan says, is that more health care information will migrate from the hospital to the community.

Governor sees 'biotech revolution' in the making

Brian Mattmiller

Gov. Tommy Thompson's fast-paced tour Nov. 30 through the biotechnology landscape at UW-Madison, from computer-packed genetics labs to nascent startup companies, was a showcase of great expectations.

Perhaps none are greater than Thompson's, who wants Wisconsin to emerge as a national leader in biotechnology development. Throughout the day, Thompson got a look at the intellectual works in progress that could make that expectation a reality.

"The competition is on," Thompson proclaimed early in the day at the university's Biotechnology Center. He told the story of a recent summit of Midwestern governors, in which his counterparts in Iowa, Michigan and Pennsylvania all claimed to be regional leaders in biotechnology.

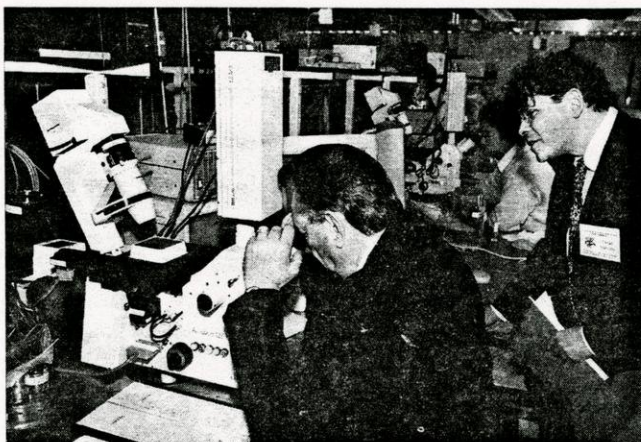
Thompson urged the gathering of scientists and administrators to be aggressive in promoting this field of the future. "Where will Wisconsin's niche be (in biotechnology)?" he asked.

There were clues scattered throughout the visit.

At the Biotechnology Center, Thompson toured the lab of new professor **David Schwartz**, who developed an "optical mapping" technology that can map whole genomes with remarkable speed. Thompson also viewed a new "gene chip" technology developed here that could make DNA analysis cheaper and more accessible to scientists.

At University Research Park, he heard the stories of three entrepreneurs who turned UW-Madison scientific advances into thriving companies. One of them, called Tetronics, began a decade ago as a small, high-risk company developing drugs for osteoporosis and cancer. Today, it's poised to enter a new \$5 million, 24,000-square-foot building at the park with potential for 65 employees.

Provost John Wiley noted how quickly



At the university's Biotechnology Center, Gov. Tommy Thompson peers into a microscope at the lab of new professor David Schwartz, right, who has developed an "optical mapping" technology that can map whole genomes with remarkable speed. Thompson also viewed a new "gene chip" technology developed here that could make DNA analysis cheaper and more accessible to scientists. Photo: Jeff Miller

investments can pay off in this field. The \$1.5 million bioscience initiative, spearheaded by Thompson last year, "has paid just staggering dividends in a year's time," he said. The initiative, which allowed for the hiring of eight new faculty, is directly responsible for nearly \$30 million in additional research grants and contracts secured by faculty, Wiley said.

The total funding within biotechnology, which includes the Laboratory of Genetics and the new Genomics Center, now totals more than \$57 million and is growing rapidly. In the last year alone, research produced 30 faculty-initiated patents.

"This is an expensive venture," said Michael Sussman, director of the Biotechnology Center. "But we have been successful in bringing in the kind of money and talent needed to succeed.... The genomics pot is boiling, and there is a revolution happening in the way we do biology."

Other developments on the horizon

include the Waisman Center's

Translational Research Facility, expected to be completed in fall 2000. It will be one of the only places in the country capable of producing gene therapy products "clean" enough for use in human clinical trials.

Terrence Dolan, director of the Waisman Center, said this new building will help drive the center's ultimate goal of curing the myriad genetic diseases that affect children. There are anywhere from 6,000 to 7,000 genetic diseases that affect human health, he said.

Thompson also heard about a proposal to create a new master's-level training program in biotechnology. The program would fill a huge gap in the training of highly skilled technicians and create a quality work force that would be a tremendous advantage to Wisconsin industry.

Apparently, excitement over biotechnology is starting to spread. Wiley noted that 30 percent of 1999 UW-Madison freshmen intend to major in biology. ■

Hospital to test potential cancer treatment

The Comprehensive Cancer Center expects next week to begin a clinical trial of the first human test of endostatin, a naturally occurring protein and potentially promising cancer treatment that has been shown to cut off the blood supply to tumors in mice.

Chosen as a study site last March by the National Cancer Institute, the center recently received approval to begin the tests. The CCC is one of three locations selected for the trial.

"Participating in this cancer treatment study is an honor and exciting privilege for the UW Comprehensive Cancer Center," says George Wilding, professor of medicine and principal investigator of the Experimental Therapeutics Program.

"Nothing would make us happier than to find a potentially revolutionary form of cancer treatment in humans. At the same time, we cannot overstate how often that humans have failed to respond to treatments that have shown promising results in animals."

Endostatin's potential value as a cancer

treatment received considerable attention after a May 1998 New York Times article described early results in mice in the laboratory of Judah Folkman of Harvard Medical School. In these animal studies, endostatin inhibited the growth of existing tumors and caused some to shrink to microscopic lesions. When researchers examined these tiny lesions, they found endostatin had blocked the growth of blood vessels that nourished the tumors.

James Thomas, assistant professor of medicine at the Medical School and chair of the CCC's endostatin study, says that endostatin is one of several potential cancer treatments known as angiogenesis inhibitors—drugs that halt the creation of blood vessels that keep tumors alive.

"If endostatin is effective, it would represent a whole new approach in cancer treatment," Thomas said. "Instead of killing the cancer cells, which we typically do with chemotherapy or radiation, we want to know if cutting off a tumor's blood supply represents a form of treatment that might prevent the spread of

cancer without the toxicity associated with existing radiation or chemotherapy treatments."

Wilding says the scope of this study, known as a phase one clinical trial, is limited to finding a safe dosage for humans, not determining effectiveness as a cancer treatment. Treatment effectiveness would be examined in phase two and phase three trials, if they occur, and would not begin for one to two years.

In concert with standard clinical trial procedures, patients for the university's endostatin study will be selected from cancer patients who have already been treated by or referred to a medical oncologist at the Medical School; have advanced solid tumors (not leukemia or myeloma) for which no known beneficial therapy exists; and have a cancerous tumor that is easily accessible to repeated biopsies.

The identity of the 15 to 30 patients selected to participate in the CCC's endostatin study will be kept confidential.

More information about the CCC's endostatin study: 262-8330. ■

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Colloquium explores health of aging women

Health issues for aging women will be explored in a colloquium April 22-23 sponsored by the Institute on Aging.

The event will begin with a dinner lecture at 6 p.m. Thursday, April 22, by Linda George, a professor of sociology and psychiatry at Duke University best known for her work in social factors and chronic disease. George's talk and all other colloquium events will be held at the Pyle Center, 702 Langdon St.

At noon Friday, April 23, Gloria Sarto, a UW-Madison emeritus professor of obstetrics and gynecology, will present "Women's Health: Past, Present and Future." During an April 23 morning colloquium, with presentations beginning at 9 a.m., UW-Madison scientists will explore a variety of topics related to the health of aging women, including sensory impairments, bone loss and menopause.

For more information on the colloquium, contact the Institute on Aging, 262-1818. ■

NOTABLE

Extra senate meeting planned

The Faculty Senate will meet Monday, April 26 to consider issues it didn't have time to address at its Monday, April 5 meeting. The meeting begins at 3:30 p.m. in 270 Bascom.

Senators will review a proposal designed to give campus departments more flexibility in setting tenure clocks for new assistant professors. UW-Madison requires new faculty members to earn tenure within seven years, counting up to three years of employment at another university toward the seven-year limit.

Many major universities, however, reset the tenure clock to zero when they hire an untenured professor from another university. That puts UW-Madison at a competitive disadvantage when recruiting new faculty, according to the University Committee's proposal.

The senate will also consider changes to conflict of interest and discipline policies. After a thorough legal review by campus lawyers, the University Committee is recommending several changes in wording. The policies were amended last year to prohibit faculty from using their positions for personal gain, and to modify disciplinary rules and procedures for professors.

In addition, senators will review a University Committee proposal regarding senate proceedings. The proposed amendment would allow members of the senate who believe a motion from the floor is inappropriate or in conflict with state or federal laws or UW policies to refer the matter for University Committee review.

Alumni awards slated for May 7

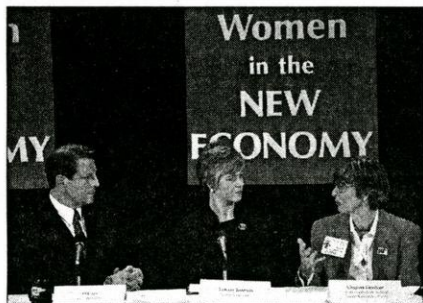
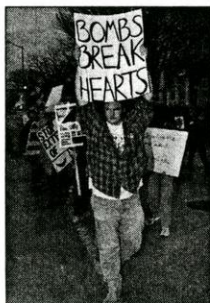
The Wisconsin Alumni Association will honor recipients of its Distinguished Alumni Awards at Monona Terrace Convention Center on May 7.

The award is given annually in recognition of professional achievement and service to the university. The event starts with a reception at 6 p.m. and is followed by dinner at 7 p.m. For event and ticket information, call Sue Miller, 262-9647, or visit: www.wisc.edu/waa/

This year, for the first time, WAA will present awards to both domestic and international alumni. The four domestic recipients of the university's Distinguished Alumni Award are: Marla Ahlgrimm of Madison, Ambassador Charlene Barshefsky of Washington, D.C., Oscar C. Boldt of Appleton and Carlton Highsmith of Hamden, Conn.

The eight international recipients are Erik Bye of Norway, C.K. Chow of Hong Kong, Yoshiyuki Kasai of Japan, Tai Sik Lee of South Korea, Ibrahim Saad of Malaysia, Chai-Anan Samudavanija of Thailand, Aman Wirakartakusumah of Indonesia and Tsong-Shien Wu of Taiwan.

Recipient profiles will appear in the next issue of Wisconsin Week, Wednesday, April 28. ■



Gore: U.S. must close pay gap between men and women

Vice President Al Gore was on campus Saturday, April 10, for a visit to a biotechnology lab and a panel discussion on women in scientific and technology fields. Gore, one of two Democrats who have declared intentions to run for U.S. president, says the country needs to close the gap between how much men and women are paid while encouraging more women to get involved in high-technology industries.

TOP: During a tour of the biotechnology center, Gore shares a laugh with Anne Griep, center, an associate anatomy professor and director of the transgenic animal facility, and Kathleen Helmuth, biotechnology research specialist. Helmuth demonstrated a microinjection process that allows researchers to introduce genetic material into a particular type of mouse cell. The laughs resulted when the researchers, responding to Gore's question, disclosed that they weren't using actual DNA for the demonstration. LEFT: Outside the building where Gore appeared, about 200 people protested the NATO bombings in Yugoslavia. RIGHT: Graduate School Dean Virginia Hinshaw, right, speaks to Gore and U.S. Rep. Tammy Baldwin during the panel discussion. Participants say one way to reduce inequities in pay is to increase training among women in computer and scientific fields.

Police honor six for service

Six civilians received director's awards from the University Police Department at its eighth annual awards ceremony in March.

■ Jeffrey Savoy, network investigator for the Division of Information Technology, was recognized for his assistance in solving a major computer hacking case, which resulted in the conviction last month of a former UW-Madison student. Savoy, who aids police in many computer crime investigations, is affectionately known as "007.edu."

■ Student Brett Hubbard helped nab a suspect who had been making harassing, sexually explicit phone calls to female students in the Southeast residence halls. The man's conviction brought a series of cases to a close.

■ Robert "Buzz" Holland intervened in a violent, life-threatening altercation between two men in the Memorial Union hallway last June. Holland put himself at risk to stop the attack before strangulation occurred.

■ John Molski, manager of the Tile Center store in Janesville, aided the department in recovering a large quantity of ceramic tiles stolen from the Kohl Center construction site.

■ Custodian Jeffrey San Miguel interrupted several individuals who were attempting to break into vending machines at the Engineering Research Building. San Miguel also testified in court, helping to win a conviction.

■ University Housing employee Larry Millard was honored for documenting and reporting suspicious behavior in the residence halls.

In addition, 25 University Police Department employees have received Excellent Service commendations, including Chief Susan Riseling.

Riseling was honored for her efforts to create a vision statement that included the goal of making UW-Madison a nationally recognized leader in campus policing, security services and law enforcement methods.

Also, university detective Harlan Hettrick received a Meritorious Service award for his consistently high level of service to the community. Hettrick organized the department's One-A-Week blood donor club — the only such club among Dane County law enforcement agencies. ■

ON CAMPUS

Conference examines grad study issues

A conference on campus this week will examine key issues expected to shape graduate studies in English, comparative literature, and foreign languages and literature.

The Modern Language Association of America conference, April 15-18, brings together members of the nation's premier organization serving scholars of language and literature.

Intended to provide a national forum for faculty, administrators and graduate students, the conference will address issues such as:

- The growing importance of multicultural studies.
- Unionization of graduate students.
- Increasing reliance on part-time adjunct instructors and the decline in full-time tenure-track faculty positions.
- The changing role of graduate students in departmental decision making. ■

NEWSMAKERS

FUSION ON THE CHEAP?

University experts weighed in the prospects and possibilities of on-the-cheap fusion energy after the Lawrence Livermore National Laboratory in California reported achieving nuclear fusion — the process that lights the stars — by using a tabletop laser to zap tiny puffs of gas.

Fusion energy is released when atomic nuclei slam together with sufficient energy to merge — a relatively clean process compared to fission, which produces radioactive waste.

To those pursuing tabletop fusion, part of the value of their effort lies in the chase. "If we can develop commercial applications early, the public gets used to fusion, we generate some revenues, and we learn some physics along the way," Gerald Kulcinski, director of UW-Madison's Fusion Technology Institute, told the Christian Science Monitor (Wednesday, April 7).

TRUE MEGA-MERGERS

Astronomy's merger theory could have been hatched on Wall Street. Over the past few years, it has become clearer that many galaxies, perhaps the majority, formed as small gas clouds, then merged into larger and larger galaxies as time went on.

UW-Madison astronomer John S. Gallagher tells Astronomy (May 1): "There's a strong theoretical prejudice to make small things and have them grow bigger, by having gas fall into them or by capturing their neighbors. But astronomers haven't yet proven that this is the main way it happens."

Circumstantial evidence favors merging, but deep space is a gas-clouded kind of place. "It's like trying to look through a Seattle rainstorm," Gallagher says. "You stand there and stare a little more closely, and squint, and try to tell whether that thing off in the distance is a barn or a truck."

SEEING THE SITES

The ESCAPE Web site, a resource for students who would like to find non-alcoholic happenings around campus, attracted the attention of University Wire (April 9).

The site, a joint venture between the Robert Wood Johnson Project, a campaign to end student binge drinking, and DANenet, provides a comprehensive database of upcoming events.

Both organizations behind the site hope to reduce high-risk drinking, alcohol-related sexual assault and property damage. Rob Adsit, the campus-based RWJ project coordinator, says the site fills a void for students who are looking for something to do.

"Students told us all the time that there was nothing to do on campus but drink, so we wanted to create a place where students could go from any computer and see what's happening," Adsit says.

Visit: danenet.wicpl.org/escape.

WINNING THE NEWS WAR

Sharon Dunwoody, director of the School of Journalism and Mass Communication, says the campus rivalry between the 107-year-old Daily Cardinal and the Badger Herald, founded in 1969, is a no-lose proposition for her students.

American Journalism Review details the unique newspaper war in its April issue. UW-Madison is the only campus in the country served by two independent student newspapers publishing five days a week. A second paper offers twice the opportunity for students to get daily newspaper experience, says Dunwoody.

Staff enhance the campus community

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Erik Christianson

For their outstanding work in leadership, public service, research and teaching, seven campus professionals have been honored with 1999 Academic Staff Excellence Awards. The seven recipients will be recognized by the Academic Staff Assembly Monday, May 10.



Sandra Austin-Phillips
Chancellor's Award for Excellence in Research (principal investigator)
When it comes to researchers, Sandra Austin-Phillips is one of the best.

A member of the UW Biotechnology Center since 1987, Austin-Phillips was granted permanent status as a principal investigator in December, based on her expertise in securing grants, conducting research, and managing projects and staff.

She manages the Plant Biotechnology Service Facility, which specializes in all aspects of plant tissue culture. She has four active grants that support her research and scientific staff. Her laboratory excels at the transformation of potato and alfalfa, and analysis of transgenic plants.

Her alfalfa research has attracted the collaboration of numerous faculty and staff at the United States Department of Agriculture's Forest Products Lab. Nominators say Austin-Phillips' research rivals that of any first-rate faculty member.

"In all her activities, she has demonstrated the highest level of scientific expertise, initiative, creativity and professionalism," says Richard Burgess, oncology professor. "It is clear that she has earned the highest level of respect from all her colleagues."



Jean Buehlman
Wisconsin Alumni Association Award for Excellence in Leadership (support level)
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An instructional program manager in the Physics Department, Buehlman recruits and trains teaching assistants and produces a graduate student guidebook that is a model for the campus. She also created and edits *The Wisconsin Physicist*, an alumni newsletter.

