The Search For Alternative Energy
CSU is driving hard to develop new fuel resources

Inside:
- Catching a ride at the new Transit Center
- Students are connoisseurs of African art
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Highlights

Cover story: Alternative fuels
CSU research is developing technology to challenge the nation’s – and the world’s – dependence on fossil fuels.

Campus personality
Lou Swanson, the University’s new vice provost, is putting his skills to work to strengthen the economic health of rural and urban communities.

Visions
A tribute to the world at large.

Departments

The view from campus
An international dignitary visits campus; President Penley gives state-of-the-University address; diversity transforms higher education; new Transit Center opens; green building design; and more.

Perspectives
The new director of the Institute for Learning and Teaching comments on educational technology.

Ram sports
Sport Clubs are an athletic dynasty; former Ram Joey Porter is fierce yet generous.

Research horizons
Computer power is helping to unravel the mystery of clouds.

Best of Colorado State
A welcome to new members of the University community.

Performing and visual arts
Students are detectives in an art history seminar.

On the cover
Bryan Willson, director of the Engines and Energy Conversion Lab, checks a reactor bubbling with carbon dioxide and algae.
I remember how distant and inaccessible the mountains seemed when I first came to Fort Collins. Standing in the wide, green intramural field on campus years ago, I could see those beautiful peaks way off in the distance, as remote to me as the Himalaya.

One afternoon, I headed west on my bicycle, determined to at least touch the flank of the Rockies. On the edge of town, though, private property strung with barbed-wire fence stopped all forward progress. I realized then that I’d have to work a little harder to get where I wanted to go, to find routes that I knew were out there.

In the end, it didn't take me long to hitch a ride in a classmate's Jeep and wander into the vast reaches of the mountains, and I’ve been rummaging around the high country ever since.

Becoming managing editor of Colorado State Magazine has been an oddly similar experience. When I first was appointed in late summer, I felt like I was standing in front of a fence, looking out over an overwhelming landscape of details, decisions, and detours. The goal – this magazine you’re holding – was out there somewhere, if only I could figure out the best way to get there.

Fortunately, with the help and guidance of some of the most talented people on campus, I made it. Along the way, we renamed the magazine (you’ll remember it as Alumni magazine) and redesigned the entire publication from cover to cover. We’re featuring compelling stories about the people and friends who are the foundation of Colorado State and that emphasize the themes that shape CSU’s Strategic Plan, including research and discovery, teaching and learning, diversity, and service and outreach. For every story you see here, though, a dozen more were just as worthy, but we didn’t have room for them all. And that turned out to be the biggest challenge of my job.

That’s also the most enticing part of editing a magazine. The wealth of topics at the University means that there’s always a story on the horizon that needs to be told. We couldn’t be more fortunate to share those stories with our readers.

We hope you enjoy this new magazine. And if you happen to run across a fence out there, let us know. We’ll figure out a way to move past it and into new landscapes.

Paul Miller, Managing Editor

Class Notes has moved

The Class Notes department will be featured in the members-only AlumLine e-newsletter and Around the Oval publication, which debuts in January 2007. For more information on becoming a member of the Alumni Association, visit www.CSUALum.com or call 800-286-2586.
Ernesto Zedillo, president of Mexico from 1994 to 2000, presented his views on globalization and economic interdependence during a Monfort Lecture Series at Colorado State in late September.

In discussing globalization and emerging markets, Zedillo, who is director of the Yale Center for the Study of Globalization, emphasized the critical relationship between developed and developing countries. Increasing openness and economic growth have helped emerging countries fight poverty and associated problems, while developed nations have benefited through new markets for products, Zedillo noted.

While Zedillo believes globalization boosts the world’s economic health, he added that such interdependency also reduces the incidence of violent conflict between nations. “It is now well established that trade increases the prospect for peace…conflict damages trade, and trade helps prevent conflict,” Zedillo said.

“The view from campus
FALL ADDRESS • DIVERSITY • TRANSIT • GREEN PROJECT

MONFORT LECTURE SERIES

The Monfort Excellence Fund provides up to $200,000 annually for guest speakers for a period of five years. The Monfort Lecture Series features distinguished speakers of international prominence. In conjunction with the lectures, Colorado State has created a series of seminars and other activities to engage faculty, students, alumni, and community members with the speakers.

Past speakers have included Mikhail Gorbachev, former leader of the Soviet Union, who spoke in 2005; Madeleine Albright, the first female secretary of state, who spoke in 2004; Archbishop Desmond Tutu, crusader against apartheid in South Africa and leader in the worldwide peace movement, who appeared in 2003; and the decorated Gen. H. Norman Schwarzkopf, who spoke in 2002.
Although Colorado State University has experienced significant achievements over the past year, the institution must accept nothing less than greatness as a major driver of Colorado’s economic prosperity and quality of life, President Larry Edward Penley said in his Fall Address in September.

During his talk on a warm fall day at the University’s historic Oval, Penley spoke of achievements including the launch of CloudSat, the world’s first cloud-profiling orbital radar, and the $30 million gift from alumnus Ed Warner to support the Warner College of Natural Resources. He also discussed ongoing challenges such as budget issues and the importance of access to education for Colorado residents.

“Why be normal?” Penley asked the crowd of faculty, staff, students, and community members at his fourth annual address. “Let me try to answer that question by calling on us at Colorado State and the state of Colorado to realize our potential – to look ahead and seek greatness rather than what is normal. More accomplishments are ahead, but Colorado State must reject the normal and strive for its unrealized potential.”

Penley highlighted particular areas of focus including:
- expanding faculty and continuing to increase contributions to research and discovery;
- promoting Colorado’s quality of life and economic prosperity through more rapid technology transfer and by developing superclusters built around multidisciplinary research areas;
- helping to shape a viable agricultural industry through strong programs in agricultural, natural resources, water, and nutrition resources;
- committing to excellence in athletics with a competitive program that builds on a solid financial foundation and student success;
- enhancing Colorado’s global competitiveness in high-cost, technologically important majors by encouraging – through the governor and the Legislature – fundamental change to how Colorado higher education is funded; and
ensuring access for all students, particularly those from lower-income backgrounds.

Penley also thanked state leaders for their continuing support of higher education during the past year, particularly the passage of Referendum C, which helped the CSU System increase its budget by $17.1 million and provided more than $11 million for the system’s controlled maintenance and capital construction needs. Penley said this funding forestalled further budget reductions and allowed the University to make much-needed investments including:

- the largest employee benefits increase in 20 years;
- the addition of 25 new faculty positions, the first net gain of faculty in 15 years;
- new fellowships to recruit and retain high-quality students; and
- further expansion of the merit-based financial aid pool.

Research funding hits a record $267 million

Colorado State University annual research expenditures totaled a record $267.4 million in fiscal year 2006, nearly 10 percent more than the previous year and a 35 percent ($69.2 million) increase in research expenditures over the past four years. The University receives one of the highest levels of federal research funding of any university without a medical school in the country.

In his Fall Address, President Larry Edward Penley noted that the record gain in external research awards indicates the confidence of government agencies and private sector sponsors in conducting vital national research at the University.

