The Department of CIVIL ENGINEERING Newsletter

Spring 2004, Volume 10, No. 1

Civil Engineering • Environmental Engineering • Bioresource and Agricultural Engineering

Student Design: Real-World Experience for Freshmen and Seniors

Senior Design Projects 2003/2004

Traffic Engineering Plan for Salida
Sponsor: *Colorado Extension Service*

Pedestrian/Vehicle Study – Shields Street, Laurel to Elizabeth
Sponsor: *CSU – Facilities*

Aspen to Cedar Drainage and Street Improvements in Fort Collins
Sponsor: *City of Fort Collins – Dept of Engineering*

Municipal Complex for Salida
Sponsor: *Colorado Extension Service*

High Plains Environmental Center Design
Sponsor: *High Plains Environmental Center*

Maintenance Facility Requirements and Preservation of Historic Building
Sponsor: *CSU – Facilities*

Coal Creek Drainage Study
Sponsor: *Colorado Extension Service*

Salida Stormwater Drainage Plan
Sponsor: *Colorado Extension Service*

Town of Walsh Curb and Gutter Design
Sponsor: *Colorado Extension Service*

Iron Horse Neighborhood Park Site Design
Sponsor: *City of Fort Collins-Parks Dept*

Southwest Community Park Development
Sponsor: *City of Fort Collins-Parks Dept*

Methane Generator for Benin
Sponsor: *Engineers without Borders*

Equine Center Animal Waste Management
Sponsor: *CSU – Facilities*

Lory Student Center Pond Rehabilitation
Sponsor: *CSU – Facilities*

Poudre Valley Canal Restoration
Sponsor: *Northern Colorado Water Conservancy District*

Poudre Valley Canal Pump Station
Sponsor: *Northern Colorado Water Conservancy District*

McDermitt Creek Diversion Study
Sponsor: *Engineers without Borders*

Canal Rehabilitation through Landslide Area
Sponsor: *Bureau of Reclamation*

At Colorado State University, civil and environmental engineering students begin and end their academic careers by completing a significant design project. With the help of the faculty and practicing engineers, our students have multiple opportunities to gain design experience.

For the past two years, Drs. Woods, Garcia, Loftis and Podmore have taught the freshman orientation class, which incorporates a guided design project. During Fall 2003, students developed a new design for drainage, water storage and stormwater treatment near the pond adjacent to the Lory Student Center. This project allowed students to apply multiple tools to solve an engineering problem. Students used surveying, AutoCAD, Excel, and GPS while developing recommendations for changes to the site to mitigate future floods. Professor and Associate Department Head Darrell Fontane says, "Many of our freshmen students have limited exposure to the profession of civil engineering. Freshmen design projects offer students the chance to experience the process that practicing engineers use to analyze and solve real-world problems. The projects are both enjoyable and motivational for the students."

Our two-semester Senior Design course at CSU is the capstone course for civil and environmental engineers where students draw upon their four years of technical skill development to develop and design an engineering project. In the first semester, students learn about proposal writing after which they are divided into teams and assigned a real project, for a real client. A faculty advisor is also assigned to each team to provide guidance in development of the proposal. Each project team meets with their client and then prepares a written proposal for the client that includes a scope of work, schedule, and budget. At the end of the semester, each team makes a presentation of their proposal to the class and clients. Presentations are judged by practic-

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Shown above is a Senior Design team with their poster presentation at Engineering Days. This year, E-Days is scheduled for April 16. At left, students gather data for a freshman design project in CE 192.

"...we try to run [Senior Design] like a consulting engineering operation so that students are prepared to jump right into their new work environment."

– Larry Roesner, professor and Senior Design instructor

Colorado State University

Knowledge to Go Places

Alumni News

Dr. A. Ray Chamberlain, Ph.D. 1955 Civil Engineering, was presented the 25th annual Roderick L. Downing Award for outstanding achievements in transportation during the 76th Colorado Transportation Conference in Denver. In announcing the award, CDOT Executive Director **Thomas E. Norton**, B.S. 1964, M.S. 1969 Civil Engineering, noted many of Chamberlain's achievements while at CDOT, including the completion of the I-76 Final Link in Glenwood Canyon, several projects relating to the Mousetrap in Denver, the U.S. Hwy 24 bypass in Colorado Springs and the U.S. Hwy 160 bypass at Trinidad. **Alan Menhennett**, B.S. 1951 Civil Engineering, received the Roderick L. Downing Award in 1997. Dr. Chamberlain is currently teaching a course at CSU, "Transportation: Its Organization and Future."

Jaime Saldarriaga, Ph.D. 1969 Civil Engineering, is retiring from consulting in water and energy utilities regulation in Columbia. He visited CSU and the Department in the fall while visiting family in Colorado.

Matt Sakurada, B.S. 1974 Civil Engineering, is the President of EmPower Resources, Inc. in North Carolina. Matt is developing energy projects and consulting for small businesses.

Eric Carleton, B.S. 1977 Civil Engineering, was awarded the American Society for Testing Materials (ASTM) Award of Merit. This award, with its accompanying honorary title of Fellow, is the highest Society award granted to an individual member for distinguished service and outstanding participation in ASTM technical committee activities. His work in developing and advancing standards to be of maximum value to the consumer, and the engineering and design professions was specifically noted. Carleton is a corporate engineer with Independent Concrete Pipe Company in Indianapolis, Indiana.