Her leadership doesn't stop there. Buehlman coordinated the fundraising effort in the College of Letters and Science for last year's State and University Employees Combined Campaign. Her work garnered her a 1998 State of Wisconsin Secretary's Award and SECC awards for the largest increase in dollars raised in the public sector and second place in total giving for public employees.

She also helped create the Academic Staff Mentoring Program, an effort that has matched about 100 pairs of academic staff since its inception three years ago. The program has attracted the interest of a number of other major universities.

"Without doubt, she has exhibited in abundance all of the qualities expected of the recipient of the academic staff excellence award for leadership," says Phillip R. Certain, Letters and Science dean.



Marilyn "Mimi" Orner
Chancellor's Hilldale Award for Excellence in Teaching

Year after year, the student evaluations say the same thing: Mimi Orner is one of the best teachers, if not the best, they have ever experienced.

That's because Orner blends her knowledge of gender studies, media issues and education into challenging and enlightening classes in the women's studies program, educational policy studies, and curriculum and instruction.

Her pedagogy doesn't stop there, as Orner is the women's studies undergraduate adviser as well. On her busiest days, she might advise up to 35 students — all with the grace and wisdom that have marked her employment at the university.

Her scholarly and community activities embody the Wisconsin Idea. She works with middle school, high school and college students on health and self-image issues.

"The teaching award represents the university's commitment to distinguishing a teacher-scholar such as Mimi Orner, who has made a particularly striking combination of teaching, research and community service the very heart of her professional life," writes Nancy Kaiser, professor of women's studies.



Paula Panczenko
Robert Heideman Award for Excellence in Public Service

Tandem Press is one of the premier art presses in the world — thanks in large part to the hard work and expertise of its executive director, Paula McCarthy Panczenko.

A self-supporting printmaking studio affiliated with the Art Department in the School of Education, Tandem produces high-quality prints by nationally known artists. For 10 years, Panczenko has coordinated and managed the entire operation.

She attracts to Tandem the nation's top artists, who interact with students and the public during their stays. Nominators say Panczenko possesses that fine art of making people — especially artists — feel at ease in whatever setting they are in.

But the Tandem Press does more than just produce some of the world's finest prints. It fosters research, collaboration, experimentation and innovation in the field of printmaking, bringing visibility to the art department and UW-Madison.

"Paula has made Tandem Press what it is today: an integral component of the Art Department, a key feature in the contributions to the cultural life of the university, and one of the most important art institutions in the Madison area," writes Laurie Beth Clark, professor of art.



Richard Pierce
Wisconsin Alumni Association Award for Excellence in Leadership (director level)

Running facilities that host about 3,000 scheduled programs each month and 20,000 daily visitors is no small task. Richard Pierce handles that task exceptionally well as director of facilities for the Wisconsin Union.

Pierce provides the leadership necessary to keep Memorial Union and Union South functioning at an optimum level. The unions require consistent event management, ongoing maintenance and security — all of which Pierce has improved in his 20-year stint in operations.

From 1978 to 1996, Richard was operations manager for the Memorial Union, directing activities, supervising special events, administering the budget and working with other campus departments. In 1996, he was promoted to his current position. He deftly administers space needs, plays a central role in construction projects, and collaborates with other campus departments and personnel, especially through his service on several campus committees.

Pierce is also active in the 16,000-member International Facilities Management Association, where among his many activities he has served on the association's board of directors. In addition, Pierce lends his leadership skills to the Yahara House, a Madison-based psychiatric rehabilitation program.



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Chancellor's Award for Excellence in Research (supporting staff)
In the field of fruit fly research, Christine Preston is an all-star.

Preston, a researcher in the Department of Medical Genetics, specializes in research related to *Drosophila* fruit flies and their mutations. Researchers worldwide use many of the scientific techniques she has worked on and helped develop.

Her work in the Laboratory of Genetics is praised by researchers locally, nationally and internationally and will likely continue to have a significant impact on *Drosophila* genetic analysis. But researchers say it could also enhance understanding of fundamental biological processes, such as mutation and the repair of damaged DNA.

On staff since 1976, Preston lists 17 publications — a substantial number — to which she has contributed. And she is considered one of the key personnel for the NIH grant that funds her position.

Preston's colleagues also praise her communication skills, organizational ability, and the way she treats everyone — faculty, staff and students — with grace and respect.

"She is a gifted researcher who has always wanted to use her skills

to be productive and creative, and has succeeded spectacularly," writes William Engels, professor of genetics and supervisor of Preston's lab.



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Inspiring. Cheerful. Tireless. Thoughtful. Caring. These are just some of the many adjectives friends and colleagues use to describe Charlene Tortorice.

Associate director of the Office of Testing and Evaluation Services, Tortorice has served the university with distinction since 1977. Her testing and evaluation expertise has benefited numerous faculty and thousands of students across Wisconsin, and her service to the university has made UW-Madison a better place to work.

Tortorice helped found the Academic Staff Assembly, giving academic staff a role in running the university. She has served on countless committees, including the Academic Staff Executive Committee, which she chaired in 1994-95. Last year, she collaborated on publication of a key strategic planning vision document for academic staff governance. She also helped found the Academic Staff Mentoring Program.

Yet Tortorice's lasting legacy could be her ability to prompt others to give of themselves, writes ASEC chair Barry Robinson in nominating Tortorice. "Even though Char has certainly served the university, her colleagues and her department well, I think her most important contribution has been her uncanny ability to coax others into the important role of service," he writes. ■

Academic staff award winner Richard Pierce, right, facilities director for the Wisconsin Union, discusses with housekeeping services supervisor Bill Miller one of the campus's most-anticipated seasonal events: the return of chairs to the Memorial Union Terrace.



FOR IMMEDIATE RELEASE 3/31/99

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NOTE TO PHOTO EDITORS: High-resolution images of the award winners are available for downloading at: <http://www.news.wisc.edu/newsphotos/asa.html>

ACADEMIC STAFF TO BE HONORED FOR VARIETY OF ACHIEVEMENTS

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The recipients will be recognized by the Academic Staff Assembly May 10.

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#

-- Erik Christianson, (608) 262-0930

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FOR IMMEDIATE RELEASE 11/7/97
CONTACT: Michael R. Sussman, (608) 262-8608; msussman@facstaff.wisc.edu

SUSSMAN TO DIRECT UW BIOTECH CENTER

MADISON - Horticulture professor and molecular biologist Michael R. Sussman is an unapologetic intellectual. He is also a pragmatist, a scientist who values the application of science beyond the laboratory.

"I like seeing people use science. In a void, it's a less satisfying venture."

So now, as the newly appointed director of the University of Wisconsin-Madison Biotechnology Center, Sussman will be in a genuine position to blend his passion for the intellectual with his conviction that science is at its best when it's at work to better the human condition.

Sussman has been named director of the center that lies at the junction of UW-Madison's sprawling enterprise in biology and the world beyond campus. He had served as interim director for the past year.

In naming Sussman to the position, Graduate School Dean Virginia Hinshaw said the biggest challenge facing Sussman is selecting the right focus for the Center, a nexus for UW-Madison biology, biology education, outreach and Wisconsin's blossoming biotechnology industry.

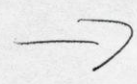
"That focus determines which programs should be developed to serve and strengthen the university," Hinshaw said. "There are always challenges in meeting fiscal goals, but prioritizing programs for the future is the major challenge."

The campus response to Sussman's interim leadership of the Center has been very positive, Hinshaw said: "I share that view. Mike's enthusiasm for research and the Biotechnology Center is a real plus. I'm excited and pleased to have the opportunity to work with him as the director of a center which is very important for the future of our campus research mission."

Already, the Center has active and well-recognized programs in public education, industrial outreach and instrumentation.

A critical function of the center, in Sussman's view, is to serve as a public resource for biology, a science in transformation and whose potential for improving human health, agriculture and economic competitiveness is expected to increase substantially in the next decade. Attendant to the sweeping new developments in biology, however, are pressing ethical and public policy concerns, issues that will require an informed and involved public, Sussman said.

"We all fear what we don't know. There are lots of ethical questions and the public needs facts," Sussman said. "A public university-based biotechnology center should be a place where people can go to get those answers."



In its short lifetime, the Center has become an important instrumentation hub for faculty and staff. It's core facilities, built around the very expensive machines that power modern biology, serve as a shared resource for many university scientists.

"Biology is becoming big science," said Sussman, pointing out that some of the key equipment and technologies of biotechnology are far too expensive for individual scientists to afford. Having those core facilities has been a boon to UW-Madison biologists, he said, and the hope is to continue that tradition of service and expand on it as new technologies are made available.

Another function of the Center, according to Sussman, is to help provide, along with other university organizations, an underpinning of intellectual and technical support to Wisconsin's expanding community of biotechnology companies.

Since the Biotechnology Center was first formed in 1984, there has been a huge increase in the number of biotechnology companies in the state. Given a stable economy, Sussman said he has no doubt Wisconsin can continue to rival the nation's leading industrial centers of biotechnology.

Sussman will continue his work as a scientist, helping to ferret out the genetic secrets of *Arabidopsis thaliana*, an important model plant organism, in addition to his work at the Center.

If he could accomplish anything in his new role, he said, it would be to provide the well of support required by creative people doing science: "Creative science is the most precious and most easily squished. It's easy to avoid because in science there are no guarantees. But it's the truly daring and creative people who move science and society."

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- Terry Devitt, (608) 262-8282; trdevitt@facstaff.wisc.edu

For questions or comments about UW-Madison's email news release system, please send an email to:
UW-news@facstaff.wisc.edu

For more UW-Madison news, please visit the
Office of News and Public Affairs Web site:
<http://www.wisc.edu/news/>

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NEWS

UNIVERSITY OF WISCONSIN-MADISON

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Biotechnology Center

Phone: 608/262-3571
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FOR IMMEDIATE RELEASE

4/29/96

CONTACT: Richard Burgess, (608) 262-8608; Sarah Castello, (608) 262-6758

(Note to business editors: This directory of state biotechnology firms may be a valuable resource for state businesses. This release is intended for the briefs column of your business section or page.)

DIRECTORY OF WISCONSIN BIOTECH FIRMS AVAILABLE

MADISON — A new directory published by the University of Wisconsin-Madison Biotechnology Center profiles 159 Wisconsin companies that are harnessing biotechnology for everything from disease-resistant crops to better drugs and vaccines.

The directory is available as a resource for those who rely on biotechnology to conduct business or improve their products. The 170-page directory gives a description of the history, products, services, expertise and financial profiles of each company as well as key contacts.

Richard Burgess, director of the Biotechnology Center, said the directory is especially useful in identifying the growing number of biotech firms in the state. That number has nearly tripled since the Biotechnology Center opened in 1984, he said.

While many of those are start-up companies, Burgess said other traditional companies employ biotechnology to expand or improve product lines. Of the 159 firms profiled, 115 use biotechnology while 44 firms have strong ties to the industry.

Examples in agriculture include the Agrecol Corporation, a Sun Prairie firm founded in 1991 that conducts research on forage crops, prairie plantings and plant disease control. Environmental biotechnology is conducted by American Biotek Labs, Inc. of Milwaukee, founded in 1993 to develop technology to naturally treat and recycle organic wastes. In medical technology, the GeriGene Medical Corporation of Elkhart Lake, founded in 1992, focuses on research and development on human aging and age-related disorders.

Burgess said the growth of biotechnology "has dramatically improved the climate for small- and large-scale business success in Wisconsin." An abbreviated version of the directory can be found on the center's World Wide Web site — <http://www.biotech.wisc.edu> — along with other information about the center's services. A copy of the directory is available for \$7.50. For ordering information, contact Sarah Castello, UW Biotechnology Center, 425 Henry Mall, Madison, WI 53706. The phone number is (608) 262-6758; fax is (608) 262-6748.

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— Ann Thering, (608) 265-4458



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NEWS

Biotechnology Center

UNIVERSITY OF WISCONSIN-MADISON

Office of News and Public Affairs
28 Bascom Hall • 500 Lincoln Drive
Madison, Wisconsin 53706-1380

Phone: 608/262-3571
Fax: 608/262-2331

FOR IMMEDIATE RELEASE

10/25/95

CONTACT: Richard Burgess, (608) 263-2635

NEW GENETICS, BIOTECHNOLOGY BUILDING OPENS FOR BUSINESS

MADISON — The University of Wisconsin-Madison's long-awaited research building for biotechnology and genetics is open for business, providing a new infusion of high-quality laboratory and teaching space.

The five-story Genetics/Biotechnology Center building, 425 Henry Mall, will offer the biological sciences community 80,000 square feet of working space, including 41 lab modules, a multi-media auditorium, a computer laboratory and other state-of-the-art research facilities.

"From the standpoint of biology research, this is a first-rate facility," says Carter Denniston, chair of the Laboratory of Genetics. "We needed not only better space, but more space. The average researcher in genetics needs more room to house all the modern equipment used in today's research."

The Laboratory of Genetics, the Biotechnology Center and the Center for Biology Education are all housed in the new building. In addition to bringing these similar units together for the first time, the building provides a modern showcase for teaching, research and service in the biological sciences.

"The best advantage is putting the Biotechnology Center in the heart of campus," says the center's director, Richard Burgess. "More than 800 faculty are involved in some aspect of biological sciences, and this new building will provide a first-rate environment for serving the biological enterprise."

The Biotechnology Center provides a variety of shared services for researchers, such as DNA and protein synthesis and sequencing, transgenic animals, bioseparations and specialized tools for research.

It also emphasizes outreach by working with Wisconsin schools on biotechnology education. The center works closely with the campus research community, University-Industry Relations (UIR) and the Wisconsin Alumni Research Foundation (WARF) in transferring technology to Wisconsin industry.

-more-

Biotechnology Center -- Add 1

The center has an active research program in the Plant Biotechnology Laboratory. One study is working to produce industrial enzymes by using Wisconsin alfalfa fields as "enzyme factories," says Burgess. Those enzymes can be used to break down toxins in the soil and waste streams.

Thomas Zinnen, biotechnology education specialist, says the new building offers the center more ways to work with the public. An outreach teaching lab is designed for biotechnology workshops with teachers, students and community leaders. In addition, a new 1,000-square-foot "Invention Space" is designed exclusively to help teachers develop and test new laboratory teaching kits for their classrooms.

Through the computer teaching lab, Zinnen says staff will provide introductory and advanced workshops for schools and businesses on how to tap the vast potential of the Internet and World Wide Web.

"With our new location, I think we will be able to generate more public enthusiasm about the biotechnology resources here," Zinnen says. In the past, he noted that the Biotechnology Center staff were spread out in three different buildings, which made public access difficult. Adjacent to the building is a new 240-space parking garage, which includes public parking spaces.

Denniston says the genetics laboratory will transfer many of its core research projects to the new building. On the third floor, plant geneticists will be looking at meristem development, and how plants use gravity to orient growth. On the fourth floor, researchers are studying how organisms develop from a few cells to incredibly diverse beings. The fifth floor is devoted to human genetics, with projects on a number of genetic diseases.

The building's exterior was designed to blend in with the historic buildings along Henry Mall. An L-shaped wrap-around to the central building is four stories, to match the height of other Henry Mall buildings. Large air-intake ducts on the roof were covered from view, and the roof has the same light-red shingles found on the older mall buildings. Inside, the building has an open four-story atrium with walkways circling the atrium on each floor.

The unique funding strategy for this \$28 million project led to the creation of the Wisconsin Initiative for State Technology and Applied Research (WISTAR), a public-private partnership designed to revitalize UW-Madison research buildings. The U.S. Department of Agriculture provided \$13 million, the Vilas Trust provided \$10 million, and \$6 million came from state sources.

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— Brian Mattmiller, (608) 262-9772



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Biotechnology
Center

Nov. 1, 1995

TO: Editors, news directors
FROM: Bill Arnold, (608) 262-0930
RE: Ward to visit Vietnam

Chancellor David Ward will be traveling to Vietnam this month, leading the academic component of a U.S. academic and trade delegation.

Ward and more than a dozen other academic, business, and governmental officials will spend Nov. 6-12 in Vietnam meeting with Vietnamese officials and visiting several facilities. Ward's participation is being sponsored by the Midwest Universities Consortium for International Activities (MUCIA) and the federal U.S. Information Agency. UW-Madison and nearly all other Big Ten institutions are members of MUCIA.

UW-Madison has several official ties to Vietnam, including sistership agreements with the Universities of Hanoi, Ho Chi Minh City, and Can Tho.

Vietnam has developed a blossoming market economy in the last several years, and Vietnamese graduate students are now studying at UW-Madison in the fields of physics, chemistry, business, computer science, law, English, and the Institute for Environmental Studies.

Ward is scheduled to visit the Ministry of Education and Training; the University of Hanoi; the National Academy of Sciences of Vietnam; the Ministry of Science, Technology and Environment; the Ministry of Health; the University of Ho Chi Minh City and the Biotechnology Research Center.

Other UW-Madison agreements and ties to Vietnam include:

- Judith Ladinsky, associate professor preventive medicine is the chair of the U.S. Committee for Scientific Cooperation with Vietnam. Ladinsky's work has resulted in several cooperative projects between UW-Madison and Vietnam. Also, Ladinsky's

-more-

presence at UW-Madison has attracted many visiting scholars, scientists, and diplomats. Faculty, staff, administrators, and students have met and interacted with many of these visitors.

- The Biotechnology Center signed a memorandum of agreement with the Biotechnology Research Center of Vietnam's National Center for Natural Sciences and Technology. John Helgeson, professor of plant pathology, has worked on plant tissue culture and vegetable propagation during a three-year Rockefeller Foundation fellowship.