Federal expenditures comprised the majority, or 72 percent, of the sponsored expenditures and totaled $192.6 million. State, foundation, commercial, and other non-federal expenditures made up more than $37 million of the total, with institutional support funds adding another $37 million, or 14 percent, of the total. The increase in expenditures can be attributed in part to major funding from the National Institutes of Health for a $40 million Regional Center for Excellence and a Regional Biocontainment Laboratory.

For the sixth consecutive year, the U.S. Department of Health and Human Services was the largest source of external expenditures at Colorado State, largely because of the University’s focus on infectious disease and biomedical research initiatives. The University also experienced significant funding increases from the U.S. Department of Defense for environmental and life sciences research.

Annual research expenditures from state and local sources and industrials also grew substantially.

“Why be normal? Let me answer that question by calling on us at Colorado State and the state of Colorado to realize our potential – to look ahead and seek greatness rather than what is normal. More accomplishments are ahead, but Colorado State must reject the normal and strive for its unrealized potential.”
Embracing diversity

Paying tribute to the humanity in ourselves

by Kathy Hayes

Fifteen years ago, the State Board of Agriculture endorsed Colorado State University’s first diversity plan. Today, embracing and enhancing diversity continues to be a University priority.

But how has the University changed its view and support of diversity, and why does enhancing diversity remain a key element in the institution’s strategic plan?

Part of the answer can be found in a 2003 Supreme Court case. In casting the deciding vote in an affirmative action case against the University of Michigan Law School, former Justice Sandra Day O’Connor said, “In order to cultivate a set of leaders with legitimacy in the eyes of the citizenry, it is necessary that the path to leadership be visibly open to talented and qualified individuals of every race and ethnicity.” The court concurred that creating a diverse educational environment promotes better understanding across cultures and helps to diminish racial stereotypes.

Today, Colorado State’s expanded view of diversity goes past the letter of the law by including gender, race, and ethnicity as well as the breadth of experience and diversity of perspective that individuals bring to the educational experience, says Dana Hiatt, director of the University’s equal opportunity office.

“Learning in a primarily homogenous environment doesn’t offer students a complete educational experience that will prepare them to be global citizens.”

— Dana Hiatt, director, Office of Equal Opportunity and Diversity

Enhancing access to all qualified individuals, she continues, the desired outcome is to create an environment “where there’s a mix of thought, experience, background, culture, and perspectives that allows all of us to grow from our interactions with each other.”

Essential to a thriving society

Because the world is becoming increasingly globalized, a richly diverse campus environment is critical to providing a quality educational experience, says Vice Provost Alan Lamborn. “If you don’t have a diverse set of individuals with whom to interact when you come to campus, you’ll go out into the world less adept about how different cultures, political systems, religions, and economies work.”

The multicultural composition of America’s population guarantees that we will all be working and interacting with people of various ages, races, cultures, and abilities, even more so in the future than today. By 2010, women and minorities will comprise more than 65 percent of America’s workforce — a factor that will affect workplace dynamics and how business is conducted as well as who has “buying power.”

“In higher education, as we prepare people to go out into a global marketplace, our students need to be able to work with people who are different from themselves,” says Blanche Hughes,
interim vice president for Student Affairs. “If people don’t embrace diversity as the right thing to do morally, then there’s a practical reason for understanding and embracing diversity.”

**Success in retention**

One important, practical reason for embracing diversity includes Colorado State’s commitment to provide access with success. And improving student success and retention depends on the University’s ability to provide a high-quality undergraduate experience.

President Larry Edward Penley emphasized this important component in his Fall Address when he suggested that access – alone – is not enough.”Access without student success is a fraud. Colorado higher education must demonstrate that it can substantially raise retention and graduation rates, and CSU can lead the way in Colorado via programs like Ram Welcome that build relationships among students and between students and the university, via the quality of the teaching and learning experience that we have here at CSU, and via sophisticated information that allows the University to individualize its services to students.”

Overall, Penley noted that CSU must continue its efforts to promote the quality of life and economic prosperity of Colorado. In doing so, the institution “must build upon its efforts through programs like our Diversity Conference to promote tolerance and value heterogeneity as a means to a better quality of life, both here at the University and in our community.”

Colorado State still is striving to be a truly diverse campus, and the effort is well worth it. A diverse campus, Hughes says, is a place “where everybody feels like they belong and are not being stereotyped; where people say, ‘We want to know about your gifts and your experiences and have conversations about how to make the world a better place.’

“We’re all different, and that’s what we have in common.”

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**Diversity in the 21st century: preparing the workforce**

The sixth annual Diversity Conference at Colorado State in October featured two keynote speakers who have had a notable influence on advancing cultural diversity in America.

Mae Jemison, the first African-American woman to go into space aboard the Endeavor, discussed the power of human creativity and potential to help make the world a better place now and for future generations. A second speaker, Henry Cisneros, former secretary of Housing and Urban Development and mayor of San Antonio, Texas, said that the best days are ahead for the United States and that minority populations will help contribute to that bright future.

Conference activities also included special exhibits, high school focus day, and University Dialogues, which included panels of speakers who presented differing viewpoints on immigration related to history and human rights, economic and environmental sustainability, and access to higher education. Audience members were invited to engage in the discussions.

A pre-conference University Dialogue explored the scope and limitations of academic freedom and free speech in the context of recognizing that universities often are at the center of controversy and conflict, but they also are uniquely positioned to work openly and directly toward common ground and to preserve the free exchange of ideas.
Transit Center opens at Lory Student Center on campus

New facility is a great place to catch a ride

by Marianne Provenza

Clean air, public transportation, and sustainable partnerships took center stage in late August during a grand opening celebration at the new Transit Center on the north side of the Lory Student Center.

Colorado State University President Larry Edward Penley and Sen. Wayne Allard greeted city and federal officials as they stepped off a natural gas-powered Transfort bus to kick off the celebration. Dignitaries included Doug Hutchinson, Fort Collins mayor; Darin Atteberry, city manager; Lee Waddleton, regional director with the Federal Transit Administration, or FTA; and Jason Green, president of Associated Students of Colorado State University.

“This complex project involved a number of partners making it happen,” says Mike Ellis, executive director of the student center. To help make public and alternative transportation more efficient, CSU and the city of Fort Collins sought to address the multiple needs of transit riders, students, faculty, and other stakeholders. “Our objective was to increase ridership on public transit and emphasize alternative modes of transportation from bikes to buses,” Ellis says.

The 14,500-square-foot addition and inviting, three-story atrium complements 7,700 square feet of existing space and includes a convenience store; ASCSU’s free-ride program, RamRide; information and ticket booths; and monitors that offer departure times, weather reports, games, and news. The $8.24 million project was funded by the FTA.

In addition to providing riders a welcoming location to catch public transit, the new center was designed to comply with Leadership in Energy and Environmental Design, or LEED, a voluntary national standard honoring sustainable, high-performing buildings. Measures such as natural light, construction waste...
management, water-efficient landscaping, wind power, and indoor water efficiency earned the facility silver-level certification. About 75 percent of the old building was recycled into the new facility.