- Collaborative research on agricultural pests is ongoing between Professor Wendell Burkholder of the Department of Entomology and Vietnam's Institute for Chemical Analysis and the National Center for Science and Technology.

- The School of Business has developed a certificate program in business management for students from Vietnam. A student from Vietnam was given the Outstanding Student Award for work on his MBA in 1994.

- The UW Medical School has several programs in Vietnam, including: cancer detection and cancer pain relief; the diagnosis of AIDS/HIV — as well as teaching prevention and public education; teaching primary health care; a surgical teaching exchange with the Department of Ophthalmology, and provision of scientific books and journals for libraries and medical schools in Vietnam.

- UW Law School Professor Charles Irish instructs Vietnamese students in the field of international law.

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WISCONSIN WEEK

October 25, 1995

For Faculty & Staff

University of Wisconsin-Madison

Connection: Successful

UW adds modems to keep up with demand on state's largest dial pool

Peggy Merrick-Balken
Division of Information Technology

One of the largest university "dial pools," which allows faculty, staff and students to connect to the Internet from remote locations, just got bigger.



Information Technology

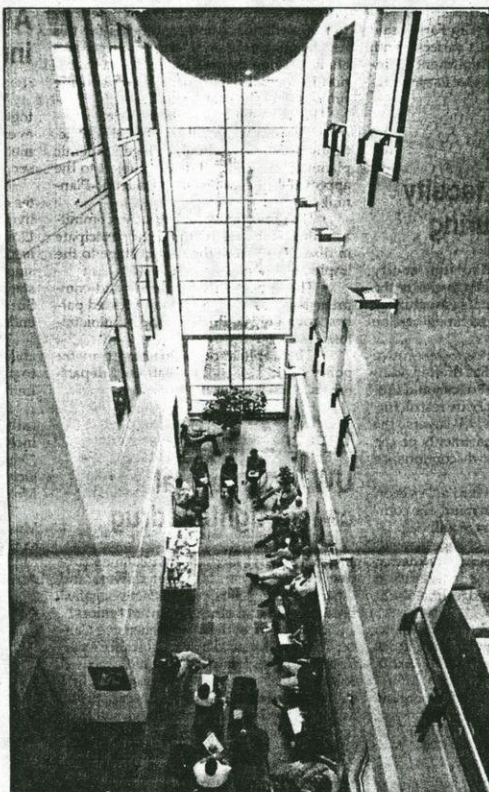
The next wave in lecture notes.

see back page

The Division of Information Technology (DoIT) has installed 96 new modems for a total of 624 modems online to meet the overwhelming demand. The dial pool, run by DoIT, is the largest in the state and ranks among the largest maintained by universities across the country.

Use of WiscWorld, the university's on-line Internet service, is setting new records and causing growing pains for campus users. On a typical day this semester, between 18,000 and 20,000 successful

see DIAL, back page



Jeff Miller

Open wide

Wait is over for state-of-the-art biotechnology and genetics building

Brian Mattmiller

UW-Madison's long-awaited research building for biotechnology and genetics is open for business, providing a new infusion of high-quality laboratory and teaching space.

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The center has an active research program in the Plant Biotechnology Laboratory. One study is working to produce industrial enzymes by using Wisconsin alfalfa fields as "enzyme factories," says Burgess. Those enzymes can be used to break down toxins in the soil and waste streams.

see OPENING, page 4

Occupants of the new Genetics/Biotechnology Center met last week in the four-story atrium to get acquainted with each other and building facilities.

Inside

5

Say cheese
How meltable would you like your Cheddar?

10

Under scrutiny
Biological sciences seeks input on its proposed reorganization.

Departments

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- 3 Milestones
- 5 Campus Calendar
- 8 Events Bulletin
- 11 For the Record
- 11 Position Vacancies

Smog never looked so good

Software gives pollution graphical feel

Terry Devitt

By harnessing the same computer graphics technology that Hollywood uses to create special effects and animation, scientists are developing interactive images of air pollution.

The pictures look much like the satellite weather maps shown on the evening news, but instead of depicting storms and other weather cells, the animated, three-dimensional images show the otherwise invisible clouds of chemicals that blanket much of the industrialized world.

The pictures are derived by combining a sophisticated computer graphics program with the wealth of data of the Earth's atmosphere collected by satellites and other means, says William L. Hibbard, a staff scientist at UW-Madison's Space Science and Engineering Center and a developer of the new software.

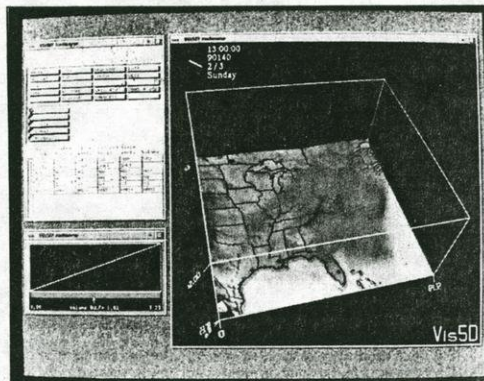
The technology — which can be adapted to model the transparent

but critical process of the oceans and atmosphere as well — is being widely adopted by scientists and government agencies worldwide, according to Hibbard.

"It is conceivable that one day pollution maps may be as ubiquitous as weather maps are today," he says. "It is possible now to model pollution very quickly, almost instantly."

Through satellites, radar and other technologies, scientists have long had the ability to measure and create mathematical models of chemicals in the atmosphere. By providing a tool to blend those measurements and models into three-dimensional, interactive maps, scientists can better assess the degree of air pollution, chemical interactions in the atmosphere, and what role the weather plays in dispersing and mixing chemical pollutants, says Hibbard.

"The data for any pollutant — ozone, carbon dioxide, sulfur dioxide — can be used to create a model," he says. "The problem for



Jeff Miller

scientists is that the data sets are huge. It's like drinking from a fire hose."

Already, the "chemical meteorology" software is being used by scientists at the U.S. Environmental Protection Agency (EPA) to

see POLLUTION, page 9

The Space Science and Engineering Center's software can turn any set of pollution data into a three-dimensional interactive map, giving scientists a bird's-eye view of the pollution problem.

MILESTONES

from page 3

Four additional awards will be presented to College of Engineering faculty and staff: The Benjamin Reynolds Smith Award for Excellence in Teaching — to Chemical Engineering Professor James A. Dumesic; the Byron Bird Award for Excellence in a Research Publication — to John R. Conrad, professor of nuclear engineering and engineering physics; the Bollinger Academic Staff Achievement Award — to Richard J. Casper, senior instrumentation specialist for the Materials Science Center; and the Ragnar E. Onstad Service to Society Award — to Professor C. Allen Wortley, of the Department of Engineering Professional Development.

Recipients of the Distinguished Service Awards are: John A. Annin, president and CEO, Herschel Corp.; Donald E. Cheney, executive vice president, Finley Engineering Co., Inc.; Do Won Chung, vice chairman and CEO, Kangwon Industries, Ltd.; Rene M. Dupuis, president, Structural Research, Inc.; Dong Soo Hur, president and CEO, Honam Oil Refinery Co., Ltd.; Ronald E. Mengel, director, Engineering Process Teams, Kraft Foods, Oscar Meyer Foods Division; Juzar Motiwala, director, Institute of Systems Science, National University of Singapore; Chung-Hyun Nam, president, Daewoo Engineering Company; Mathukumalli Vidyasagar, director, The Center for Artificial Intelligence and Robotics, Defense Research Development Organization (India); William B. Winter, chairman and CEO (retired), B-E Holdings, Inc., and Bucyrus-Erie Co.; Tat Ching (Henry) Yu, managing director, Sunnex Products Ltd.

HONORED

Linda Gordon, professor of history, has received the 1994 Annual Book Award from the Berkshire Conference of Women Historians for her book *Pitied But Not Entitled: Single Mothers and the History of Welfare* (1994, The Free Press).

Jaleh Dale, professor of botany, and Morton Gernsbacher, Bartlett professor of psychology, have been elected fellows of the American Association for the Advancement of Science (AAAS). Dale's honor is in recognition of her work elucidating physiological and molecular mechanisms of carbon metabolism in plants and for academic leadership.

Janet Hyde, professor of psychology, is the winner of the second annual outstanding teaching award of \$1,000 given by the department of psychology.

Robert Cassens, professor of meat science, has been awarded the 1995 R.C. Pollock Award by the American Meat Science Association. The award recognizes an individual who has made extraordinary and lasting contributions to the meat industry for teaching, extension, research or service.

Virginia Young, assistant professor in School of Business, has won the 1994 Society of Actuaries (SOA) Triennial Prize for research. Her paper "The Application of Fuzzy Sets to Group Health Underwriting," has been published in volume XLV of the SOA publication *Transactions*.

Jian Ma, research associate in the department of materials science and engineering, has received the Aladdin Lamp Award for excellence in synchrotron radiation research performed at the UW Synchrotron Radiation Center in pursuit of her Ph.D. degree.

APPOINTED

Mary Besenjak, supervisor at the Campus Assistance Center and the Visitor and Information Place, was elected vice president of the Collegiate Information and Visitor Services Association (CIVSA). She was also recently hired as a contributing writer for *The Clubbook: The Ultimate Survival Guide at the University of Wisconsin-Madison* published by Kendall/Hunt in June.

Patrick McBride, associate professor of family medicine and cardiology, has been named to the National Heart, Lung and Blood Institute's Panel on Physical Activity. This expert panel will develop a comprehensive document summarizing what is known about physical activity and heart disease, and will recommend additional research and education in the area. McBride has also recently finished co-authoring guidelines on risk factor intervention for patients with heart disease. He was one of 62 physicians nationwide who wrote these guidelines for the American College of Cardiology 1995 Bethesda Conference.

Cheese to please

UW dairy researchers produce custom-tailored fromage for the finicky

Bob Cooney
Agricultural Journalism

It slices! It dices! It shreds! It melts!

And it produces delicious food, but you won't see it advertised on late-night TV. That's because it's custom-tailored cheese from Wisconsin, not the Rend-O-Matic Food Blender from PipCo.

Cheese has to work hard these days to meet the needs of manufacturers and food service. The food industry is filled with picky users who want their cheese just so. That's just fine with the cheese tailors at UW-Madison's Center for Dairy Research.

More than two-thirds of the cheese made in Wisconsin is used in manufactured foods or in restaurants and cafeterias. CDR researchers are showing cheesemakers how to "tailor" their cheese to meet the specialized needs of these users, according to food scientist Norm Olson.

A block of Cheddar cheese in the supermarket dairy case is a pretty easy sell — if it looks good and tastes good, most people will be happy with it.

"Industrial" cheese faces tougher tests, Olson says. Users often look for shreddability and controlled meltability; for example, in mozzarella cheese used on pizza, and in other cheeses used as toppings, in frozen foods, and in refrigerated heat-and-eat meals.

Criteria for these types of cheeses have gotten more stringent over the last 10 years, according to Olson. Pizza chains and frozen-pizza makers led the demand for more defined characteristics, he says.

For example, they now demand strict meltability characteristics — if the cheese doesn't flow just right after its time in the oven, they don't want it.

Increased use of shredded cheese in retail and commercial food industries allows different cheeses to be used as food ingredients; Cheddar and Colby, for example, as well as mozzarella.

Since mozzarella was already under study elsewhere, the CDR researchers chose Cheddar (reduced-fat and regular) to re-tailor. By adjusting manufacturing procedures and cheese composition, they are finding ways to regulate shredding and melting.

This research started in 1990; since then, the CDR has made 200 vats of cheese at 500 pounds of milk per vat. Researchers are analyzing the data from this cheese, and developing equations that allow cheesemakers to regulate melt and shred qualities.

One example of the data at work: Potatoes con Queso. A cheesemaker produces reduced-fat Cheddar that is shredded by a food service chain as a topping on diced potatoes con queso. The cheesemaker is asked to increase meltability by 25 percent while maintaining the cheese's shreddability. The cheesemaker, naturally, wants to do without retooling the factory.

The CDR cheese tailors recommend manufacturing changes (in cooking temperature and rate of acid production) will shift the cheese's characteristics. It can also warn the users about how storage time and temperature and microwave cooking will affect meltability.

CDR researchers spread the word through bulletins, presentations at Wisconsin Cheesemakers Association meeting, CDR cheese conference, and individual contacts with companies.

"We encourage contacts with companies because it's hard to give generalized recommendations that are very quantifiable," Olson notes. "These results are more a cable and meaningful when we can add a specific problem or development need."

Olson heads a UW/industry research planning team that's looking at the properties of cheese. This research is funded by Wisconsin dairy farmers through the Wisconsin Milk Marketing Board, U.S. milk producers through Dairy Management Inc. private industry.

Controlled-environment lab adds greenhouse

Brian Mattmiller

The Biotron, a unique controlled-research building that recreates virtually any natural environment on earth, will be letting the sunlight in for plant researchers at UW-Madison this December.

A new 9,000-square-foot greenhouse facility on the south end of the building will be the only one of its kind in the Midwest to offer controlled growing environments, while using natural sunlight.

"In large part, this will make room for research we have not been able to do anywhere on campus," says Thomas Sharkey, director of the Biotron, 2115 Observatory Drive. "This will greatly expand the capabilities of the center."

The \$1.8 million greenhouse project was funded by the Graduate School and the Wisconsin Initiative for State Technology and Applied Research (WISTAR), a public-private partnership to help revitalize UW-Madison research buildings.

The Biotron facility, combined with new instructional greenhouses being built at Babcock Drive, will help improve a shortage of quality greenhouse space for plant researchers and students. The new instructional greenhouses will replace some that were nearly 100 years old.

Built in 1965, the Biotron is one of only a few research centers in the United States designed for controlled environment research. It can allow researchers to simulate plant growth in a rain forest climate, study the effects of weightlessness in space on primates, or study the effects of deep-sea conditions on divers — all within 60 research chambers.

The greenhouses will apply similar controls over plant growth environments. Sharkey says the greenhouse has 25 sealed, air-conditioned rooms that can control temperature, humidity and carbon dioxide levels.

Researchers can replicate their work as many as eight rooms simultaneously.

Sharkey says plant researchers run controlled experiments usually have to plant growth chambers, which use artificial light. Plants often grow poorly in those systems; the new greenhouses, however, offer both environmental controls and natural sunlight.

Several projects will begin as soon as greenhouses are finished in December. Sharkey will test different growing conditions for a new tomato developed by Calgene, creators of the bio-engineered tomato that maintains its firmness longer in breed, now in development, may lead to sweeter-tasting tomato.

Another project by entomologist Lindroth will look at how the expected increase in carbon dioxide in the atmosphere will affect tree growth, as well as the insects that feed on them.

OPENING

from page 1

Thomas Zinnen, biotechnology education specialist, says the new building offers the center more ways to work with the public. An outreach teaching lab is designed for biotechnology workshops with teachers, students and community leaders. In addition, a new 1,000-square-foot "Invention Space" is designed exclusively to help teachers develop and test new laboratory teaching kits for their classrooms.

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"With our new location, I think we will be able to generate more public enthusiasm about the biotechnology resources here," Zinnen says. In the past, he noted that the Biotechnology Center staff were spread out in three different buildings, which made public access difficult. Adjacent to the building is a new 240-space parking garage, which includes public parking spaces.

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Biotechnology Center

FOR IMMEDIATE RELEASE

8/29/95

UW-MADISON NEWS BRIEFS

BUSINESS LIBRARY ADDS GALLERY

The three-dimensional Business Library in Grainger Hall at the UW-Madison's School of Business has added a two-dimensional twist: Its walls are now a gallery.

Two exhibits of photographs, opening Sept. 1, will demonstrate a new use of vertical space on the main floor of the Business Library (2200 Grainger). On display until Oct. 15 will be photos by Jeff Miller, photographer for the UW-Madison Office of News and Public Affairs, and A.E. Mader, a 1988 graduate of the UW-Madison Art Department.

Miller's exhibit is a photographic essay on Madison street musician Catfish Stephenson, and Mader's is a collection of hand-colored black-and-white photos. An artists' reception will be held in the library for Miller and Mader Friday, Sept. 22, from 6 to 8 p.m. The public is welcome to attend without charge.

The Business Library also has displayed works by several master of fine arts students. "There aren't many display spaces on campus, so our library enhances our ability to expose students to artwork," said Pamela Cremer, graphic designer for the Management Institute in the School of Business and coordinator of the library displays.

Anyone interested in using the Business Library to display their two-dimensional art (not enough room for 3-D art like sculpture) should contact Cremer through e-mail at pcs@mi.bus.wisc.edu or by mail at 3161A Grainger.

— Jeff Iseminger, (608) 262-8287

BIOFEST '95: UW SHOWCASES THE LATEST BIOFARE

The UW Biotechnology Center's Biofest '95, a showcase of current developments and trends in biotechnology, will be held Sept. 18 and 19 at Memorial Union at UW-Madison.

From the research benefits of engineered mice to a luncheon featuring the products of traditional and modern biotechnology, Biofest '95 promises an inside look at the latest in

-more-

academic and industrial biotechnology.

This year's Biofest features sessions on technology transfer, molecular virology and biotechnology, gene therapy, and a career fair. A highlight of Biofest '95 will be the presentation of the UW Biotechnology Center Distinguished Wisconsin Entrepreneur Award to William Linton, president and chief executive office of Promega Corp.

The deadline for Biofest '95 registration is Sept. 5. For more information and a conference fee schedule, contact Jean Pierick by phone at (608) 265-2019, or by e-mail at jpierick@macc.wisc.edu.

— Terry Devitt, (608) 262-8282

DOG JOG '95 TAKES OFF SEPT. 17 TO SUPPORT HUMANE SOCIETY

Dog Jog '95, an annual event organized by the Companion Animal Club of UW-Madison, will be held Sunday, Sept. 17, on the grounds of campus.

Now in its twelfth year, the event gives participants a chance take their pets on a leisurely walk or jog through a scenic campus route, while helping raise money for the Dane County Humane Society.

Participants are asked to bring pledges, which will be tallied the day of the race. Last year, the jog attracted 1,000 participants and raised more than \$29,000 for the Humane Society, enabling the organization to add veterinary clinic to its services.

The emphasis is on a leisurely good time, said Linda Sullivan, a clinical instructor at the School of Veterinary Medicine and faculty liaison for the Companion Animal Club. Contests include a "best dressed" competition, an owner-pet look-alike contest, and prizes for people bringing in the most pledges. Activities are also planned for children.

Starting in front of the veterinary medicine building, 2015 Linden Drive West, the two-mile jog winds through the agricultural campus, past Allen Centennial Gardens and along the Lakeshore Path.

The school's student-run Companion Animal Club has received awards for last year's event. The club won a UW-Madison competition last year for the annual Saturn Award, sponsored by the Saturn Corporation for teamwork and community service.

It was also one of two clubs recognized by Hill's Pet Nutrition, Inc. in its annual awards program. Hill's awarded a \$5,000 educational equipment grant to the school in

◆ M I L E S T O N E S ◆

UW Biotechnology Center celebrates a decade of service

This fall marks the 10th anniversary of the establishment of the UW's Biotechnology Center (UWBC), an operation in which growth and success has mirrored that of Wisconsin's biotechnology community.

Richard R. Burgess, director of UWBC and a professor of oncology, has headed UWBC since its inception in 1984 and has led the center in becoming "a catalyst for transforming ideas into reality. We interact with more than 60 other UW-Madison departments, centers and programs. Our activities reach well beyond the UW-Madison campus to link with the UW System and other academic institutions, the business community, state government, and regional and national organizations."

Indeed, UWBC has become a critical node for Wisconsin's biotechnology community. It has served as an incubator for nascent companies and a focal point for the formation of industrial consortia. During the past decade, UWBC has functioned as perhaps the single most important link between Wisconsin biotechnology business, government and higher education.

"We just try to work with people, to assist them in conducting their research, and to help them collaborate. That's one of the reasons we've been successful," Burgess said. For example, access to UWBC resource facilities helps keep Wisconsin's academic research community competitive and assists scientists in leveraging federal grant dollars.

UWBC's ability to bring disparate groups together, Burgess contends, has

'We're 10 years old, but we haven't come of age yet. We serve and promote one of the finest biotechnology communities in the world. We've done some good things, but the best is yet to come.'

.....

helped power the strong growth of the biotechnology business community in Wisconsin, and especially in Dane County. Wisconsin now boasts more than 150 biotechnology-related companies. In Dane County alone, more than 75 companies have come to rely on UWBC for consulting information and an array of laboratory capabilities such as protein sequencing and DNA analysis.

"I think we've helped create some of the momentum for making Wisconsin's biotechnology community one of the fastest growing in the country," Burgess said. For example, a notable component

of the center's early program, the Genetics Computer Group, was so successful that it was spun off into one of Dane County's hottest small biotechnology companies, GCG, Inc.

Burgess predicts that if research projects presently underway at UWBC prove successful, new companies involved in environmental clean-up, improved pulp and paper production, and industrial enzyme production may become tomorrow's biotechnology spin-off companies.

UWBC has also played a collaborative role in biotechnology education on and

off campus, according to Burgess. The center assisted in establishing the UW-Madison Center for Biology Education, the Biotechnology Training Program, and the Teacher Enhancement Programs in Biology.

Under the terms of an interagency agreement with UW-Extension, UWBC now advances biotechnology education both locally and nationwide.

UWBC has grown from a two-room, three-person operation in 1984 to a 40-person operation poised to occupy a big chunk of a new \$28 million, 72,000-square-foot Biotechnology Center and Genetics Building.

"We're 10 years old, but we haven't come of age yet," said Burgess. "We serve and promote one of the finest biotechnology communities in the world. We've done some good things, but the best is yet to come."

UW Sea Grant receives largest federal grant ever

By Stephen Wittman
UW Sea Grant Institute

The National Sea Grant College Program has awarded the UW Sea Grant Institute a record \$2.2 million for Great Lakes-related research, outreach and education for the coming year.

Coupled with \$1.4 million in matching funds from the State of Wisconsin, the federal grant will help support two national initiatives, 15 continuing UW Sea Grant research and outreach projects, and 18 new projects. The 1994-95 grant is the largest annual federal award to UW Sea Grant in its 26-year history.

Sea Grant is a university-based state-federal partnership designed to provide scientific information for the protection and sustainable development of Great Lakes and ocean resources. UW Sea Grant's major research areas include fisheries management, seafood technology, aquaculture, toxic contaminants, water quality, scuba diving and policy studies.

A total of 81 faculty and staff and 61 graduate and undergraduate students at five UW System campuses (UW-Madison, UW-Milwaukee, UW-Green Bay, UW Center-Manitowoc County and UW-Superior) and Marquette University will actively take part in the 1994-95 UW Sea Grant program.

Wisconsin researchers will receive a total of \$1.1 million over the next three years as part of a new federal initiative in marine biotechnology. More than 250 research project proposals were submitted nationwide, but only 29 were accepted for funding, and four of those were from UW researchers — the highest number for any one state.

"We are fortunate that the caliber of Wisconsin research in this nationwide competition has resulted in such a high approval rate for funding," said UW Sea Grant Institute Director Anders W. Andren.

"This is the first year of what Congress intends to be a long-term Sea Grant initiative in marine biotechnology," Andren said. "We regard this year's grant as a kickoff for what we hope will be further increases in funding for UW scientists."

The four UW Sea Grant marine biotechnology projects are:

- Daniel J. Klingenberg and Sangtae Kim of UW-Madison and Kenneth H. Nealson of UW-Milwaukee will study bacteria that thrive under high temperatures to learn how their proteins might be used in hydraulic fluids and other carrier liquids.

- Nealson and UW-Milwaukee's Daad Saffarini will examine microbes from Great Lakes sediments to see if they can be genetically manipulated to

'We are fortunate that the caliber of Wisconsin research in this nationwide competition has resulted in such a high approval rate for funding.'



Andren

perform sediment cleanup jobs, especially in oxygen-poor environments.

- UW-Madison's Fun S. Chu will try to determine how toxins from poisonous algae work and develop ways to detect them in the environment.

- Richard E. Peterson and Judd M. Aiken, both of UW-Madison, will study how mixtures of dioxin, PCBs and other toxic chemical contaminants affect the genetic makeup of rainbow trout. They will then use this information to develop inexpensive ways to test for toxic compounds in fish.

Four UW research projects and one outreach project received Sea Grant funding under a continuing national initiative on zebra mussels and other nonindigenous aquatic nuisance species.

The zebra mussel might be one of the most economically damaging alien creatures to invade North America's waters. Infamous for its ability to clog water intake pipes, the prolific mollusk has choked off water supplies to entire cities and shut down lakeshore power plants. Alphonse E. Zanoni and James S. Maki of Marquette University will receive Sea Grant funding to study how well electricity works in keeping zebra mussels off water intake pipes in Lake Michigan.

Zebra mussels have spread beyond the Great Lakes to rivers and inland lakes in more than a dozen states, including Wisconsin. UW-Madison's Dianna K. Padilla will work with researchers from Illinois-Indiana Sea Grant to study the effects of zebra mussels on native snails in inland waters, while UW-Superior's Mary Balcer will work with the National Park Service to evaluate the ability of zebra mussels to genetically adapt to conditions in rivers with seasonal fluctuations in water quality.

In addition, UW Sea Grant Zebra Mussel Specialist Clifford Kraft, UW-Green Bay, will document the spread of zebra mussels to inland waters and try to determine the susceptibility of certain

lake types to invasion. Kraft will also work with Connecticut Sea Grant to assess the effectiveness of zebra mussel education programs.

UW Sea Grant was also awarded funds to continue its Zebra Mussel Watch outreach project, which includes monitoring Green Bay and Lake Winnebago, producing the regional Zebra Mussel Update newsletter, and training industry personnel and others in zebra mussel identification and monitoring.

UW Sea Grant's other new projects for 1994-95 include improving the use of robots for underwater salvage, repair and research; communicating the risks of eating sport fish to women of childbearing age; and publicizing the role of panic in scuba diving fatalities.

Continuing projects include studies of Great Lakes food web dynamics; six projects on the sources, transport, effects and fate of toxic contaminants in the Great Lakes; and research on ways to reduce stress-caused mortality among fish in aquaculture.

The annual federal grant also helps support the continued operation of four UW Sea Grant Advisory Services field offices in UW-Green Bay, UW Center-Manitowoc County, UW-Milwaukee and UW-Superior/Ashland. Advisory Services specialists will continue to offer technical assistance to industry and the public in the areas of aquaculture, business, coastal engineering and fisheries.

UW Sea Grant Advisory Services also is launching new initiatives in global change education, geographic information systems, water quality and marine education for K-12 teachers, according to Assistant Director for Advisory Services Allen H. Miller.

Among other continuing projects, the federal grant provides partial support for "Earthwatch Radio," a weekly series of five two-minute public service programs on science and the environment produced by UW Sea Grant in cooperation with the UW-Madison Institute for Environmental Studies.

Now in its 22nd year of production, the award-winning "Earthwatch" program is heard on more than 160 commercial and noncommercial outlets in Great Lakes states, Ontario and beyond.

The UW Sea Grant Institute is part of a national network of 29 university-based ocean and Great Lakes research, outreach and education programs jointly funded by participating coastal states, industry and the National Sea Grant College Program, National Oceanic & Atmospheric Administration, U.S. Department of Commerce.

Biofest '94: see the latest in biotechnology

The latest developments in biotechnology — from high-speed genetic sequencing to the promise of gene therapy — will be the centerpiece of BioFest '94, a two-day celebration marking the first decade of the University of Wisconsin's Biotechnology Center.

The event, to be held at the Memorial Union Sept. 29 and 30, will feature a series of speakers and workshops. Topics include biotechnology in the areas of research tools, agriculture, the environment, industry and medicine.

Following the first day's sessions, a technology transfer reception will bring together representatives of companies, government and the academic community to explore opportunities for the transfer of biotechnology from its creators to its users.

The reception will be followed by an evening public lecture by Robert Nowinski, a former UW-Madison faculty member who has founded four successful medical biotechnology firms since 1981. Nowinski's talk will be given in the Union Theater at 8 p.m. on Sept. 29. He will talk about his transformation from an academic to a highly-successful biotechnology entrepreneur.

In addition to the free lectures, a series of workshops for teachers, the news media and those interested in accessing biotechnology information on the Internet are also offered.

For a program or more information about BioFest '94, contact the Biotechnology Center at 262-8606.



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9/23/94

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BIOFEST '94: MARKING THE BIOTECHNOLOGY CENTER'S FIRST DECADE

MADISON — The latest developments in biotechnology — from high-speed genetic sequencing to the promise of gene therapy — will be the centerpieces of BioFest '94, a two-day celebration marking the first decade of the University of Wisconsin's Biotechnology Center.

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For a program or more information about BioFest '94, contact the UW-Madison Biotechnology Center at (608) 262-8606.

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Release: Immediately

6/7/91

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HOUSE PANEL OKs FEDERAL SUPPORT FOR UW-MADISON BIOTECH CENTER

MADISON--A key subcommittee of the House of Representatives has approved the final installment of federal money needed to build the University of Wisconsin-Madison's \$28 million Biotechnology Center.

The House Appropriations Subcommittee on Rural Development and Agriculture approved \$8.9 million to be spent on the Center beginning in October, the start of the 1992 federal fiscal year. The appropriation is part of the budget of the U.S. Agriculture Department, which must be approved by the House and Senate. Original planning called for the federal share to be appropriated over as many as three years.

U.S. Representative David Obey (D-Wis) is a strong backer of the Biotechnology Center and, as a member of the subcommittee, the key player in getting the panel to approve federal funding, said UW-Madison Chancellor Donna E. Shalala.

"We are deeply grateful to Congressman Obey for his extraordinary leadership in securing all of the needed federal funds for our biotechnology building. It is the centerpiece of our strategy for improving job opportunities for Wisconsin residents through research and technology," Shalala said.

Neal Jorgensen, acting dean of the College of Agriculture and Life

-more-

Sciences was pleased with the subcommittee's action. "The fact that this project is well on its way is extremely good news," he said. "This facility will help meet a growing need for biotechnology research."

Obey's support of the center was important in getting approximately \$3 million in federal planning and construction funds committed earlier to the project.

In addition to the \$12 million in federal money, the State of Wisconsin is providing \$6 million, and the William F. Vilas Estate is providing a \$10 million contribution. The state share is part of the proposed WISTAR (Wisconsin Initiative for State Technology and Applied Research), a \$225 million program to renovate and construct state research facilities. The Legislature has not yet approved the \$150 million in state money for WISTAR.

The \$8.9 million appropriation for the coming fiscal year is good news said Duane Hickling, assistant vice chancellor for facilities planning and management. "It allows us to go forward with no delays," Hickling said.

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--Harvey Black (608) 262-9772

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Biotech Center receives boost

By Chuck Nowlen WI. Week 3/15/89

The University of Wisconsin System Board of Regents and the state Building Commission have given new financial boosts to a proposed \$26.3 million Biotechnology Center/Genetics Building at the UW-Madison.

The Board of Regents on Friday approved a request to seek about \$10 million in accumulated funding from the William F. Vilas Estate for the project.

The Building Commission, meanwhile, authorized about \$500,000 in planning money for the project Monday, with Gov. Tommy Thompson promising to grant the remainder of university's \$1.2 million planning request as soon as the status of federal funding becomes clear.

UW-Madison Chancellor Donna E. Shalala is seeking 30-50 percent of the biotechnology center funding from the U.S. Department of Agriculture, with the rest to

come from the Vilas Trust, private donations and state support.

Officials hope construction can begin in 1991-93.

The Vilas Trust request was originally brought before the Regents in February, but a decision was deferred after several Regents asked for additional information.

However, Regent Laurence A. Weinstein, of Madison, noted Friday that no scholarships or fellowships would be lost as a result of the request, nor would the funds in question be otherwise available for these purposes.

One half of yearly Vilas income is retained in endowment, and Vilas trustees feel the biotechnology project might help keep this accumulation from "getting out of hand," added Board President Paul R. Schilling, of Milwaukee.

"They (Vilas Trustees) are quite comfortable, quite happy and quite willing to do this," Weinstein said. "But they can't unless we let them."

Given the importance of biotechnology to economic development, Shalala "ought to be commended for coming up with a unique way of funding" the building without putting it in competition with other UW projects on the prioritized UW list, Weinstein said.

Following the Building Commission meeting, Shalala expressed satisfaction with the panel's "enthusiastic support" of planning for the Biotechnology Center. She also praised the "positive signals" from the Governor and commission members on a request for \$600,000 in planning money for an addition to the UW-Madison Chemistry Building.

The commission deferred the request, but Thompson indicated he would support it once federal construction funds become available.

Shalala said the Biotechnology Center and Chemistry Building projects were "critical" for the UW-Madison in light of an expected boost in federal science and technology funding and the emergence of biotechnology as a potential boon to state economic development.

The Building Commission also backed about \$15 million in UW Clinical Sciences Center projects; \$6.2 million for additional central air conditioning; \$3.5 million for a new University Avenue parking lot; \$2.3 million for Memorial Library compact shelving; and \$1.7 million to improve the university's electrical and signal distribution system.

The commission recommended deferral of a proposed \$1 million for Lathrop Hall remodeling, which had been sought to correct inefficiencies in the UW-Madison Dance Program and the top-rated Continuing and Vocational Education

Department.

"While the remodeling of Lathrop Hall met all of the Building Commission's guidelines, there were insufficient funds to finance it for the next biennium," Shalala said. "But rest assured the project will remain a high priority on our list."

The Building Commission recommendations will be forwarded to the state Legislature. ■

Biotech Center

OTHER REGENT ACTIONS

In other action at its March 10 meeting, the Board of Regents:

- gave final approval to implement UW-Madison Doctor of Pharmacy (Pharm. D) and Bachelor of Science in Pharmaceutical Sciences programs
- authorized recruitment for a UW-Madison Afro-American Studies/ English Professor
- approved a lease renewal for the UW-Madison Sports Medicine Center and the Continuing Medical Education and Psychiatry departments ■

Regents accept gifts, grants

WI. Week 3/15/89

The University of Wisconsin System Board of Regents accepted gifts, grants and contracts on Friday for the month of March totaling \$26,646,419, including \$20,144,195 to UW-Madison.

Research awards to UW-Madison totaled more than \$18.1 million, more than 97 percent of the system's research total.

Among major research grants to UW-Madison were:

- \$4 million from the U.S. Department of Energy to the Department of Physics for continuing research on experimental and theoretical high energy physics.
- \$500,000 from the Wisconsin Department of Administration to the Department of Civil and Environmental Engineering for a state fuel-efficient transportation program.
- \$196,435 from the University of Pitts-

burgh to the Psychiatric Research Institute for several studies on the psychobiology of depression.

- \$147,338 from the National Science Foundation to the Institute for Research on Poverty for genetics and biotechnology programs for elementary, middle and high school teachers.