“As an educational institution, we have an obligation to teach about making responsible choices related to our environment,” Ellis says. However, he adds that the building wasn’t just about seeking LEED designation. “We think buildings can – and should – teach us about healthy, sustainable choices. By making and fostering healthy choices, we also create a healthier community and a more robust local economy. What better place to do this than our very own premier, public research university?”

Coover-Clark Architects assisted CSU and the city of Fort Collins in designing the addition.

For more information about the Transit Center, visit www.transitcenter.colostate.edu.

Renovations make Plaza more inviting

Another new project close by the Lory Student Center is the extensive renovation of the Plaza, a longtime gathering place for the campus community. The area on the east side of the LSC will be greener and more inviting this coming spring after the project is completed.

The first phase was completed this fall to allow construction to begin in spring 2007 on a four-story, $13 million Computer Science Building between the Plaza and the Natural Resources Building. Student fees will pay for the new building, which is scheduled to open in fall 2008.

Once that building is complete, Plaza renovation will continue with the pedestrian conversion of Isotope Drive and parts of University Avenue. Those streets will be replaced with wide, landscaped sidewalks and seating areas for pedestrians.

Excluding the Foothills Campus and the Veterinary Teaching Hospital, the Department of Computer Sciences is currently the only academic department not housed on campus. The department occupies part of the University Services Center on Howes Street.

The collaborative Transit Center project added 14,458 square feet to the north side of Lory Student Center and renovated 7,749 square feet of existing space.
Innovative and energy efficient construction recognized by governor’s office

An innovative program at Colorado State that included energy-saving features in a historic building was recognized by the governor’s office this fall. Brian Dunbar (above), director of the Institute for the Built Environment at Colorado State and a construction management professor, was presented with the Energy Champion Award in September at the governor’s office for his leadership of students, faculty, and University facilities staff in the Guggenheim Hall green classrooms remodeling project.

The Colorado Governor’s Office of Energy Management and Conservation presented Energy Champion awards to individuals and organizations that pioneered innovative and effective ways to make energy saving improvements to public facilities in Colorado. The University and the Department of Construction Management were recognized in addition to Dunbar for their support of the Guggenheim project.

“These statewide energy champions demonstrate how projects can bring lower energy usage and costs so that savings can be focused on priorities,” says Drew Bolin, director of the Office of Energy Management.

Twenty-five organizations and individuals were recognized in the ceremony, and winning projects represented exemplary achievements in the design of new buildings or upgrading of existing buildings.

This fall, Guggenheim Hall was awarded a Leadership in Energy and Environmental Design commercial interiors silver certification from the U.S. Green Building Council. LEED is a national rating program that recognizes buildings that achieve a high level of energy and environmentally suitable practices. Projects that remodel a building’s interior are classified as commercial interiors. Colorado State is the first university to have a construction project attain a LEED-CI certification for a campus building.

More details on the project are on the Web at www.cm.cahs.colostate.edu/Guggenheim_Renovation.stm.

Mediation certificate unique in School of Social Work

This fall, Colorado State’s School of Social Work was the first school of its kind to offer a certificate in mediation and dispute resolution. The certificate program, designed to train professionals to negotiate and resolve disputes, is similar to programs available through law schools.

The University teamed with the Institute for Advanced Dispute Resolution based in Boulder to offer the certificate through online and on-site courses. The certificate is offered to anyone interested in completing the program and, while based at CSU’s School of Social Work, is not limited to people with a social work background.

Thirty-eight states require – in some form, such as court mandates – that disputing parties seek mediation before the courts will hear a case.

“Anyone can mediate by law, but not everyone who mediates has effective and helpful skills,” says Deborah Valentine, director of the School of Social Work. “Mediation is the perfect skill to be taught in a school of social work, since social workers already help people solve personal, relationship, and family problems.”

Mediation can help solve issues such as neighborhood disputes; divorce issues such as child custody; workplace, healthcare, and eldercare conflicts; and disputes between landlords and tenants, corporations, and businesses and consumers.
Technology is no panacea ... but let me spell check that  

Commentary by Mike Palmquist  

In an age where many Americans believe education is failing, technology seems to offer straightforward solutions to complex problems. Unfortunately, some of the claims I’ve heard – that computers can replace teachers or the Web will make classrooms obsolete – have proven so spectacularly wrong that it’s hard to understand how they keep being repeated.

I write this as an avid proponent of educational technology. I teach computer-supported classrooms, comment on student work on the campus network, and conduct studies of emerging instructional technologies. I came to Colorado State in large part because of its groundbreaking work on instructional technology. And my scholarly work is based on the assumption that information technology provides a rich set of tools that, assessed thoroughly and used wisely, can enhance teaching and learning.

The difficulty is that educational technology has sometimes been applied in ways that have been anything but wise. As a result, educators have long been split on the value of technology.

Educational technology has sometimes been applied in ways that have been anything but wise. Educational technology has sometimes been applied in ways that have been anything but wise.
Sport Clubs an unsung athletic dynasty at CSU

by Chris Casey

Although varsity sports at Colorado State are big-ticket events, student-run Sport Clubs host teams that are just as competitive – and many that are nationally known.

Recognized as one of the strongest programs in the country, Sport Clubs on campus include 28 programs in which more than 1,200 student athletes are involved in competition, instruction, and recreation activities. Last year, 23 of the teams traveled out of state to compete at regional and national competitions.

Following are just a few highlights of Sport Clubs successes this past year.

Baseball

Colorado State won its third consecutive national championship on the diamond last spring. The Rams defended their title with a 3-2 victory over Penn State, finishing the season 31-10 overall and 17-1 in Rocky Mountain Conference play.

After beating Nebraska in the Mid-America Regional tournament at CSU in May, the Rams were seeded No. 2 in the national tournament in Niles, Ohio, behind Penn State.

To reach the championship game, CSU defeated the University of Dayton, the University of Wisconsin-Madison, and the University of Oregon. It was CSU’s sixth straight appearance in the National Club Baseball Association’s World Series.

Women’s lacrosse

The women’s lacrosse team posted a 24-2 record on the way to a third-place national finish. The Rams outscored opponents 37-11 in the first two rounds of the national tournament before falling to fourth-seeded Michigan in the semifinals.

CSU won the Rocky Mountain Women’s Lacrosse League title for the third straight year and won the second annual “Battle of the Rockies” against the University of Colorado.

The Rams were ranked No. 3 in the nation heading into the 2006-07 season. The team has reached the national tournament the past three years, finishing second in 2004. Just four years ago, the Rams were unranked.

Men’s lacrosse

CSU men’s lacrosse team downed rival University of Colorado 8-7 to win its fourth national championship in May. The Rams reeled off three goals in five minutes in the fourth quarter to secure the come-from-behind win.


The Rams lacrosse program, in its 40th year, has emerged as a national powerhouse over the past decade, with Flip Naumburg in his 10th season as coach.

Alex Smith, assistant coach, notes that Naumburg gives the team consistency and stability. “We’re pretty well known in the lacrosse world,” Smith says.


Women’s soccer

The Colorado State women’s soccer team came heartbreakingly close to a national title last year, losing a 2-1 overtime decision to Michigan State in the championship final.