Wisconsin agencies and corporations contributing research dollars to the UW-Madison included the Wisconsin Milk Marketing Board, Madison; the Kenosha County Department of Social Services, Kenosha; the Ronald G. Brader Estate, Milwaukee; the Wisconsin Department of Social Services, Madison; Grace and Norman Lutz, Oconomowoc; Kaukauna Cheese, Kaukauna; Vita Plus, Madison; Cooperative Educational Service Agency No. 9, Tomahawk; and Ore-Ida Foods, Inc., Plover. ■



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10/7/91

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CONSORTIUM EXPLORES WAYS TO CLEAN UP ENVIRONMENTAL POLLUTION

A university-industry consortium, based at the University of Wisconsin-Madison **Biotechnology Center**, has been formed to explore ways of harnessing fungi, bacteria and enzymes to help clean up environmental pollution.

The Bioremediation of Environmental Contaminants Consortium (BECC) formed this spring, "hopes to make bioremediation a more accessible 'off the shelf technology,'" said Patrick Eagan, consortium director and a program director in the College of Engineering's Department of Engineering and Professional Development.

"The use of biotechnology to degrade pollutants can be a more benign and publicly acceptable manner of handling pollution than landfills or incinerators," Eagan said.

Using biotechnology to combat pollution is a growing field, according to Kate Devine, a consultant and executive director of the Applied Biotreatment Association, a Washington-based trade group with 65 members.

"The field is in a very dynamic state right now. You find more and more environmental service companies getting into this," she said.

Five firms, in addition to the National Fertilizer and Environmental Research Center of the Tennessee Valley Authority, so far have joined the consortium and have

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Bioconsortium -- add 1

each put up \$9,500 to help fund research. The firms include Foth and VanDyke of Green Bay; Honeywell, Inc. of Minneapolis; Simon-EEL, a British -firm with operations in Milwaukee; Sybron Chemicals, Virginia; and Zimpro Passavant Environmental Systems of Rothschild, Wis. The consortium also has received a \$150,000 grant from the state Department of Development.

Consortium-funded research will be conducted by scientists at the UW-Madison, the UW-Milwaukee, and the U.S. Department of Agriculture Forest Products Laboratory on the UW-Madison campus.

Among the projects currently being explored are the use of a fungal enzyme to help degrade PCB's, and bacteria to decompose a number of on site or in situ organic contaminants.

The Wisconsin Alumni Research Foundation will be the first to get an opportunity to attempt to patent any inventions arising from the research.

This consortium is the third to be housed at the Biotechnology Center. Others include a biopulping consortium that is exploring ways to replace chemical methods of pulping paper with biological ones, and a bioprocessing consortium working on ways to use biological processes to produce speciality chemical products.

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11/18/91

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BIOTECHNOLOGY DIRECTORY NOW AVAILABLE

MADISON --The 1991 University of Wisconsin-Madison Biotechnology Center Directory of Biotechnology Companies is now available. The free directory lists 71 firms as well as descriptions of their products and business activities, including firms offering legal, financial and management services.

The directory can be ordered by calling the UWBC at (608) 262-8606 or writing to the center at 1710 University Ave., Madison, WI 53706.

A new edition of the directory will be published in early 1992 and will be automatically sent to those requesting the 1991 version.

Firms wishing to be included in the directory may complete forms on the last two pages of the 1991 version and submit them to the center before Dec. 31, 1991.

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--Harvey Black, (608) 262-9772



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3/26/92

UW-MADISON NEWS BRIEFS

BIOTECHNOLOGY DIRECTORY AVAILABLE

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A 1993 edition of the directory is anticipated.

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CONFERENCE TO HELP CAMPUSES DEAL WITH ALCOHOL AND DRUG PROBLEMS

As alcohol and other drug-related problems continue to challenge college campuses and the larger community, faculty, staff, students and community health providers from throughout the state and region will come together to share strategies for responding to these complex problems.

The Seventh Wisconsin Higher Education Alcohol and Other Drug Conference

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will be held April 1-3 at UW-Madison's Memorial Union. It will focus on alcohol and drug prevention, education, intervention and treatment. The conference, initiated by a University of Wisconsin System advisory committee seven years ago, includes higher education professionals from across the UW System, the Wisconsin Vocational Technical Education System, as well as from private and public institutions in Wisconsin and the region.

Dr. Gerardo Gonzalez, chair of the Counselor Education Department of the University of Florida, Gainesville, and founder of BACCHUS, a national collegiate peer organization for the prevention of alcohol abuse, will address the conference on April 2 with his keynote address, "Alcohol and Other Drugs in the Academy: From Benign Neglect to Effective Responses."

Dr. Richard Keeling, director of the Department of Student Health at the University of Virginia and a nationally known consultant on HIV/AIDS prevention among young adults, will also give a keynote address on April 3, titled "Strategies for a Generation at Risk: Health Promotion in the 1990s."

The conference also focuses on peer education and programming, offering workshops by students for students. Some 40 Madison high school students will attend these presentations.

Other workshops will focus on innovative approaches to intervention and treatment, grant-writing and sources of program funding, policy issues and prevention planning as well as on working with particular populations, including African Americans, Hispanics, American Indians, women and men.

For more information, contact Felix Savino, coordinator of the UW-Madison Alcohol and Other-Drug Program, at 263-4556.

12/16/91

BIOTECHNOLOGY TRANSFER NEWSLETTER GETS NEW NAME

The name of the technology transfer newsletter of the University of Wisconsin Biotechnology has been changed. It is now called Wisconsin BioIssues instead of Wisconsin Bio Business.

The name change has been made in part because a private firm has trademarked the word "biobusiness." Also the Biotechnology Center decided a new name for the newsletter would better reflect its mission which goes beyond making connections with businesses.

The mission of the newsletter will remain the same: to forge links among Wisconsin's growing biotechnology industry, academic researchers and government.

Since its inception in 1990, the newsletter's circulation has nearly doubled from 1,400 to 2,700, according to Ken Smith, the managing editor.

GRANTS AWARDED TO BOOST STATE'S ECONOMY

Faculty members in the College of Engineering have received grants to encourage them to apply their expertise to real problems. The University of Wisconsin Applied Research Program grants are provided by the governor and legislature. Fred J. Bradley, assistant professor of materials science and engineering and Charles G. Hill Jr., professor and chair of chemical engineering; were awarded the grants which support applied research activities that improve connections between knowledge and practice that could potentially promote positive changes in the operation of the economy.

Bradley's study aims to improve the quality, productivity, and competitive position of the foundry industry -- of which Wisconsin holds a significant share. His

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Biotech Center, chemistry addition pared

Building projects get mixed reception

WI. Week 3/1/89

By Chuck Nowlen

Proposed 1989-91 UW-Madison building projects got a mixed reception last Thursday from a key subcommittee of the State Building Commission.

The commission's Higher Education Subcommittee backed about \$15 million in UW Clinical Sciences Center projects; \$6.2 million for additional central air conditioning; \$3.5 million for a new University Avenue parking lot; \$2.3 million in Memorial Library compact shelving; and \$1.7 million to improve the university's electrical and signal distribution system.

However, a \$1.2 million request to begin planning on a Biotechnology/Genetics center was pared by the panel to \$490,000, which campus officials said might put the project in jeopardy.

About \$600,000 in planning money for a proposed Chemistry Building addition was deferred, as was a \$1 million proposal to remodel Lathrop Hall.

The UW-Madison projects were included as part of a \$299 million proposed 1989-91 UW System capital budget approved by the Board of Regents in December.

Michael Williamson, special assistant to UW-Madison Chancellor Donna E. Shalala, said the university would pursue the Biotechnology Center, Chemistry Building and Lathrop Hall projects when the full Building Commission meets on March 13.

He called the Biotechnology and Chemistry Building proposals "top priorities" for the university in light of an expected boost in federal National Science Foundation research funding and the emergence of biotechnology as a potential boon to state economic development.

"There's a window of opportunity that we must seize," Williamson said of the Biotechnology/Genetics Center proposal. "What is critical is that we do two things: one, demonstrate that the state is committed to the project so

we can leverage federal construction money; and, two, have sufficient planning accomplished so construction can be completed in 1991-93."

University officials felt the Biotechnology/Genetics Center was so important that they requested federal grants for "one-half to one-third" of about \$26.3 million needed for construction, Shalala told the committee. The success of that request depends largely on whether the state solidly endorses the project, she said.

She worried that reducing the amount of planning money might delay the project for as long as six years.

"The state is in a position to become a leader in the rapidly developing field of biotechnology," Shalala said. "This is a very high priority that will bring money and jobs to the state."

UW-Madison is seeking about \$10 million in Biotechnology Center construction money from the Henry F.

Vilas Trust, and the remainder will be requested from the state, she said.

The Chemistry Building project is essential if the UW-Madison chemistry department is to continue to rank among the nation's best, Shalala said.

A motion to defer the Chemistry Building funding passed by a 2-1 subcommittee vote. Citizen subcommittee member Bryce Styza of Waukesha voted for deferral, but added that he would "listen further" to UW-Madison arguments before the March 13 Building Commission meeting.

Lathrop Hall remodeling is needed to correct inefficiencies in the UW-Madison dance program and the top-rated continuing and vocational education department, Shalala added.

The state Department of Administration had originally recommended a lower funding priority for planning on the following Clinical Sciences Center projects: a \$6.6 million Eye Research/Cancer Research addition; a \$900,000 operating room/recovery room expansion; and a \$7 million project involving the Trauma and Life Support Center, Neurological Intensive Care and the Burn Center.

The lower priority would delay construction until the next state budget biennium, but Arthur McClure, of the State Division of Facilities Management, argued that the projects would not be jeopardized, since most of the construction money will come from gifts, grants and program revenue that has not been completely collected.

The CHS funding priority was upgraded by the subcommittee after Jay Noren, vice chancellor for Health Sciences, countered that a delay of as long as one year would severely stress hospital facilities that already are overburdened. ■

Biotech Center

Bird's 'academic family' gathers for symposium

WI. Week 2/15/89

The "academic family" of R. Byron Bird, a pioneering chemical engineer, educator and a skilled linguist, gathered on the UW-Madison campus last week to pay tribute to the man whose work helped shape a generation of engineers.

Colleagues and former students from as far away as Australia, Denmark and Ireland convened at the Wisconsin Center Feb. 10 for a day-long symposium marking Bird's 65th birthday.

"This is a chance for people whose lives have been influenced by Bob Bird to pay tribute to him and to thank him," said Stuart L. Cooper, chair of the UW-Madison chemical engineering department.

"He is the epitome of what every university professor should be like," Cooper said. "He's created big changes throughout the teaching and practice of engineering."

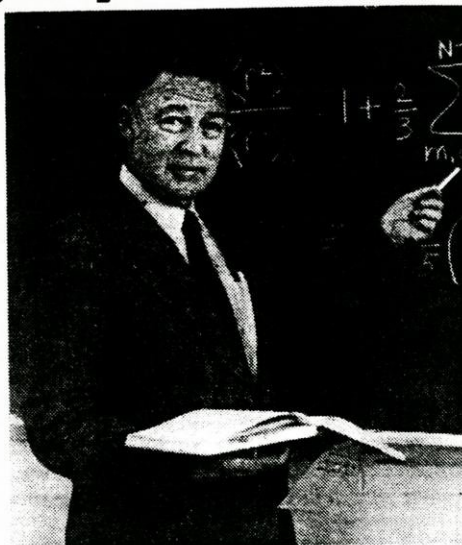
More than 50 people attended the symposium to hear selected talks by UW-Madison faculty as well as faculty from Purdue, MIT, Princeton and the University of Minnesota.

Bird, the recipient of numerous honors and awards, among them the National Medal of Science, is best known for his research and writings on kinetic theory, transport phenomena, the behavior of polymeric fluids and foreign language study for engineers.

At UW-Madison, he has guided some 40 students to their doctorates and he holds the Vilas Professorship in chemical engineering.

In 1960, Bird and UW-Madison chemical engineers W.E. Stewart and E.N.

WI. Week 2/15/89



R. Byron Bird

Lightfoot co-authored the book *Transport Phenomena*, a classic chemical engineering text that has gone through more than a score of printings in 28 years and remains in wide use around the world.

Addressing the symposium, Bird cited the late Robert Marshall, Olaf A. Hougen and Roland A. Ragatz as UW-Madison chemical engineering colleagues who deeply influenced his work and his outlook as an academic.

"I want to pay tribute to those who came before me in the department," he said.

Among the most valuable lessons he learned from his predecessors, Bird said, was an ingrained respect for the profession, loyalty to the University and dedication to students. ■

Conference set on biotechnology transfer

UW-Madison biologists will have an opportunity to learn more about biotechnology transfer and the role of the university researcher at a day-long conference March 4 at the Wisconsin Center, 702 Langdon St.

Sponsored by the University of Wisconsin Biotechnology Center, the conference is designed for UW-Madison faculty, staff, graduate students and their spouses, according to Biotechnology Transfer Program Director Margaret van Boldrik.

The intent of the conference is to apprise interested researchers of opportunities for biotechnology transfer, explain relevant university policies and guidelines, and acquaint faculty and staff with state and university representatives who can assist in the technology transfer process.

The morning session will feature talks by Graduate School Dean Robert Bock, University Ethics Committee Chairman

Paul Williams, WARF patent attorneys Howard Bremer and David Houser, American Breeders Service President Robert Walton, University-Industry Research (UIR) Program Associate Director Gus de Zoeten, and Biopulping Consortium Program Coordinator John Koning.

The luncheon speaker will be Lilian Stern, vice president of AgriCapital Corp., who will talk about market considerations for new biotechnology companies.

Afternoon workshops will focus on patenting university technology, relations with industry and entrepreneurship.

The cost of the conference is \$20 for faculty and faculty spouses, and \$10 for post docs, graduate students and their spouses.

For more information or to register, contact van Boldrik at 262-5077 or 262-8606. ■

*Institute
Guest*

Regents approve new tuition policy

WI. Week 2/15/89

By Chuck Nowlen

The University of Wisconsin System Board of Regents on Friday backed a general undergraduate tuition policy that would impose per-credit charges when student courseloads are below 12 credits or above 18 credits.

The "plateau" policy, which was approved as part of a report required by the state Legislature, would retain part of the current system that charges a flat, full-time tuition rate to all undergraduates carrying 12 or more credits.

However, the new system would limit flat, full-time assessments to students taking 12-18 credits.

Individual campuses would be allowed to charge all students on a per-credit basis, but only after Regent approval, under the new policy.

Under the current system, a resident UW-Madison or UW-Milwaukee undergraduate carrying from 12 to 21 credits pays \$839.50 in tuition per semester.

If the new system had been in place this year, \$839.50 would have been assessed to those taking 12-18 credits, but about \$70 would have been added for each additional credit.

Actual 1989-90 tuition rates will be determined this summer.

The Regents considered three other tuition structure options: a straight per-credit assessment, a per-credit system with an additional \$25 fee, and a 14-18 credit plateau.

The options were evaluated on the basis of equity between full- and part-time students, equity across majors and institutions; ability of students to obtain degrees quickly; and "revenue neutrality."

A policy endorsed by the Regent Education and Business and Finance Committees on Feb. 9 would have allowed individual campuses to approach the Board with any type of alternative tuition structure. However, at the full board meeting, several Regents argued that that would allow too much flexibility.

"That was never our intention when this (the plateau structure) was first proposed," said Regent Ruth C. Clusen, of Green Bay.

The board deferred until March consideration of a UW-Madison request to the Vilas Trust Estate to set aside about \$10 million over five years to help finance a proposed Biotechnology Center/Genetics Building.

Regent Ody Fish, of Hartland, worried that the request would set a bad precedent in using funds normally reserved for such endowments as scholarships, fellowships and professorships. It also would bypass the Regent process of prioritizing building projects in biennial UW capital budgets, he said.

UW-Madison Chancellor Donna E. Shalala said the project was so important to state economic development that an "unusual" financing strategy was necessary. No Vilas Trust scholarships, fellow-

ships or professorships would be lost as a result of the request, she said, nor would the funds in question be otherwise available for these purposes.

She noted that one-half of yearly Vilas Trust income is retained in endowment, but the Vilas will permit an interruption of this accumulation to help the university construct a building.

Earmarking the money before March 31 would allow about \$1.8 million in Vilas Trust money to be accumulated for the project this year, Shalala added.

The Regents approved the following items of interest to UW-Madison:

- continuation of the UW-Madison mas-

ters and doctoral programs in Environmental Monitoring, and continuation of the UW-Madison masters program in Manufacturing Systems Engineering.

- a recommendation to accept about \$125,000 from the bequest of the late Elphia Flugum Fritts, of Stoughton, for the McArdle Cancer Research Laboratory.

- a recommendation to accept about \$113,000 from the bequest of the late Willard W. Hodge, of Pittsburgh, PA., for the UW-Madison departments of Chemistry and Chemical Engineering.

- permission to sell about 795 square feet of unimproved property located at 101 North Brooks Street, Madison, for \$3,800.

UW System President Kenneth A. Shaw reported that Gov. Tommy Thompson's

proposed 1989-91 state budget had granted "about 77 percent" of the university's total program request.

Shaw, who said the UW had done "very well" in Thompson's budget, referred specifically to: a phased-in faculty and academic staff catch-up pay plan; a savings bond program aimed at individuals who want to finance their children's or grandchildren's college education; financial incentives for minority freshmen; the full amount of the UW library acquisitions request; and other items.

He said he was disappointed in Thompson's proposed reductions in the UW Design for Diversity and the lack of funding for a Telecommunications Task Force Report and alcohol and drug counselling initiatives.

"Despite these disappointments, the budget is overwhelmingly positive and clearly honors the Regents' priorities," Shaw said.

That brought a sharp comment from Regent Laurence A. Weinstein, of Madison, who complained that "some very serious areas" had been left out of the Governor's budget.

"As far as the Design for Diversity is concerned, our requests were not frivolous and I'm frankly disappointed we didn't get funded for the full amount," he said.

He added that supplies and equipment funding remains "a growing problem" at UW campuses, and called for the state Legislature to "pick up the ball" on UW funding. ■

Biotech Center

has resulted in Colombia banning export of the monkeys. Snowdon and his associates feel compelled to preserve the monkeys' genetic pool for their possible reintroduction into the wild.

Other centers worldwide are breeding cotton-tops because they are the only primates besides humans to spontaneously develop colon cancer.

In August, Savage took the 27-hour flight to Shanghai with 10 breeding pairs of cotton-tops. The Chinese government paid all transportation costs for that flight

and Ziegler's in May. "The monkeys traveled much better than I did," said Savage. "The airline was very good in letting me check them at every stop."

After seeing the monkeys settled in, Savage talked with scientists at the lab. She focused on animal behavior and its relevance to captive breeding, since there is little behavioral training at the veterinary and medical schools which the lab scientists attended.

Savage found that the Chinese had devised an excellent substitute for the commercial monkey food used in America but unavailable in China. Their

recipe includes rice, oatmeal, powdered milk, fish emulsion, eggs (scarce in China), honey, soy and fresh yogurt bought daily.

At last report, Savage said, all 20 cotton-tops from stateside are doing fine. Some of the females have shown signs of pregnancy, and one of them has given birth to twins.

The Madison-Shanghai door is still open. The Wisconsin experts have invited the Chinese to send other scientists to UW-Madison and plan to share American research findings with the Chinese. One effort under way at other U.S. centers, for

instance, is testing how diet change can reduce the incidence of colon cancer among cotton-tops (very low in the Madison colony).

The UW-Madison researchers are anxious to help, said Savage, "because anyone working with an endangered species is obligated to share information."

This isn't the first time UW-Madison has provided cotton-tops to other institutions for breeding. Wisconsin-bred monkeys are alive and well at 10 American zoos. Scientists here have the satisfaction of knowing that if cotton-tops thrive in captivity and survive in the wild, one of the lifelines will lead from Madison. ■

State biotech rules seen as unlikely

WI. Week 1/27/88

by Terry Devitt

The regulation of biotechnology is unlikely to become a legislative issue in Wisconsin, Assembly Speaker Thomas Loftus (D-Sun Prairie) said Friday as he responded to faculty concerns about possible state regulation of recombinant DNA technologies.

"I don't sense any pressure in the Legislature that would result in legislation for the sake of legislation," Loftus said. "It's very unclear we would pursue something like that. Any urgency about regulation is past if there ever was anything there to begin with."

Loftus, taking part in a Biotechnology Center-sponsored tour of campus laboratories, commented on issues raised by plant pathology Professor Arthur Kelman.

Kelman chaired the National Academy of Sciences panel that in August of 1987 issued a report concluding there is no evidence of any unique environmental threats posed by genetically-engineered organisms.

Lawmakers from Dane County—including Loftus, Senate President Fred Risser (D-Madison), and Reps. Sue Magnuson and Rebecca Young, both Madison Democrats—toured the Biotechnology Center and other laboratories and centers as part of an effort to open new avenues of communication between the Center and the Legislature. Oncologist and Biotechnology Center Director Richard Burgess

coordinated the half-day tour.

Faculty, including Kelman, Burgess, horticulturist Brent McCown and neurology and physiological chemistry Professor Steven Kornguth, also raised concerns about state support for new biotechnology initiatives and a perceived complacency on the part of some state and university officials about UW-Madison's status in a field it has pioneered for decades.

Kelman cited Maryland's effort to establish itself as a leader in biotechnology. Many believe the field has tremendous economic development potential, especially for industries of traditional importance to the state, such as agriculture, paper and food processing.

He said the State of Maryland has allotted some \$54 million and 72 new positions to the University of Maryland to develop a biotechnology center. By comparison, Kelman said, Wisconsin seems to have "a degree of complacency. I'm not saying it's a crisis, but we shouldn't be complacent."

Magnuson said the university and faculty need to work harder at bringing their message to legislators, especially those lawmakers whose districts and constituents benefit from UW-Madison research. She suggested the development of specific proposals may be the best way for researchers to make their case for additional state support.

But she also reminded the UW-Madison faculty members that state financial resources are finite and that there are many competing demands such as health care, K-12 education, and child care and child abuse initiatives that need attention. In addition, she noted demands that the state tax burden be eased.

McCown, said state support of biotechnology can be viewed as long-term investment rather than simply another expenditure.

"We're talking about building a base as opposed to treating symptoms," McCown said.

Burgess stressed that biotechnology is an important development for Wisconsin, especially Dane County, and is something the Legislature and the public need to know more about.

Loftus said many people in the state would be pleasantly surprised to learn the scope and progress of UW-Madison research in biotechnology. He said the success of the Biotechnology Center in attracting instrumentation and other grants are positive stories that can be used to make the university's case with the taxpayer.

After touring the Biotechnology Center, the Dane County legislators visited McCown's lab in the horticulture department and the magnetic resonance imaging facility at the Waisman Center on Mental Retardation and Human Development. ■

Biotechnology Center

Release: Immediately

8/31/87

NEW CONSORTIUM LINKS UW-MADISON ENGINEERS AND BIOCHEMISTS WITH INDUSTRY

MADISON--William G. Soucie, manager of biotechnology for Kraft Inc., is interested in protein purification and whey utilization.

Nayan B. Trivedi, research and development director for Universal Foods, is deeply involved in fermentation research.

Both hope to reap benefits from participation in a new consortium at UW-Madison designed to promote advanced training and research in bioprocess and metabolic engineering -- the production end of biotechnology.

The university-industry consortium will focus on the use of biochemical processes and biological organisms to produce specialty chemical products, said Douglas C. Cameron, professor of chemical engineering and a co-director of the consortium.

In its traditional forms, this technology has been used for years to make beer, cheese and penicillin. But with recent advances in genetic and cellular manipulation, it is now possible to use micro-organisms and isolated plant and mammal cells to produce highly specialized chemicals such as pharmaceuticals, flavorings and enzymes.

Richard R. Burgess, director of the UW-Madison's Biotechnology Center and a participant in the consortium, said the university can play a pivotal role in basic bioprocessing research and its transfer to the industrial sector for use in commercial-scale production.

"We have more than 200 faculty with research interests in biotechnology," he said. "Our chemical engineering department is consistently ranked first or

second in the country. We don't need new faculty. They are already here. We just need to foster a cross-fertilization between biologists and engineers, and between university and industry researchers."

At the introductory meeting of the consortium, five UW-Madison faculty summarized their research interests, which included techniques for growing woody plant cells in culture and improved methods for separating almost identical compounds from a mixture.

"The U.S. suffers from an undersupply of people trained in the production aspects of biotechnology," said Burgess. "The consortium's greatest contribution will be in training graduate students who can fill this role and keep the U.S. internationally competitive."

The consortium will concentrate on designing systems to produce, recover and purify biochemical products, said Cameron. It will stress the genetic engineering of cells to yield industrial enzymes and proteins with novel catalytic properties. In addition, researchers will study ways to make cells grow and release their biochemical products more efficiently.

The consortium consists of faculty, students and member companies. Each firm will contribute an annual fee of between \$2,500 and \$10,000. Results of research conducted through the consortium will be available to all members.

Members will have access to the biochemistry department's fermentation pilot plant. This industrial-scale research facility, one of the few of its kind in the U.S., will soon undergo a renovation to increase its usefulness for research with genetically-altered organisms, said William S. Reznikoff, chairman of biochemistry and a co-director of the consortium.

Spokesmen said it is valuable for faculty and students to talk with people from industry. "We think about more practical problems when we interact with industrial researchers," said chemical engineering Professor Edwin N. Lightfoot, another consortium co-director.

Burgess noted that students will make contacts with potential employers and "see the big picture," which puts their research in context.

Soucie, of Kraft's Technology Center in Glenview, Illinois, said he is developing "healthy relationships" with a few universities for pursuing biotechnology. There is a possibility that the ties with UW-Madison will go beyond membership in the consortium to collaborative research, he said.

Trivedi, of Universal Foods in Milwaukee, said his firm has formed a "bio-venture group" and is operating a 2,000-liter pilot fermentation project.

"All the process work and new product work discussed in the consortium will be useful," Trivedi said. The consortium will allow Universal to take advantage of faculty "wisdom and expertise," he said.

Other companies present at the Aug. 12 meeting included: Eastman Kodak; DuPont; Abbott Laboratories; New Brunswick Scientific; Procter and Gamble; Oscar Mayer and Merck, Sharp & Dohme.

"This new field requires the combined skills of the biologists who manipulate the cells and the engineers who design the physical systems of fermentors, separators and purifiers," said John G. Bollinger, dean of the College of Engineering.

"It's bringing scientists and engineers together for cooperative research in ways not previously seen," he said.

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-- Jean Lang (608) 263-7274

Consortium links UW, industry

WI. Week 8/26/87

by Jean Lang

University-Industry Research Program

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TV courses offered for fall

WI. Week 8/26/87

Several UW-Madison credit course lectures will be television fare this fall in the Madison area.

Six courses will be carried on Madison's WHA Cable Channel 33. Two courses are offered via WHA Channel 21.

Those wanting to earn credit can watch or tape the lectures at home for viewing at their leisure. Some courses include on-campus discussion sections. Exams are held on campus.

The following courses will be on Cable Channel 33 in Madison:

- Business Statistics (Bus. 570), Monday, Wednesday and Friday at noon and repeated at 6 p.m. The instructor is Robert B. Miller, 263-7431.

- Organizational Behavior (Bus. 530), Tuesday and Thursday at noon and repeated at 5 p.m. Randy Dunham, 263-2120.

- Content and Practice of Professional Nursing (Nursing 206), Thursday at 6 p.m. Patricia Lasky, 263-5169.

- Introduction to Systematic Investigation (Nursing 302), Monday and Wednesday at 5 p.m. Patricia Lasky, 263-5169.

- Optimal Aging (Psych. 340), Monday and Wednesday at 7-8:15 p.m. Carol Ryff, 262-1041.

- Family Problems and Social Work (Social Work 924), Tuesday at 6-8 p.m. and repeated 9-11 p.m. on Saturday. Melvin Morganbesser, 263-3660.

Other courses are offered in the early morning hours on WHA-TV Channel 21

in what is called "VCR Semester." Students can set their VCRs to record the lectures broadcast on Channel 21 and watch them later.

The VCR courses begin Wednesday, Sept. 2. They are:

- 12:05 a.m., Basic Engineering Writing (General Engineering 201). It will be taught by Adjunct Assistant Professors Sandra Courter, Patricia Robinson and Donald Woolston.

- 3 a.m., Electromechanical Systems (Electrical and Computer Engineering 411). Professor Donald Novotny.

There is also a noncredit, professional development course running at 1 a.m. It's "Energy Utilization Technology," taught by Professor John Mitchell.

For a VCR fall semester brochure or information call C. Allen Wortley, associate dean, industrial relations, College of Engineering, 262-3484.

For information on the cable courses on Channel 33, call the number listed next to the course or 263-4065.

Over 400 credit courses, including those listed above, are offered after 4 p.m. at UW-Madison. Copies of the "Extended Day Bulletin" are available where you pick up the UW-Madison *Timetable*, at libraries or by delivery to your mailbox. To get on the mailing list, write or call: UW-Madison Outreach Development, Bascom Hall, 500 Lincoln Dr., Madison, WI 53706; 263-4065. ■

Release: Immediately

5/11/87

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Antigay*

CONTACT: Catherine Kuschel (608) 262-9784, Sue Johnson (608) 222-1291

BACK TO SCHOOL: BIOLOGY TEACHERS TUNE IN TO NEW SCIENCE

By TERRY DEVITT
University News Service

MADISON--Few teachers know the kind of continuing education Sue Johnson experiences.

For Johnson, a Monona Grove High School science teacher, continuing education comes at the business end of lectures by University of Wisconsin-Madison Nobel laureate Howard Temin, famed geneticist James Crow, and plant pathologist Paul Williams, whose newly-developed ultra-fast growing plants promise to revolutionize the way biology is taught.

The lectures Johnson and a cadre of other Wisconsin teachers attend are part of a UW-Madison spring seminar series and a summer continuing education program intended to transfer cutting-edge biology from the university to Wisconsin middle school, high school and college undergraduate classrooms.

The need for more and closer interaction between university researchers and biology teachers is underscored by the dramatic changes now taking place in the field of genetics, said program coordinator Catherine Kuschel.

"The need has never been greater," she said. "Developments in genetics are occurring at such a rapid pace that even those biologists who are leaders in their fields struggle to keep up."

-more-

Add 1--Biology teachers

Offered by the UW-Madison Human Genetics Education Center, both the spring seminar series and the summer institute have attracted teachers from across Wisconsin. According to Kuschel, teachers come to Madison from as far away as Kenosha and Green Bay each week simply to attend an evening seminar.

Now in their second year, the programs are funded through the UW-Madison Biotechnology Center by a grant from the St. Louis-based Monsanto Co.

A major emphasis of both the seminar series and the summer institute is to encourage curriculum development.

"We feel it's important that teachers do more than just keep up with current trends in biology and genetics," said Kuschel. "We stress the incorporation of this new knowledge into current teaching practices so that teachers can bring it to bear on the classroom setting."

Johnson has been slowly merging the information she's gleaned from the seminar series and last summer's institute into her programs at Monona Grove.

"Going into my morning class the kids would know that I was excited about something that I had learned the night before and we'd simply talk about it in an informal way. Over time, the information is worked into the curriculum for a more formal approach to the subject," Johnson explained.

Although the two programs center largely on new developments in genetics, Kuschel said an effort is made to cast the information in light of the ethical and societal concerns posed by the rapid and sometimes controversial advances taking place in biology, genetics and biotechnology.

"None of this work is taking place in a vacuum," Kuschel said. "There are legitimate concerns that need to be discussed. By putting these issues on the table for teachers, we hope they will continue the discussion in the classroom and help prepare their students to face some of the complex concerns people have."

She added that for teachers to be able to view the new developments in

Add 2--Biology teachers

context, it's important that they have a good understanding of genetics.

Aside from working with UW-Madison scientists, Johnson and the other teachers in the program were exposed to a cross-section of industrial researchers from the growing number of Madison-based biotechnology companies. Tours of laboratory facilities at such places as Agrigenetics and Promega Biotec help round out the program, Johnson said.

"They make very good use of the resources in this town," Johnson said. "Madison has a phenomenal resource base in the area of genetics because of the university, the Biotechnology Center and the companies that exist here. Having those assets made available to us gives us a tremendous advantage."

Applications are now being accepted for the 1987 summer institute which will feature two one-week programs, one devoted to human genetics and the other to genetic engineering and biotechnology. Each program will be repeated once.

The human genetics program will be offered June 15-19 and July 6-10. The genetic engineering and biotechnology module will be held June 22-26 and July 13-17. Both programs can be taken for academic credit.

For more information, contact Catherine Kuschel, University of Wisconsin-Madison, Room 104 Genetics, 445 Henry Mall, Madison, Wis., 53706, or call (608) 262-9784.

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-- Terry Devitt (608) 262-8282

VCRs readied to reach working students

WI. Week 12/10/86

Found: another way for UW-Madison to reach and teach more students.

UW-Madison's Division of University Outreach and the College of Engineering are working with WHA television and the Educational Communications Board to try an innovative instructional experiment next semester using the students' own videocassette recorders (VCRs).

Two courses, Computer Control of Machines and Processes (ME 547) and Energy Utilization Technology (ME 477) will be broadcast over WHA-TV (also WPNE, Green Bay and WHRM, Wausau) between midnight and 6 a.m. when the stations normally are off the air.

Students, and others who are interested in the subject matter, can simply set their VCRs and tape the courses for viewing whenever it's convenient. Companies also can take advantage of the opportunity to record the classes for their employees.

"It's an experiment designed to take advantage of the growing number of VCRs in homes and businesses," said Peg Geisler, assistant dean of DUO. "This is a way to bring UW-Madison courses to people who have full-time jobs or live too far away to attend classes on campus.

"We expect the number of viewers enrolled for credit to be reasonably small, but we think many others will watch just to update their skills or learn about new technologies," she added.

Geisler said at the end of the term, the VCR Semester will be evaluated to see if it is an effective way to serve student needs.

"If it proves to be an effective and efficient way to deliver UW-Madison courses to distant learning audiences," said Geisler, "we hope it will be possible to offer a selection of classes from many disciplines this way in the future."

Apart from giving more people access to the information, delivering courses via broadcasting rather than on videocassette saves both students and the university money, said C. Allen Wortley, associate dean of engineering.

"We usually mail cassettes for video courses to students living outside Madi-

son but it costs us and them about \$150, and students have to return the tapes at their own expense."

This way there are no tape or mailing costs for either party, said Wortley though he noted there will be the usual registration fee for those enrolling in next semester's VCR courses. Those fees cover course materials and instruction.

Wortley said the College of Engineering is the first to participate in the UW-Madison experiment because some of its courses already are videotaped, and engineering is one of a few colleges that has its own videotaping studio.

"We now have 22 courses on tape," said Wortley, "and engineers (beyond the Madison campus) tell us they need ongoing training to keep current in the field."