The Gold squad headed into this fall’s Rocky Mountain Intercollegiate Soccer League season as one of the top-ranked teams in the nation. Jim Fronapfel returned for a fifth year as head coach.

The Ram Gold team is a perennial contender for the national title. Last year
Former Ram athlete covers the line in *Sports Illustrated*

Former Colorado State University football star Joey Porter, now an All-Pro linebacker for the Pittsburgh Steelers, is not the kind of guy you’d like to face across the line of scrimmage. But Porter, who faced a national audience when he appeared on the cover of the September issue of *Sports Illustrated*, also can be generous – whenever he isn’t pasting poor quarterbacks.

“At 29, with an unyielding engine and a motormouth to match, the 6’3”, 250-pound Porter may be the most fearsome outside linebacker since Lawrence Taylor,” SI writer Michael Silver notes.

But Silver may not know the extent of Porter’s generosity. The former CSU standout (he played from 1995-98) donated $200,000 in 2005 for the renovation of the Rams’ football locker room in Moby Arena. The renovation included new lockers, carpeting, showers, and other amenities for the players.

In just two seasons here at defensive end, Porter accounted for 22 quarterback sacks, currently the fourth highest career total in school history. He was named first-team all-conference as a senior in 1998 and played in the East-West Shrine and the Senior Bowl all-star games following his senior season. He was a second-team all-conference selection as a junior in 1997, playing a key role in the Rams’ 11-2 season that included a conference championship and win over the University of Missouri in the Holiday Bowl.
Research teams at CSU are exploring ways to use richly abundant, one-celled organisms to power our vehicles.
A tiny, one-celled creature is reproducing like crazy behind the Engines and Energy Conversion Laboratory in north Fort Collins. But this organism isn’t a threat, it’s a special kind of algae – and Colorado State researchers are working on ways to extract its oil to help reduce the world’s dependence on finite fossil fuels and volatile energy markets.

On a warm, sunny afternoon, Bryan Willson, director of the lab, stands near an experimental inoculating reactor that looks like a large cold frame for plants. The reactor is a humming, bubbling caldron fed by a constant stream of carbon dioxide, the stuff of life – along with solar power – for the algae inside that’s bountifully reproducing.

“We started with a 50-milliliter algal culture in June,” Willson says. “It was from a species found in the North Sea that contains high amounts of lipids, which are the source of oil. The algae divide asexually, and through the miracle of exponential growth, we now have countless trillions of cells. It’s staggering how abundant this resource is.”

Willson turns his attention to long rows of what look like water beds. These photo-bioreactors, developed by Jim Sears, founder of Solix Biofuels, consist of transparent plastic tubes that house the algae. The elegantly simple yet far-reaching design includes weighted rollers that travel slowly across the tubes, constantly circulating the algae to allow maximum photosynthesis.

“These are one-fifth-scale reactors,” Willson says. “A pair of full-size reactors would be about 350 feet long by 50 feet wide.” Once the maximum levels of algae are reached, the cells are continuously harvested from the fluid with a centrifuge, then the oil is extracted and refined into biodiesel.

When Sears first became interested in algae-to-oil possibilities several years ago, he quickly realized the power and importance of the technology. “I also realized I needed to team up with a university or other business to have the means to drive the project forward,” he says. He sought help at several universities, but he was making no headway until he sat down at a restaurant with Hunt Lambert, CSU’s associate vice president for economic development.

“Hunt saw right away that this project would fit very well with CSU’s abilities.”

Colorado State is working with Solix Biofuels to develop technology that can cheaply produce biodiesel fuel from algae – an environmentally friendly solution to greenhouse gas emissions, high gas prices, and finite fossil fuel supplies. 

by Paul Miller
supercluster concept of putting technology to work to benefit society,” Sears says. As defined by the University, superclusters – in addition to other efforts – promote Colorado’s quality of life and economic prosperity through more rapid technology transfer built around multidisciplinary research areas in which CSU excels.

“The idea of bringing industry intellectual property and partners into the University is extremely rare, and CSU’s willingness to engage those partners to address the great global challenges of our time is a testimony to the strength of President (Larry Edward) Penley and Provost Tony Frank’s vision for a 21st-century land-grant institution,” Lambert says.

Lambert encouraged Sears to meet Willson, who turned out to be no less impressed by the scope and possibilities of the technology.

“It was a perfect match from the start,” Sears says. “In fact, when I walked into the (Engines and Energy Conversion) lab for the first time, I knew it would be an ideal place to house the project. I could see that the lab was actively involved in significant, applied research and not just talking about things.”

Sears and Willson share another common bond in having a pool of talented students to help them out. “I had the absolute pleasure of working all summer at the Engines lab with bright, capable students who were anxious to learn and apply their knowledge in meaningful ways,” Sears says. “Fortunately for us, most of the students didn’t have classes during the summer, so they were able to devote more time to the project.”

What’s ahead

The next step in the program for the Solix team is to set up larger reactors on land leased by New Belgium, a brewery located close to the Engines lab. “New Belgium has a strong commitment to environmental sustainability, and they produce a lot of CO₂,” Willson says. But that’s only the beginning.

The beauty of the algae-to-oil project is partly due to the best places to site the reactors, which include power plants and other industries that produce copious amounts of CO₂. “Think of a power plant like Rawhide, with bioreactors going around it for maybe five miles,” Willson says. “That sounds like a lot of land, but it’s a very productive use of that land. In fact, we could provide all of the liquid fuel needs of the United States on about one-half percent of the available land, and we’re talking about agriculturally marginal land in areas that have lots of solar capacity. Surveys we’ve done have identified around 100 coal-fired plants and 200 natural gas-fueled power plants in the Southwest that have adequate land around them. That’s more than enough to meet the liquid fuel needs of the country.”

Developing countries that don’t have ready access to fossil oil or coal also would benefit from the program. Algae-to-oil facilities would be an ideal solution for producing liquid transportation fuels while absorbing greenhouse gas emissions in the bargain.

Researchers at Colorado State’s Engines and Energy Conversion Lab in north Fort Collins include (from left) Douglas Henston, chief executive officer, Solix Biofuels; Morgan DeFoort, CSU doctoral student in mechanical engineering; Paul Kugrens, CSU biology professor; and Jim Sears, founder, Solix (kneeling).
Another benefit is that, because they’re single-celled organisms, algae grow extremely fast and produce lipids about 100 times faster than soy or canola. “With algae, we can get 7,000 to 10,000 gallons of diesel fuel per acre per year,” Willson says. “We get only 50 to 100 gallons per acre per year with canola or soy.”

**Program builds on previous research**

Although the technology for producing oil from algae has been around since the 1940s, the research started taking off in the late 1970s through the Aquatic Species Program at the National Renewable Energy Lab in Golden, Colo., part of the U.S. Department of Energy. Early in the program, research was done in Hawaii, and at least one species of algae used in California ponds was a freshwater species isolated from local sewage streams.

The research was promising, but scientists faced special challenges. NREL’s focus on the development of algae farms in desert regions used shallow saltwater ponds for growing algae. Although the method was economical, problems occurred with salt build-up in the ponds, difficulty in controlling temperatures, high evaporation rates, and contamination of the original, high-lipid algal stock.