For enrollment and other information on engineering's "VCR Semester," contact Wortley at 262-8991. ■



UW-MADISON'S Division of University Outreach is taking advantage of the growing number of VCRs by broadcasting courses at night. Students can tape the courses while they sleep and watch them at more convenient hours of the day.

—University News Service photo

Video instruction booming

The VCR semester is just the latest in a series of innovative uses of television for instruction by the UW-Madison faculty.

Several colleges offer correspondence courses on videotape, and last year the campus began offering lectures for several courses on WHA's cable channel 33.

This spring, said Peg Geisler of the Division of University Outreach, five UW-Madison credit courses will be offered on WHA's Channel 33 and Fitchburg Cable TV (Channel 6). Among them is a popular course on Wisconsin history taught by Professor Margaret Bogue. Fitchburg also will repeat lectures from this semester's course on Optimal Aging taught by psychology Professor Carol Ryff.

Geisler is a proponent of the new technology, noting that there are many ways in which video can expand the horizons of the classroom.

With video courses, one can go outside the university to tape a tour of a local factory or interview people who can add to the subject of the course, and "some of

our faculty are doing those sorts of things," she said.

Geisler also advocates the use of videotape in regular classroom lectures. Since UW is part of an Annenberg funded program, she said faculty have access to tapes of some public television programs (see box) and can use them free.

"The only obligation is that faculty who check out the tapes must document how they were used," Geisler said.

For information on the Annenberg tapes and others available to faculty, contact Learning Support Services' Karen Tusack at 262-1408. Tapes are housed in 279 Van Hise, except for the series, "The Brain," available at 109 Teacher Education.

Engineering associate dean Allen Wortley added that tapes, cable and VCRs represent only the first frontier of video instruction. His college is currently a member of AMCEE, the Association of Media-based Continuing Engineering Education, which distributes non-credit taped courses nationally. ■

Videotapes available for teaching use

From Learning Support Services, 279 Van Hise:

- *The Africans*
- *The Constitution: That Delicate Balance*
- *Cosmos*
- *Economics, USA*
- *Heritage: Civilization of the Jews*
- *Mechanical Universe*
- *Planet Earth*
- *The Story of English*
- *Vietnam: a Television History*

From Instructional Media Development Center, 109 Teacher Ed:

- *The Brain*

Butler Center for

UW seeks to regain edge in fermentation research

Biotechnology Center for

WI. Week 10/8/86

On Sept. 7, the Governor's Task Force on Biotechnology issued a report recommending that the state invest \$1 million to renew the UW-Madison fermentation program. The chairman of the UW-Madison Biochemistry Department discusses how fermentation techniques, which are crucial to biotechnology, would boost industries in Wisconsin and the country.

By George Gallepp
UW Ag Press Service

Before Wisconsin and the nation can benefit from many of the advances in genetic engineering, scientists must be able to grow large numbers of the new genetically engineered microorganisms and harvest the valuable products they produce.

"This process is called microbial fermentation and it's become the bottleneck of biotechnology," says William Reznikoff, chairman of University of Wisconsin-Madison's Department of Biochemistry.

"In principle, it's already possible to make an enormous variety of valuable substances, such as human insulin and interferon," says Reznikoff. "In practice, we must first alter a microorganism by genetic engineering, then cultivate it on a large scale and then separate the microorganism from the material it makes that we want. It's now easier to engineer the organism's genes than it is to produce large quantities of the organism and its product."

If biotechnology sounds a little frightening, it shouldn't. Reznikoff points out that Wisconsin industries have been using microorganisms to produce products for a long time. Large-scale fermentation is the cornerstone of processes for making beer, cheese, sauerkraut, pickles, soy sauce, baker's yeast, and on the farm, silage. These products contribute billions of dollars to the state's economy each year. Microbial fermentation also helps keep the environment clean by detoxifying domestic sewage and industrial wastes.

"Our country is falling behind Japan and western Europe in both the training of graduate students and in basic research in fermentation biochemistry and engineering," says Reznikoff. "In the long run, our fermentation industry will suffer from such neglect."

Now, help may be on the way.

On Sept. 7, the Governor's Task Force on Biotechnology issued a report that

recommended that the state invest \$1 million to renew the UW-Madison fermentation program. Noting that the UW-Madison was once a world leader in fermentation research and training, and that fermentation techniques are crucial to many areas of biotechnology today, the report said the investment "would provide the university with a state-of-the-art facility and a quick renewal of a once-outstanding program."

As an example of the benefits of fermentation research, consider the university's contributions to the development of antibiotics.

In the 1940s, biochemists M.L. Johnson and W.H. Peterson, and other UW-Madison scientists collaborated in studies of penicillin fermentation. Johnson helped determine how molds produce penicillin. In the 1940s, he led a national effort that resulted in a 1,000-fold increase in penicillin production from a given amount of mold. This advance lowered the cost of penicillin from \$20 to 3 cents per 100,000

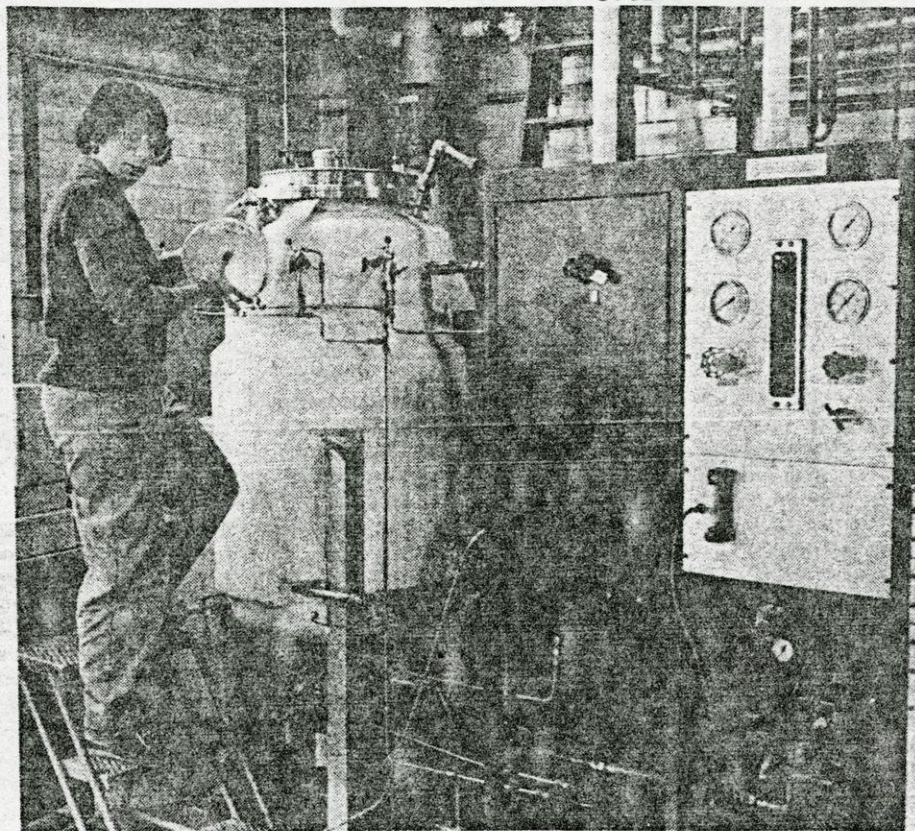
units, making the new drug widely available. Over the years, it has helped millions fight off life-threatening infections.

Now scientists believe they can alter microbes to benefit society in a host of new ways. They hope to produce drugs, nutritional supplements, enzymes and hormones for research, and aids for diagnosing and treating illnesses.

Researchers also think the new microbes will help degrade some of the state's troublesome waste materials—whey and pulp waste. "Many waste products of our lumber, dairy and grain industries may be ideal starting components for fermentation," says Reznikoff.

However, scientists haven't grown most genetically engineered organisms in commercial production before. To produce the products researchers desire, many of these organisms will require special conditions that are unknown at present.

"To deliver on the promise of the new technology, we need expert researchers over—



CARMEN NITSCHA, on leave from the Los Alamos National Laboratory, fills the fermenter in the biochemistry building for an experiment on fermentation.

—University News Service photo

in the area and an updated pilot plant in which to do experiments," Reznikoff says. "Then we can attract and train students who will work in fermentation industries."

Between the 1930s and the 1970s, the UW-Madison trained hundreds of fermentation biochemists who now work throughout American fermentation industries. But faculty retirements and funding cuts have severely limited current efforts to teach fermentation biochemistry and conduct fermentation research, Reznikoff says.

"With a rather modest investment in the UW-Madison, the state could stimulate biotech industries," he says. "The industries need employees trained in fermentation work, they need additional research into large-scale microbial fermentation and they need a pilot scale fermentation facility where university and industry researchers can iron out problems in fermentation." ■

Release: Immediately

2/20/85

Note to Editors and News Directors: Professor Burgess testified this morning before a legislative committee on biotechnology and the new center.

CONTACT: Richard R. Burgess (608) 262-8606

UW-MADISON BIOTECH CENTER COULD ATTRACT \$30 MILLION OVER NEXT DECADE

By TERRY DEVITT
University News Service

MADISON--Using the University of Wisconsin-Madison's international reputation in the biological sciences as a springboard, the university's new Biotechnology Center could draw an additional \$30 million in federal grants over the next 10 years, the center's director, Richard Burgess, said Wednesday.

Already the third most successful grant-getting institution in the country, UW-Madison is expected to increase its federal biotechnology funding by several million dollars a year despite a restricted federal funding climate, Burgess said in an interview.

"It's recognized at a national level that biotechnology is a development that is probably going to rival the development of computers as an important component of economic development," Burgess said. "Biotechnology is going to have an impact on medicine, industry and especially agriculture to the point that the United States can't afford not to support it strongly."

Burgess said that, in addition to increased federal money, private grants and contracts are also likely to grow substantially as the UW-Madison center evolves and can more actively support university scientists.

Biotechnology, based on several spectacular advances in molecular biology and genetics, is the term used to describe a spectrum of new techniques such

Add 1--Biotechnology center

as gene-splicing, embryo manipulation and transfer, and the growing of living cells outside of their host organisms.

Once developed, the new technology is expected to result in things such as disease- and frost-resistant plants, improved lines of cattle, faster growing trees, micro-organisms that dine on oil spills and toxic chemicals, and medicines based on the human body's own immune responses.

According to Burgess, UW-Madison already spends \$20 million a year on biotechnology-related research. At least 95 percent of that money, he said, comes from federal and private funding sources.

However, Burgess also said federal agencies such as the U.S. Department of Agriculture (USDA), the National Institutes of Health (NIH) and the National Science Foundation (NSF) all have earmarked new funds for the development of biotechnology. The USDA alone recently added a new competitive grants program that will funnel \$20 million a year into biotechnology research.

While UW-Madison has long been known for its strength in the biological sciences and while several milestones in the development of biotechnology have been achieved here, Burgess said the university, with the establishment of the Biotechnology Center, will now be in an even better position to compete for new funds.

"Because the center serves to coordinate biotechnology research, now spread through more than 30 departments, UW-Madison scientists will be better able to attract funds for projects that combine research expertise to solve applied problems," said Burgess.

"Usually, individual scientists apply for research grants and they use that money to work on a particular aspect of a problem instead of pooling their knowledge to attack a whole problem," Burgess said.

"On the UW-Madison campus, our biotechnology effort is such that it's like having many gifted musicians in one place. But they're people who seldom play

Add 2--Biotechnology center

together. We'd like to pull some of these scientists together so they can play a symphony of sorts."

An example of an applied problem that may someday be solved by biotechnologists is that of toxic chemicals in the environment, Burgess said.

"It's not impossible to imagine designing an enzyme that could break down the environmental contaminant polychlorinated biphenyls (PCBs)," Burgess said. "But that would be a major undertaking requiring the skills of scientists from a variety of disciplines. Normally, those skills wouldn't be brought to bear on a problem in a coordinated way.

"I'm hoping that we can identify some of these important practical concerns and apply for funds to attack a rather large problem of real importance to the state by combining the considerable expertise of UW-Madison researchers," Burgess said.

New training programs will also become important as business and industry begin to seek people with biotechnology skills and a general knowledge of the field, Burgess said.

"Prior to the formation of the center we were unable to get training grants," said Burgess. "Despite our vast expertise in this area, agencies would look at our training grant applications and ask how we could have a biotechnology training program when there was no center or program coordinating our overall effort. Now we are in an excellent position to apply for such funds."

Burgess said the impact of biotechnology will be felt throughout society and that industry will be looking not only for scientists and technicians, but also for lawyers, economists and business people who understand the field.

Echoing Burgess' optimistic outlook, Graduate School Dean Robert M. Bock said university and state investment in the center will be repaid many times over by creating an enhanced funding environment, more job opportunities in the state and a broader tax base.

Formed in June 1984 with a \$500,000 gift from the Wisconsin Alumni Research Foundation, the center has a three-pronged mission: to coordinate the university's far-flung biotechnology research and training effort, to act as a single university contact for biotechnology businesses, and to facilitate patenting and licensing of new products developed here.

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-- Terry Devitt (608) 262-8282



UNIVERSITY OF WISCONSIN
BIOTECHNOLOGY CENTER

1702 University Avenue
Madison, Wisconsin 53705
(608) 262-8606

*Robert
Center*

October 3, 1984

Dear Faculty Member:

This month the University of Wisconsin Biotechnology Center will be officially established. (We've been in operation since August 1.) We've had numerous inquiries about what this Center is, what it will do, who will be associated with it, etc. Therefore, I'm enclosing for your information a description of the Biotechnology Center.

We are now trying to identify those faculty who have an interest in being associated with the Center. I am enclosing a questionnaire to determine your level of interest and what research expertise you have related to biotechnology. We will use this information to assess our research strength in various areas, to help in forming multi-disciplinary research units, to assemble a biotechnology research directory for the campus, and to generate a campus mailing list for Center activities.

Sincerely yours,

Richard R. Burgess

Richard R. Burgess
Director

RRB:dw

Enclosure

INFORMATION ON THE UNIVERSITY OF WISCONSIN BIOTECHNOLOGY CENTER

The current thrust of biotechnology, the use of living organisms or their components in industrial processes, is based on the techniques of genetic engineering, tissue culture, embryo transplants and the use of monoclonal antibodies. Major advances in computer technology and the ability to more easily sequence and synthesize proteins and nucleic acids have recently accelerated the field.

The University's world-famous faculty in the biological sciences, engineering, computer science and chemistry constitute an outstanding in-place academic foundation to support and lead biotechnology development in the United States. Also, the Biotron and Forest Products Laboratory as well as the clinical trials capabilities of the Wisconsin Clinical Cancer Center are key support facilities in biotechnology development.

To realize this tremendous potential in the biotechnology field, the Graduate School has coordinated the participation of the Colleges of Agricultural and Life Sciences, Letters and Science and Engineering and the Schools of Medicine, Pharmacy and Veterinary Medicine in the establishment of the University of Wisconsin Biotechnology Center.

GOALS

The major goals of the Center, as established by the Biotechnology Center Faculty Advisory Committee are:

- promote formation of research units focused on specific areas of biotechnology.
- * —facilitate interactions between University and industrial scientists and attract biotechnology companies to Wisconsin by providing a first-rate, easily-accessible scientific and technical environment. Interaction will include training programs, research symposia, pilot projects and technology transfer.
- coordinate academic programs to train undergraduate, graduate and post-doctorate students in biotechnology and become a resource center for companies and educational institutions.
- facilitate securing of private, state and federal funding for biotechnology research and training.
- upgrade and develop needed campus-wide technical resource facilities.
- * —work with the Wisconsin Alumni Research Foundation (WARF) to increase the University's patenting and licensing activities in biotechnology.

ADVISORY COMMITTEE

Members of the Biotechnology Center Advisory Committee for the 1984-85 academic year are: Tom Brock (Bacteriology), Neal First (Meat and Animal Science), Larry Kahan (Physiological Chemistry), Ed Lightfoot (Chemical Engineering), Peter Quail (Botany), Bill Reznikoff (Biochemistry), Linda Schuler (Structural and Functional Sciences), Luis Sequeira (Plant Pathology), Charles Sih (Pharmacy), Oliver Smithies (Genetics), Wacław Szybalski (Oncology) and Barry Trost (Chemistry).

ADMINISTRATIVE OFFICE

We recently opened a Biotechnology Center Office, Room 296 Enzyme Institute (phone: 262-8606) and have hired a full-time administrator, Joe Kelley, and an administrative assistant, Dedee Wardle. This office will provide the focus for biotechnology activities on campus and will coordinate: preparation of a directory, formation of research units, interaction between the research units, identifying and expanding resource facilities, industrial liaison and technology transfer, training programs, public relations, application for and administration of grants, and interaction with WARF and UIR.

TECHNICAL RESOURCE FACILITIES

The University of Wisconsin Genetics Computer Group (presently in the Genetics Department) and the Protein Sequencing and Oligonucleotide Synthesis Facility (presently in McArdle) will become two key resource facilities for the Center. Both are largely self-supporting shared facilities. The re-establishment of these facilities within the Enzyme Institute Building—the current location of the Biotechnology Center's offices—is expected sometime early in 1985. The Center plans to cooperate actively in upgrading the fermentation and bioseparations facilities of the Biochemistry Department and establishing a campus-wide hybridoma facility.

RESEARCH UNITS

Potential units include the following: Protein Biotechnology, Fermentation and Mass Cell Culture Technology, Applied Animal Cellular and Molecular Biology, Applied Plant Molecular and Cellular Biology, Virology and Biomedical Technology, Microbial Genetic Engineering, Applied Bio-organic Chemistry, Biomass Utilization, and Product Recovery Technology and Biological Process Engineering.