“An algae photo-bioreactor produces a 120-gallon inoculation charge for a primary, 5,000-gallon bioreactor.”

Nicholas Rancis, a master’s candidate in the College of Engineering, is one of a number of students who have contributed to the Solix algae-to-oil project at CSU.

“The NREL put thoroughbred, high-yield algae in their open ponds, but that algae got outcompeted – they got their butts kicked by the local, less valued strains that invaded the ponds,” Willson says. “The project had difficulty maintaining high-yield algae growth.” The NREL also looked at genetically modified algae – a controversial technology that some people say is risky under certain circumstances – as a possible source for more oil content. Genetic modification is something that the Solix crew adamantly feels is unnecessary.

“We believe our technology will work quite well using some of the 100,000 species of algae already found in nature,” Sears says. “Solix has taken the position that it will produce oil using only naturally occurring algae because our technology is capable of providing the necessary environmental control.”

In the end, the low cost of oil helped play a role in closing down the NREL project. In 1996, when funding for the Aquatic Species Program ended, oil cost about $21 per barrel, and when Willson studied NREL’s 1998 close-out report, he discovered that the national average price of diesel fuel at that time ranged between $1.13 and $1.32 per gallon. The report said that the technology would only make sense if the price of oil doubled. “That price has increased dramatically since then,” Willson says. “At the current average price of diesel fuel, we believe it now makes significant economic sense to pursue the technology.”

**Real-time fuel**

The Solix team, though, still faces challenges before the world can drive on algae-produced oil. “We’re dealing with a somewhat fragile, living system,” Willson says. “We’ve known for a few hundred years how to control fossil-fuel refineries, and humankind has thousands of years of experience growing crops such as corn and soy. The field of domesticating algae...”
Single-celled algae from a repository at the University of Texas represent a minute sampling of the estimated 100,000 species of algae found in nature. The abundant, renewable resource may soon help reduce the world’s dependence on finite fossil fuels and volatile energy markets.

is very different – it’s rife with variables that we still don’t fully understand. And we’re trying to climb the ladder of large-scale production of algae in just a few years.”

But standing in what used to be a parking lot at the Engines lab and looking out over the custom-built reactors that house the algae, Willson can’t contain his optimism.

“This new fuel doesn’t depend on a fixed, dwindling resource such as dead dinosaurs from a hundred million years ago,” he says. “This is fuel that we create in real-time; it’s a renewable resource taken from an abundant supply.

“We’ll always have algae, sun, and carbon dioxide. It’s one of the most sustainable options we have.”

◆

Top: Roller systems on one-fifth-scale bioreactors circulate algae to allow maximum photosynthesis. Bottom: CSU students Chris Doyle and Nick Rancis pull a daily algae sample from a beta crib.
Molecular world of biology is linking algae to oil production

Producing oil from renewable resources isn’t as easy as opening a tap and pouring out fuel. The latest interdisciplinary research at Colorado State’s Engines and Energy Conversion Lab includes wide-ranging concentrations such as environmental science, energy, information technology, business planning, and biotechnology. The current project, which seeks to develop technology that can cheaply produce biodiesel fuel from algae, is the brainchild of Jim Sears, a local entrepreneur and founder of Solix Biofuels, who acknowledges that the University’s expertise in such disciplines is crucial to the success of alternative fuel research.

Consultants and advisers such as Colorado State biology Professor Paul Kugrens, a leading specialist in algae, have provided input and expertise to the algae-to-oil project. “Paul is a consummate scientist,” says Bryan Willson, director of the Engines lab. “He’s one of the few experts who really knows the life cycle and ecology of algae. He’s been valuable in helping us to sift through variables involved in the process.”

Kugrens is known on campus for his dedication to “good, solid science” that anchors projects such as the alternative fuel research at the Engines lab. He has advised the team on biological aspects of the process, and along with students such as Nicholas Rancis, a master’s candidate in the College of Engineering, he has contributed to the search for algae with higher ratios of lipids, the vital ingredient that yields oil.

“Growing mass cultures of algae requires novel systems,” Kugrens says. He notes that the algae-to-oil project is in the “nuts-and-bolts stage of the research, using scientific methodology to look for and resolve problem spots that may clog up the process.”

A few of the variables include the amount and timing of adding carbon dioxide, nitrogen, phosphate, light, and other elements to the bioreactors. In addition, the fast-growing nature of algae is an advantage and disadvantage at the same time—the resource is highly renewable, but excessive growth also can clog up the system with biowaste.

“Each problem has a solution, and working it all out is what makes this research—and research in general—so intriguing,” Kugrens says.
Agriculture research is weeding out alternative fuel sources

by Kay Rios

In the race to find fuel alternatives, Colorado State researchers have been looking to the land for potential sources – and to help reduce agriculture’s contributions to greenhouse gas emissions.

In the Department of Soil and Crop Sciences, Jerry Johnson, Colorado State University Cooperative Extension specialist in crop production, and Professor Keith Paustian are exploring alternative fuels based in agriculture while acknowledging that agriculture also is a contributor to greenhouse gases.

“Globally, it’s quite significant,” Paustian says. “About one-third of the greenhouse gas effects from man-caused emissions is attributable to agriculture and land use, in general. In the United State, it accounts for about 7 percent.”

Conversely, agriculture also helps reduce emissions by taking carbon dioxide out of the atmosphere and storing it as carbon in soils and plants – and by providing potential sources of biofuels.

“If we had a dedicated research and development effort to increase the amount of biomass for bio-energy production, almost 20 percent of all the United State’s demand for energy could be supplied,” Paustian says. He adds that this includes up to 85 percent of transportation fuel needs.

Paustian currently is involved in an assessment of bioethanol production using crop stalks. “It’s very different from grain ethanol products like corn,” he says. “The big problem with using grain is that you use almost as much energy to produce the grain as you get out of the ethanol value. It’s not very energy efficient.”

It also competes with the food inventory, he adds. “If all corn goes to ethanol, the cost of feed grain will go up, and that cost will show up in supermarkets. With bioethanol products, you use the stalk, and you’re not competing with food needs because you’re still producing grain – the stalks are there, so you don’t have additional energy going into production.”

The current pilot project involves a group called the Imperial Young Farmers in western Nebraska. “To my knowledge, it’s the only project doing on-the-ground feasibility studies. The farmers actually remove residue from the field and test ways to store it and transport it to conversion facilities,” Paustian says.

CSU’s role is to assess the biomass production capacity and the environmental impacts of crop residue removal so that residues can be used responsibly while maintaining the health of the soil. “We’re also establishing some long-term plots there that can be measured over time.”
Johnson’s research is also an on-the-ground activity in eastern Colorado, looking at oilseed crops including canola, camelina, and Indian brown mustard as possibilities for creating biodiesel fuel. While canola is grown all over the world, camelina and Indian brown mustard are new crops to eastern Colorado. “The vegetable oil market is strong for canola, so it’s not cost effective to use it for biodiesel. But we still want to know if we can get a high enough yield to justify the use of canola. We’re looking at these other crops as well.”