The actual research units to be established will depend upon their compatibility with the overall goals of the Biotechnology Center, the availability of an outstanding individual(s) who could organize and lead such a unit, and the presence of several additional faculty who could join the unit to create a strong multi-disciplinary research focus.

The process of forming a unit will be open to all interested faculty (hence the questionnaire). After an open meeting of all interested faculty in each area, a core group will prepare a proposal to the Advisory Committee for forming a research unit. We expect there to be a core of actively involved faculty in each research unit area and a larger group of associated faculty with research interests related to each unit area. We want there to be maximum flexibility in the form, operation, funding, size, and scope of each unit. Units will be primarily responsible for generating their own research funding and will provide a focus for various activities related to the unit area.

FUNDING

Funds to develop and support the Biotechnology Center will be sought from a variety of sources. The resource facilities will be eligible for federal shared bio-instrumentation grants for capital equipment, available from NIH, NSF, USDA, and DOE. The labor and operating expenses will be covered by users' fees.

The research units will be funded primarily from competitive federal research grants. It is estimated that our faculty presently receive over \$12 million each year in outside grants for biotechnology-related research. The USDA and NSF are both beginning large research grant programs especially targeted to biotechnology. This Center should greatly increase our ability to compete for these new funds. In addition, we anticipate that increased interaction with industrial concerns will result in substantial contract and grant support for specific research areas. We also envision topic-based industrial consortia centered around each of the research units to provide funds for generic research by faculty in those areas.

Acknowledging the urgent need for establishing a University of Wisconsin Biotechnology Center, the Wisconsin Alumni Research Foundation has awarded to us a special start-up fund of \$500,000. For the biennium beginning July 1985, funds have been requested from the State totaling \$1,281,500. Most of these funds will be for salaries of administrative staff and directors of resource facilities, and half-time faculty support for the Center Director and research unit leaders.

TRAINING

In addition to its research efforts, the Biotechnology Center will coordinate efforts to provide training for graduates and post-doctorates—perhaps even non-university personnel—in biotechnology. We have recently applied for a USDA graduate training grant for advanced training in agricultural biotechnology and will be in an excellent position to increase this activity as the Center develops. We do not intend to become a degree granting unit.

FACULTY INVOLVEMENT

The biotechnology program needs faculty expertise to:

- conceive and carry out multi-disciplinary research,
- develop training in biotechnology,
- generate research and training funds,
- interact with industrial partners, and
- keep and attract first-rate faculty to support biotechnology.

For those of you who find these activities exciting and worthwhile and would like to participate in the development of the Center, we request you to please fill in and return the enclosed questionnaire as soon as possible.

BIOTECHNOLOGY CENTER QUESTIONNAIRE

1. Name: _____ Phone number: _____
 Department: _____ College or School: _____
 Campus address: _____

2. Research Interests: Please write two-three sentences specifying your research activities as they relate to biotechnology.

3. Please indicate level of interest in the following potential research units:
none some lots

_____	_____	_____	Protein Biotechnology (overexpression, purification, protein engineering)
_____	_____	_____	Fermentation and Mass Cell Culture Technology
_____	_____	_____	Applied Animal Cellular and Molecular Biology
_____	_____	_____	Applied Plant Molecular and Cellular Biology
_____	_____	_____	Virology and Biomedical Technology (vaccines, monoclonal antibody diagnostics and therapeutics, DNA probe diagnostics)
_____	_____	_____	Microbial Genetic Engineering (cloning and expression vectors, secretion and glycosylation of proteins)
_____	_____	_____	Applied Bio-organic Chemistry (immobilized enzyme reactors, enzymatic conversion of fine chemicals)
_____	_____	_____	Product Recovery Technology and Biological Process Engineering
_____	_____	_____	Biomass Utilization
_____	_____	_____	Other (please specify)

4. Please indicate use of technical resource facilities:

	presently use technology in my research	presently use facility	plan to use facility
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Present Facilities

Protein Sequencing (McArdle)	_____	_____	_____
Oligonucleotide Synthesizing (McArdle)	_____	_____	_____
Biocomputing (Genetics)	_____	_____	_____
Pilot Plant (Biochemistry)	_____	_____	_____
Other (specify)	_____	_____	_____

Possible future facilities

Peptide synthesis	_____	_____	_____
DNA Sequencing	_____	_____	_____
Monoclonal antibody production	_____	_____	_____
Large-scale (1-50 gm) protein purification	_____	_____	_____
Other (specify)	_____	_____	_____

We welcome your input in the development of the Center. Please call 2-8606 or comment on back:

Return questionnaire to: Dedee Wardle, 296 Enzyme Institute by October 22.



*Robert
Dawson*

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571
Immediately 9/7/84

Release:

SEPTEMBER'S UW-MADISON RESEARCH GRANTS A PROBABLE RECORD

MADISON--The end of federal fiscal year and named professorship grants from the Wisconsin Alumni Research Foundation (WARF) have pushed University of Wisconsin-Madison research awards to a probable monthly record of \$21.54 million, according to UW-Madison's Graduate School.

Research grants and other awards totaling \$27.45 million were accepted Friday (Sept. 7) by the UW System Board of Regents on behalf of UW-Madison. The UW System total was \$42.09 million.

Associate Dean Eric Rude of UW-Madison's Graduate School said the \$21.54 million in research funding was "probably a record." He noted, however, that it reflected large federal grants awarded near the end of the U.S. fiscal year as well as WARF's annual support for professorships and other projects.

Thirty-three WARF grants totaled \$7.85 million, according to regent documents, while the National Institutes of Health added \$4.01 million and the National Science Foundation, \$3.57 million.

Major single grants included \$1.02 million from NSF as partial payment of a \$3.71 million award to the computer science department's distributed computing project. Another \$854,000 from NASA's Goddard Space Flight Center is part of Wisconsin's \$6.82 million portion of the Space Telescope.

WARF's grants also included \$500,000 for the new UW-Madison Biotechnology Center.

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-- Joseph H. Sayrs (608) 262-8290

Release: Immediately

6/5/84

CONTACT: Norbert A. Hildebrand (608) 263-2841/2840

OFFICIALS ANNOUNCE PLAN FOR CENTER FOR BIOTECHNOLOGY

MADISON--University officials announced plans Tuesday (June 5) for the formation of a Biotechnology Center at University of Wisconsin-Madison.

The proposed center, which would coordinate research and education programs in biotechnology, will be supported initially by a \$500,000 gift from the Wisconsin Alumni Research Foundation (WARF).

Chancellor Irving Shain and Graduate School Dean Robert M. Bock made the announcement during a conference on the subject that drew about 30 business and industry leaders to campus. The conference was sponsored by the University-Industry Research Program.

Biotechnology has been variously described as the modification of organisms through genetic engineering, and the use of living organisms or their components in industrial processes.

Bock noted that UW-Madison already is widely recognized for its work in genetic engineering. The new center, he said, will provide focus and resources for more than 15 departments now conducting various types of biotechnology research.

The center also will be a link to biotechnology industries in Wisconsin and elsewhere, Bock said. He added that the rapidly-growing field can make important contributions to Wisconsin's economic development, particularly in agriculture and the food industries.

Biotechnology Center -- add one

"We want to work with industry in training personnel, in developing promising technologies and in transferring those technologies into the commercial sector," he said.

Through genetic engineering it is possible not only to breed better crops and livestock, Bock said, but also to manipulate yeasts and other microbes to produce large quantities of otherwise costly and scarce pharmaceuticals and biological products.

The center will coordinate UW-Madison research in such areas as fermentation processes, immunology, plant and genetic engineering, and improved methods of gene control and protein production. Bock said it also would help identify -- and efficiently use -- the human and technical resources necessary to train students for emerging opportunities in biotechnology.

Bock added that the organization and structure of the Biotechnology Center are being developed by a faculty advisory committee and will be submitted to the chancellor's Academic Planning Council for final approval.

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Jean Lang (608) 263-7274

*Biotechnology
Center for*

Release: Immediately

3/12/85

CONTACT: Robert M. Bock (608) 262-1044, William S. Reznikoff (608)
262-3608, Richard R. Burgess (608) 262-8606

UW-MADISON BIOTECHNOLOGY CENTER LOOKS AHEAD

By LANCE QUALE
University News Service

MADISON--Everybody is jumping on the biotechnology bandwagon. A dozen states are now funding such programs, including a \$20 million bond issue for a biotechnology center in New Jersey and a \$60 million, five-year biotechnology plan in North Carolina.

With so many programs under way, University of Wisconsin-Madison's new Biotechnology Center might seem like a Johnny-come-lately. But UW-Madison already has one of the largest pools of first-rate biological research talent in the country, including researchers who pioneered the genetic techniques that are the foundation of the current boom in biotechnology.

This reputation in the biological sciences has made UW-Madison a target for raids by other institutions seeking the research talent UW-Madison has nurtured for a generation. Several top UW-Madison scientists already have left for more lucrative jobs in industry and at other universities.

But the recent formation of UW-Madison's Biotechnology Center is helping to stem the loss of talent, says cancer researcher and center director Richard R. Burgess. The center encourages researchers to work together on projects that cross the lines between academic disciplines, Burgess said, and provides the sophisticated tools needed for biotechnology research. By doing both, he said, the university is sowing the seeds that will help retain its scientific

talent.

"A great deal of innovation and stimulation comes from the meeting of disciplines," said Burgess. "We have more than 150 scientists in more than 30 departments interested in doing biotechnology-related research. But it takes time and energy to provide them with the opportunities for this kind of interaction and that's what the center's all about."

As an example of the kind of multi-faceted research the center can foster, Burgess pointed to the possibility of forming a team of scientists to develop an enzyme that could break down polychlorinated biphenyls (PCBs), a toxic chemical that has caused serious problems in Green Bay, Lake Michigan and other state waters.

So far, nine interdisciplinary research areas have been identified. They include groups that will focus on making practical improvements in plants, animals, fermentation processes, medical diagnostics and therapeutics, and industrial use of enzymes.

Other goals of the center include improving training programs and serving as a single link to the emerging biotechnology industry. According to Burgess, many departments teach some aspects of biotechnology, but there are no general courses or programs available to help train the people now in demand by business and industry.

"There are many established industries that are looking at biotechnology as an important part of their future, and we will be able to provide them with expert, well-trained people," said graduate school Dean Robert M. Bock.

"There are already more than a dozen biotechnology companies in Wisconsin. They are here largely because of the availability of trained personnel and the opportunity to advance in the field in cooperation with the university," Bock said.

Biochemistry Professor William S. Reznikoff, one of the center's organizers, explained the need for better industry links this way: "UW-Madison

has a huge biological sciences community. It is recognized as one of the richest academic environments in the country. The problem is that for someone outside, it's very difficult to know where to get advice and help.

"We hope enhanced contact will build up the biotechnology industries in Madison and Wisconsin," Reznikoff said. "Until the Biotechnology Center was formed, there was no focal point."

Examining legal aspects of biotechnology is another goal of the center, which will work with the Wisconsin Alumni Research Foundation (WARF) to help faculty members overcome the complexities of patenting and licensing their research products.

The Biotechnology Center also will provide a home for several support facilities that will be available to researchers all across campus on a user-fee basis.

Existing facilities include the Genetics Computer Group that provides detailed analysis of genetic information and a facility for analyzing proteins and making specific DNA molecules. On the drawing board is an immunological facility for making monoclonal antibodies, another important component of biotechnology research.

"These are critical facilities for a lot of research endeavors that people could not readily undertake in their own laboratories," Burgess said.

"Learning the procedures takes time, and the equipment cost for individual research projects would be prohibitive."

While on-campus researchers will have first call at the facilities, Burgess noted that any excess time could be purchased by biotechnology firms. Smaller biotechnology firms in particular could be drawn to Madison to have these tools at hand.

WARF was instrumental in launching the Biotechnology Center, providing a \$500,000 start-up grant. The center has also requested \$750,000 from the state to help cover administrative costs for the next two years.

However, in all other areas the center will pay its own way, Burgess said. The support facilities will charge fees to cover costs, and research will be supported largely through federal grants.

The center also is expected to generate an additional \$3 million per year in grants, said Burgess. This additional federal money, coupled with research support facilities and the opportunity for researchers to interact with their colleagues across the disciplines, will keep UW-Madison and Wisconsin on the cutting edge of this fast-paced field.

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-- Lance Quale (608) 262-3846

Back ground

Biotechnology at UW-Madison

Since the turn of the century, University of Wisconsin-Madison plant and animal scientists have taken on many practical challenges—identifying vitamins and minerals essential to life, unraveling the chemistry of nitrogen fixation, preserving and extending semen for artificial insemination, increasing commercial yields of penicillin, and developing superior livestock and improved varieties of crops.

In the process, UW-Madison researchers have gained insights into basic cellular processes, insights that over the last thirty years have helped push forward the new field of biotechnology. While at Madison, for example, Joshua Lederberg received a Nobel Prize for his discovery of DNA exchange between bacteria, a phenomenon that is now a cornerstone of modern genetic engineering. In 1968, Har Gobind Khorana, then of the UW-Madison, received a Nobel for synthesizing the first gene. A few years later, the Nobel Prize-winning research of Howard Temin revealed the reverse transcriptase enzyme, providing science with a powerful tool with which to assemble desired sequences of DNA.

Other UW-Madison scientists are known for their work in defining the genetic code and mechanisms of gene control; isolating restriction enzymes; and constructing highly effective vectors for moving DNA from one cell to another.

Madison's success in biotechnology has been primarily due to the faculty's willingness to share new techniques and knowledge across a rich network of disciplines ranging from pharmacy to immunology to horticulture. The campus' many specialized research facilities have also been critical to progress. These include the Biotron, with its controlled environment; the High Voltage Electron Microscope; the McArdle Center for Cancer Research; the Institute for Enzyme Research; the Biomedical Engineering Center; the USDA's Forest Products Research Laboratory; and the Center for Health Sciences. Other facilities such as the Food Engineering Pilot Plant and the Instrumentation Systems Center have helped solve practical problems of equipment design and commercial-scale production of biological products. This fertile blend of faculty and facilities has been a key element in the recent establishment in the Madison vicinity of a number of biotechnology industries.

Conducting timely research and carrying its fruits into the public and commercial arena, UW-Madison scientists continue to honor the University's long-standing commitment to the well-being of Wisconsin's citizens.

It is hoped this UIR seminar will be the first of many university-industry seminars focused on areas of biotechnology research.

UW news

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Release: Immediately

6/5/84

CONTACT: Norbert A. Hildebrand (608) 263-2841/2840

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-more-

Biotechnology Center -- add one

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Bock added that the organization and structure of the Biotechnology Center are being developed by a faculty advisory committee and will be submitted to the chancellor's Academic Planning Council for final approval.

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Jean Lang (608) 263-7274

BIOTECHNOLOGY FACT SHEET

WHAT IS BIOTECHNOLOGY?

Biotechnology is defined broadly as the use of living organisms or their components in agricultural and industrial processes. By using such techniques as gene splicing, embryo transfer and plant tissue culture, scientists can produce modified or improved plants and animals that have special traits. For instance, using gene-splicing techniques scientists can isolate a gene -- the determinant of heredity in a living thing -- and transfer from one species to another a desired characteristic such as disease resistance.

WHAT IS THE POTENTIAL INDUSTRIAL AND ECONOMIC IMPACT OF BIOTECHNOLOGY?

Within the next decade it is certain that biotechnology will underpin many key developments in agriculture, medicine and industry. There are now more than 200 biotechnology companies in the U.S. and corporate America has invested \$1 billion in the fledgling industry. And while there are now only a handful of biotechnology products on the market, hundreds more are in the research and development pipeline. The expected flood of new products and companies will create jobs not only in the sciences, but also in business and finance, service industries and law.

HOW WILL BIOTECHNOLOGY BENEFIT AGRICULTURE?

Agricultural researchers are engineering new crop plants that are more nutritious, that thrive under drought conditions and that resist disease and pests. Genetically manipulated seed for new plant varieties is expected to become a \$6.8 billion business by the year 2000. Farmers could reap higher profits as fields of genetically-engineered corn and tobacco are used as living factories to produce scarce and valuable enzymes. Embryo transfer techniques have already greatly increased the efficiency of obtaining calves from high-producing cows.

HOW WILL BIOTECHNOLOGY AFFECT HEALTH CARE?

In medicine, human insulin derived from gene-splicing techniques is already on the market. This synthetic insulin prevents many of the allergic reactions associated with the animal-derived insulin commonly available to diabetics. There is also the promise of interferons, a protein that can be manipulated by scientists to inhibit and even destroy cancer cells. Monoclonal antibodies, antibodies that interact only with specific molecules within the body, have helped hone medical diagnostics to the point where infectious disease test results can be gotten in minutes instead of days. Within five or ten years, monoclonals may also be used as targeting agents, delivering drugs to just the parts of the body where they are needed.

WHY IS BIOTECHNOLOGY IMPORTANT TO WISCONSIN?

The most obvious Wisconsin beneficiaries of biotechnology will be the state's farmers. Already a multi-billion dollar industry vital to the state's economy, agriculture will be boosted as operating costs are lowered and as crop plants that resist disease and frost and that need little or no fertilizer are introduced. In the area of medicine, costs will be lowered as new biotechnology-derived drugs and diagnostic techniques are introduced into the health care system. Many new biotechnology companies are attracted to Wisconsin as they seek to tap into UW-Madison's internationally recognized biotechnology expertise. There are already more than 20 biotechnology-related businesses in Wisconsin, most of which located here due to the university's rich tradition of biological and other basic research.

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