Four years ago, CSU was approached by Blue Sun BioDiesel, a company based in Westminster, Colo., to initiate oilseed studies in eastern Colorado. The partnership was a natural since one of the founders, Sean Lafferty, and his brother Ryan, a Blue Sun research associate, both were CSU alumni, and CSU traditionally has been an agricultural school, Ryan Lafferty says.

The company was awarded a Small Business Innovation and Research Grant by the Department of Energy, and Blue Sun subcontracted to CSU. “We did some preliminary research on what had already been done and then approached CSU to improve on that knowledge,” Ryan Lafferty says. The project, which has one year left on the grant, is looking at Indian brown mustard and four other seeds.

Johnson says they are doing small-plot variety trials to measure yield and compare one variety to another’s performance. “We measure the yield and then send samples in for an analysis of the oil content.”

The yields have been low so far, but that also has to do with weed and insect control and variety selection. “We’re confident we can increase the yield. If we can grow these under dryland conditions where input costs are lower, somewhere between 1,200 and 1,500 pounds per acre might be a break-even proposition.”

One surprising discovery, Johnson says, is the biodiesel potential in camelina. “Duane Johnson (a former CSU agronomist now heading an experiment station in Montana) was the first to pull it off the shelf and look at it for biodiesel.” He drew CSU’s attention to the crop, and there is now a trial with “a bunch of different lines,” Johnson says. “Some look very good – one line yielded over 700 pounds per acre. That’s the best we’ve gotten so far in our dryland trials. When it was 107 degrees on Wheat Field Day at Akron on June 13, we were amazed. These plants were holding up, and we got that kind of yield.” Johnson adds that both camelina and Indian brown mustard are plants of interest because of their drought and heat tolerance.

There are more surprises ahead and a potential for real success, Paustian believes. “Right now, biofuels are insignificant, but if we develop them responsibly, we can really start to address some of the greenhouse gas issues.”

“We use biodiesel in any campus vehicle built to run on diesel,” says Gene Stroh, transportation manager at Facilities. Stroh, dwarfed (above) by a German-made biodiesel motor coach, is in charge of about 650 vehicles in the CSU System. Above left: canola and other oilseed crops soon may play a major role in fueling biodiesel supplies.
The ache of crude oil dependence by Chris Casey

Although gasoline and crude oil prices eased this fall, consumers still may have to get used to gas prices in the $3-per-gallon range, says Lisa Ellram, the new chairwoman of Colorado State’s Department of Management.

Ellram, an expert in supply chain management issues, pays close attention to the price of goods and the cost of delivering them. Crude oil in particular sends immediate ripples through the global market, as evidenced by the pipeline shutdown this past year in Prudhoe Bay, North America’s largest oil field.

“The overall direction of gas prices is definitely upward,” Ellram says. “Even if it dips a little, we need to get used to it at around $3 per gallon. Every time there’s a little crisis where the price goes up, it never seems to settle back to its original level, even after the crisis is settled.”

The long-term reality, she says, is the fact that fossil fuels are a finite resource.

“It seems like we’re in denial that we’re going to run out,” she says.

Hybrid vehicles and biodiesel fuels are ways to lessen the world’s reliance on oil, Ellram notes, but other fuel alternatives need to be developed.

“Society is not on a sustainable energy path right now, but there are good people at CSU who are working on alternative fuels and other potential solutions,” she says.

Ellram came to CSU from Arizona State University, where she served as a professor of supply chain management. In 2001, she was named a Dean’s Council of 100 Distinguished Scholars. In 2004, Supply & Demand Chain Executive magazine named her a “purchasing practitioner to know.” After earning her bachelor’s in accounting and M.B.A. from the University of Minnesota – she received her doctorate from The Ohio State University – Ellram got early exposure to supply chain dynamics as a cost accountant at The Pillsbury Co. The subject has interested her ever since.

“It’s really one of the linking areas of all business,” she says. “It deals with the whole network of how businesses deliver products and services to customers. I like the holistic aspect of it.”

The ultra-competitive global market makes it critical for businesses, whether gas retailers or small businesses, to streamline their supply chains. “It’s about delivering the right products and services to your customers effectively and efficiently,” she says. “You’re looking at ‘How can I get rid of the waste in the system?’”

Businesses must consider a multitude of factors in the supply chain, including cost-effective ways to use materials, the best ways to ship goods, where to ship from, and how to be environmentally responsible.

“Because it’s such a broad area, there’s always opportunity for improvement,” Ellram says.
Society is not on a sustainable energy path right now, Ellram notes, but there are good people at CSU who are working on alternative fuels and other potential solutions.
Some people see clouds as cotton balls, approaching storms, or horse tails. Scientists, on the other hand, may see clouds as energy, water, chemicals, and dust particles. Either way, clouds represent one of the most compelling and least understood phenomena on Earth.

Part of the beauty of clouds lies in their complexity and the challenge of developing mathematical models to help scientists study the planet’s climate. With a recent $19 million cooperative agreement from the National Science Foundation, Colorado State and its partners will build climate models to more accurately depict cloud processes and improve climate and weather forecasting. The NSF Science and Technology Center for Multi-Scale Modeling of Atmospheric Processes will be based in the Department of Atmospheric Science.

A small community of scientists around the world has been building mathematical models of the climate system since the 1960s, but a major limiting factor always has been computing power. “From the beginning, one of the hardest tasks has been to include the effects of clouds in the models,” says David Randall, professor of atmospheric science, principal investigator, and director of the center. “Clouds are very complicated. They look beautiful – white, puffy particles of liquid or ice crystals in the sky that rain and snow on us and reflect sunshine back into space – but to build a model of the whole thing, you have to include scales ranging from 25,000 miles down to, let’s say, a couple of miles or less.

“We more or less crossed a line about five years ago when computers finally became powerful enough so that, by playing some tricks, it was possible to include scales from a couple of miles to the size of the Earth, all together at the same time.”

Even with very large, complex computers, scientists working on climate modeling struggle to represent the physical and chemical processes of clouds, including precipitation, strong cloud-scale motions, and radiation. Individual particles that make up clouds, such as raindrops, are a few millimeters in size, but most particles are even smaller, in the range of a few microns.

It’s been especially difficult to realistically simulate the interaction between
cloud systems and the global-scale circulation of the atmosphere. Just one relatively small thunderstorm, Randall says, can lift air from the ground to 10 or 15 miles into the atmosphere in just a few minutes. That air carries water, chemicals, dust particles, and energy very fast to high altitudes. "That means those clouds are important in terms of redistributing a variety of elements throughout the atmosphere." The prototype model developed at Colorado State with its partner institutions allows scientists to take a two-dimensional model of a collection of clouds and apply the behavior of those clouds to each of the thousands of "grid columns" of a global atmospheric model. The cloud model provides statistics for a sample of the clouds in the grid column, just as an opinion poll collects statistics based on the views of a sample of the population, Randall says.

"The project will make it possible to produce more robust simulations of both next week's weather and future climate change," says Randall, whose team has been working on the project for five years. "This new center will have broad impacts on both science and society because it will increase our understanding of climate processes and our ability to make reliable simulations of cloud processes as they relate to climate change."

The NSF cooperative agreement to create the Science and Technology Center is for $19 million for the first five years, with the potential for a renewal for another $20 million over the following five years. Co-principal investigators include Scott Denning and Wayne Schubert of CSU's Department of Atmospheric Science; John Helly of the San Diego Supercomputer Center at the University of California, San Diego; and Chin-Hoh Moeng of the National Center for Atmospheric Research in Boulder. Cindy Carrick at CSU serves as administrative director of the center.

**Weather and climate in the classroom**

About one-third of the $19 million budget for the NSF Science and Technology Center for Multi-Scale Modeling of Atmospheric Processes is dedicated to education and diversity programs. Associate Professor Scott Denning, who is the associate director for Education and Diversity at the center, says that the programs will work on multiple, integrated levels to provide training for K-12 science teachers and to support graduate and undergraduate research and education. CSU's popular Little Shop of Physics program also will be part of the center's outreach efforts.

"We'll be working closely with local teachers at all grade levels to provide them with more effective tools to teach students about weather and climate," Denning says. "To do that, we'll offer a summer course through CSU for science teachers statewide. We're also developing a TV show on Rocky Mountain PBS, a DVD series for distribution, and curriculum materials that will be tested in local school districts in Fort Collins and Loveland.

"I'm excited about this. We have a great team of people."

At the undergraduate level at CSU, Brian Jones, director of the Little Shop, will be expanding the number of volunteer students who will learn more about how to effectively teach students at all levels from elementary to high school. "We'll develop instructional materials for schools that complement existing materials and meet state standards," Jones says. "Our goal is to help ensure that, when kids get to college, they have strong training in the basic sciences and a real interest in studying science, including climate science."

The heart of the center's education mission is graduate education, Denning says. In addition to research support, the center will provide graduate students the opportunity to work with K-12 teachers in the summer training courses and to develop mentoring skills for the benefit of students.

In addition, a program led by psychology Professor Silvia Sara Canetto will explore gender issues and diversity in the science workplace. Canetto and her team of graduate students will conduct studies across a spectrum ranging from high-achieving elementary school children to full professors at universities.

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"I'm excited about this. We have a great team of people."
Top EPA official named new vice president for Research

by Emily Wilmsen

Bill Farland, formerly the highest-ranking career scientist at the Environmental Protection Agency, brings decades of interdisciplinary research leadership experience to Colorado State as the new vice president for Research.

Farland was deputy assistant administrator for science in the EPA’s Office of Research and Development. He also directed the EPA’s Office of the Science Advisor, which serves as the authority on integrating sound science in regulatory decisions. He served as acting agency science advisor throughout 2005.

Farland’s 27-year federal career was characterized by a commitment to the development of national and international approaches to interdisciplinary research, testing, and assessment of the fate and effects of environmental agents. He has been in the national spotlight on such topics as the environmental impacts of Hurricane Katrina on the Gulf Coast, assessment guidelines on cancer-causing chemicals, dioxin health effects, environmental tobacco smoke, mercury levels in fish, and ecological damage from the Vietnam War.

“Dr. Bill Farland’s work not only has benefited the U.S. Environmental Protection Agency but also has profoundly impacted the health and welfare of all Americans,” says EPA Administrator Stephen L. Johnson. “Bill and I have served the agency together for more than 25 years, and while he will surely be missed, I wish him all the best as he pursues this exciting next chapter in his remarkable professional career.”

“Colorado State has built an international reputation for our research upon a foundation of programs in infectious disease, cancer research, and environmentally sustainable solutions to global problems such as air and water pollution,” says Tony Frank, senior vice president and provost. “Bill’s expertise matches the extraordinary quality of the faculty and research programs at Colorado State. He will be an incredible advocate and resource for our scientists.”

During the search for a new vice president, Hank Gardner served for 18 months as interim vice president for Research.

“I want to extend our gratitude to Hank, who has done a wonderful job as interim vice president,” says President Larry Edward Penley. “Hank is highly committed to faculty research and will continue to serve Colorado State extremely well in his role as associate vice president for research development.”

Farland began his EPA career in 1979 as a health scientist in the EPA’s Office of Toxic Substances while he continued his research endeavors at The George Washington University Medical School. Prior to serving as deputy assistant administrator for science in the Office of Research and Development, Farland served as director of the EPA’s National Center for Environmental Assessment, which he helped create in 1995. The NCEA is responsible for the conduct of chemical-specific risk assessments in support of EPA regulatory programs, the development of agencywide guidance on risk assessment, and the conduct of research to improve risk assessment. Prior to that, he served as director of the Office of Health and Environmental Assessment, director of the Carcinogen Assessment Group, and acting director of the Reproductive Effects Assessment Group.
New vice president leads admissions office

Robin Brown, the former vice president for enrollment at Willamette University, began her duties in August as Colorado State’s new vice president of Admissions and Access. The position was created last year as part of a university-wide reorganization to streamline all elements of admissions into one area and to enable the University to focus on service and marketing to prospective students, admitted students, and parents.

Brown is overseeing Admissions, the Registrar, Financial Aid, Enrollment Services, High-Ability Student Recruitment, and the Center for Educational Access and Outreach.

In addition to admissions and access, the recent reorganization strengthens the University’s efforts in teaching and learning, retention and graduation, outreach and service, and marketing.

Before joining Willamette in 2000, Brown served as interim director of undergraduate admission at The Ohio State University and associate director of admissions and orientation at Oregon State University. Prior to that, she served as director of school relations in the Oregon State System of Higher Education. Her membership in academic organizations includes serving on the board of directors for the National Association for College Admission Counseling.

Her bachelor’s degree in education is from State University of New York, and her master’s and doctoral degrees are from the University of Oregon.

Denver Center welcomes new director

As the new director of Colorado State’s Denver Center for Continuing Education, Maria Puzziferro, who joined the University in August, is overseeing programming staff and the center’s educational activities and partnerships.

“Maria brings a perfect mix of experiences in distance and technology mediated education, leadership in higher education, and entrepreneurial approaches to educational design and delivery,” says Rick Simpson, director of the Division of Continuing Education.

The Division of Continuing Education Denver Center is charged with leveraging the diverse academic resources of CSU in the greater metro Denver community with courses, programs, and partnerships. The Denver Center’s goal is to meet the needs of individuals as well as organizations who are seeking improvement in quality of life, excellence at work, and the sustainability of their communities.

Before joining Colorado State, Puzziferro served as associate dean of Virtual College at Florida Community College in Jacksonville, Fla. Under her direction, FCCJ Virtual College managed distance learning programs across five regional campuses with yearly total enrollments in excess of 50,000 students, becoming the largest distance-learning program in the state of Florida.

Puzziferro’s bachelor’s degree in political science is from Adelphi University, her master’s and M.L.S. are from St. John’s University in public administration and information science, and her doctorate in higher education administration is from New York University.
Lou Swanson, who has spent most of his 24-year career focusing on the sociology of agriculture and rural community studies, this year stepped into an even more challenging role. In August, he became Colorado State’s first vice provost for Outreach and Strategic Partnerships, an appointment that anchors aggressive goals set by the Strategic Plan and fulfills a key part of the University’s reorganization that was launched last year.

Swanson is putting his skills to work addressing state issues from the global challenges of agriculture to the economic health of rural and urban communities. Under the aegis of his office are Cooperative Extension, Continuing Education, International Programs, Colorado Water Resources Research Institute, Colorado Institute of Public Policy, and new offices including Economic Development and P-16 (pre-school through college) Outreach. As well, Swanson says that each of the agencies and institutes have committed staff members who are devoted to serving Colorado’s people, economy, and the environment.

Swanson notes that, on the national level, President Larry Edward Penley’s restructuring of outreach programs was a cutting-edge move for land-grant universities. “This is an essential step for engaging crucial resources at a 21st-century, land-grant university,” Swanson says. “The clustering of these seven agencies and institutes is creating a capacity to engage the entire University with the people of Colorado, rural and metropolitan alike. As important, the restructuring will provide a more effective means for dialogue between our off-campus stakeholders and our on-campus faculty and staff. This restructuring is intended to elevate CSU’s outreach missions to levels equivalent to the University’s teaching and research missions.”

To showcase the University’s renewed emphasis on outreach, Swanson joined Penley in an August trip to southeast Colorado to meet with business leaders, community members, and CSU’s regional staff.

“We are seeking to engage the public in Colorado and surrounding regions,” he says. “Our foremost concern is to listen to
our constituents and bring their interests back to the University to see how we can best use our resources to meet their needs.

“That’s why the reorganization was so important. It brought together the skills of the dedicated and knowledgeable people at our University and county Extension offices to create new partnerships with the entire spectrum of people in the state.”

During the tour, Swanson held to the same ideals he learned while he was a Peace Corps volunteer more than 30 years ago in northern Africa: talking and listening to people and exchanging ideas. In fact, the most remarkable part of his experience in Tunisia in 1972-74 was the inadvertent mistakes that he and colleagues made. Those mistakes – and Swanson’s solutions to them – profoundly changed his world view.

“Our team helped renovate ancient wells in the area,” Swanson says. “We wanted to do our part to ease the potable water crises and high mortality rates in the local population. But in giving people these new wells, we had completely ignored the local social structure, and that created a bevy of unforeseen problems.

“I learned from the experience that markets and social context are critical factors for rural development. Simply building a better well – in some cases, wells that would last a thousand years – wouldn’t automatically provide clean water without appropriate community-based health care systems.

“In the end, we did make a difference, and that became a life-transforming experience for me.”

To maintain his momentum, Swanson attended graduate school right out of the Peace Corps and received his doctorate in rural sociology at Pennsylvania State University. In 1997, he came to Colorado State from the University of Kentucky and served as professor and chairman of the sociology department and associate dean of the College of Liberal Arts.

As the new vice provost, Swanson is looking forward to finding new ways – and enhancing current programs – to apply the power of education and knowledge in answering the myriad challenges faced by society.

“Today, CSU’s research creates innovative technologies that need to be transferred to the market, that seek ways of sustainably using our natural resources, and that address key issues faced by families and communities throughout the state and beyond.”
Detectives unravel mysteries

by Paul Miller

A handful of detectives on campus spent this past semester sifting through evidence and asking a lot of questions. However, these detectives weren’t involved in crime; they were students in an Art History Seminar class who inspected, dated, and authenticated valuable African art objects.

The students in Associate Professor Pat Coronel’s seminar used all five senses to work with original art and develop research skills in historical analysis and documentation.

“It’s hard to take this class and pretend it’s Africa, but it helps when students can see the scale and color of objects and actually smell their unique aromas,” Coronel says. “In this type of connoisseurship, students learn how to touch objects, how to study and judge them, how to begin to sleuth them out — what the puzzles of their origin and meaning are all about.”

Selected pieces of the African artwork, collected by alumni and faculty over the past 20 years and donated to Colorado State, will be displayed after the new Visual Arts Museum in the University Center for the Arts is completed in the 2008-09 academic year, says Linny Frickman, director of the Hatton Gallery.

“Only a small percentage of artwork is seen at any given museum, but most all collectors want their art to be studied as well as exhibited,” Frickman says. “The intent of our donors’ gifts always has been careful, hands-on research and instruction for the benefit of students.”

Coronel’s fall seminar concentrated on objects from Mali, Ghana, Nigeria, Burkina Faso, Democratic Republic of Congo, and Kenya that had been donated by Jan and Richard Devore. About 45 works in different media were assigned to some 15 students, whose goals for the class included writing thorough documentation and gallery labels of the pieces in addition to making recommendations for storage and/or exhibition.

Corie Audette, a junior art history student, described sculptures she was studying as being spiritually significant to the Yoruba people in Nigeria. The wooden sculptures, about 11 inches tall, had wear marks from many years of handling by the owners.

“A sculpture was made when one child of twins died,” Audette says. “To prevent spiritual danger to the surviving child, the sculpture, called ere ibeji, was clothed, fed, adorned with beads, carried around, and treated like a member of the family.”

Even three-legged stools carried significance beyond utilitarian purposes. Art student Cory Gundlach noted that some stools were elaborately carved and adorned to reflect the status of high-
ranking officials. A stool that he was studying had a figure carved on one side, which may have been used, albeit rarely, as a club head for attack or defense.

Students also helped with the most recent Hatton Gallery display, which closed Nov. 17. The exhibit included extraordinary, 20th-century works from southeast Canada, Northwest Coast Indians from Canada and the United States, Maori from New Zealand, Australian Aborigines, and other Oceanic artists donated by Mark and Polly Addison. The exhibit, called Connoisseurship in Practice, showed the depth of research and investigation by art history students who did their curatorial work in Coronel’s 2005 seminar class.

“You think you know a figure until you really look at it, then you realize you see all these small things that help to define the piece stylistically, that really get to the spiritual and cultural meaning,” says Coronel, who did her own art history graduate field work in Ghana and who also has visited South Africa, Kenya, Egypt, and Morocco.

“Our students are doing the minutiae, really analyzing the pieces. Their help has turned out to be more valuable than we dreamed possible.”

Hatton Gallery

IMPASSIONED IMAGES

The German Expressionist Prints exhibit opens with a reception from 5-7 p.m. Jan. 29. The exhibit, which includes a variety of printmaking media from artists associated with the major German Expressionist groups and independent artists, runs through March 9. The exhibit appears at CSU courtesy of the Syracuse University Art Collection.

SUSAN POINT

Susan Point, whose body of work in the Coast Salish tradition ranges from jewelry to prints, paintings and monumental sculpture in wood and glass, will be the focus of an exhibit from March 26-April 27 at the gallery. Point has completed works for the Vancouver International Airport, the University of British Columbia Museum of Anthropology, and the Victoria Convention Centre, and she has appeared in more than 60 group exhibitions and solo shows. An opening reception for the artist will run 5-7 p.m. April 9 in the Hatton Gallery. The exhibit is made possible by the FUNd at CSU.
The Visions back page features artistic tributes to the world at large. This photo is by longtime University photographer Bill Cotton from Communications and Creative Services.
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