Dr. Abdallah Bazaraa

Dr. Abdallah S. Bazaraa, Ph.D. 1979 Civil Engineering, has been appointed as the Head of the Department of Irrigation and Hydraulics at the Faculty of Engineering, Cairo University. Dr. Bazaraa is also the coordinator of the Shared Water Resources Diploma Program at Cairo University, an interdisciplinary program established in 1998.

Anibal Alarcon, M.S. 1980 Civil Engineering, is the President of AmbioConsult, a Venezuelan environmental consulting firm. He married Marysabel Smith, also a graduate of CSU, and they have three sons. Mr. Alarcon is a former member of the National Committee for Environmental Regulations, former leader of the "Responsible Care Program" for the chemical industry in Venezuela, former professor at Simon Bolivar University, and an advisor for environmental affairs for the National Federation of Chambers in Venezuela.

Professor Mohammed Y. Al-Ani, M.S. 1980, Ph.D. 1984 Civil Engineering, is now Vice President for Higher Studies and Scientific Research at Al-Mustansyria University in Baghdad.

Professor Yoji Shimazaki, Ph.D. 1980 Civil Engineering, gave a seminar titled, "Damping Effects of Tuned Rotary-Mass Damper on the Vibration of a Lighting Pole" at Colorado State University on September 3, 2003. Dr. Shimazaki is currently Professor and Chair of Civil Engineering at Tokai University, Japan.

Ramon Gomez-Ferrer, M.S. 1982 Civil Engineering, was appointed Director General of the Valencia Port Authority. The Spanish port of Valencia is important to international trade and has been chosen to host the 2007 America Cup.

Jeffery P. Bauman, M.S. 1985 Civil Engineering, was promoted to President and Chief Operating Officer of Williams Environmental Services, Inc., Stone Mountain, Georgia in December 2003.

Sue Morea, M.S. 1986 Civil Engineering, is project manager on the $2.7 million Statewide Water Supply Initiative (SWSI) Project. The overall objective of the project is to help Colorado maintain an adequate water supply for its citizens and the environment. Ms. Morea is employed at Camp Dresser and McKee in Denver.

Janet Adams, B.S. 1988 Civil Engineering, manages the largest, high-profile project in Caltrans' history – the $2.9 billion replacement of the Bay Bridge's eastern span. Ms. Adams was recently profiled in the *Contra Costa Times*. The full article can be found at http://www.engr.colostate.edu/ce/PR/alumni/janetadams.shtml.

Mark Peters, B.S. 1994, M.S. 2002 Civil Engineering, is working for CDM on the Environmental Health Project/West Bank task order. Mark will be working as the manager of repair and rehabilitation engineering activities.

Dr. Roestam Sjarief, Ph.D. 1995 Civil Engineering, is the Director General for Water Resources in Indonesia.

James Starling, B.S. 1995 Civil Engineering, is the Light Rail Construction Manager for the Regional Transportation District in Denver. He was the project manager for the Central Platte Valley Light Rail Spur and is currently the light rail construction manager for TREX.

Alumni Focus: Rick George, B.S. 1973, Civil Engineering

When Rick George graduated from Colorado State in 1973, he had already spent time working in the oil patches in eastern Colorado and knew the career path he wanted to take. His degree in civil engineering was his first step on that path, a path that has taken Rick and his family around the world. His career began with Sun Company Inc. where he held various positions, first in the U.S. and then in the U.K. as manager of the international division. In 1991, he accepted his current position as president and CEO of Suncor Energy, the company that pioneered commercial oil sands production.

Rick George

Under Mr. George's leadership, Suncor's output has more than tripled and production costs have declined significantly. The company is now strategically focused on developing one of the world's largest petroleum resource basins: Canada's Athabasca oil sands.

Sustainability is a significant part of Rick George's vision, and Suncor was among the first companies to be listed on the Dow Jones Sustainability Index. In 2002, the company officially launched its first wind power project in partnership with Enbridge Inc. In a March 3 presentation to CSU civil engineering students, Rick shared his vision of reducing the environmental footprint while meeting a growing demand for energy throughout the world.

He recommended students adopt a continuous learning lifestyle, a lifestyle that led him to the University of Houston Law School where he earned his J.D., and then on to the Harvard Business School Program for Management Development. "I feel I had a great education at CSU and engineering in particular is a great undergraduate degree. I don't see it as an end goal, but as a foundation for whatever you want to do."

Rick advised CSU students to start with the job they think they will love to do for the next 20 years and make that into a career; to work to find creative solutions; and to travel and stay informed about international events. "Don't be afraid to start at the bottom and get practical experience any way you can, and don't be afraid to take risks." Rick George has proven that doing what you love, striving to make a difference in the world and taking risks is indeed an excellent path to follow.

Alumni: We want to hear your news!

E-mail us at civil@engr.colostate.edu with your recent promotions, honors, publications, research, speaking engagements, and photos, so we can keep your classmates informed about important changes in your life.

Mark McWilliams salutes his Marine Drill Instructor at Officer Candidate School graduation in April 2003.

Dr. Chenghsin Chang, M.S. 1997, Ph.D. 2001 Civil Engineering, studied in our wind engineering program and is currently a faculty member in the Department of Civil Engineering at Tamkang University, Taipei, Taiwan. He is performing research on urban transport and teaching classes in engineering and computational fluid dynamics.

Matt Salek, B.S. 2000 Civil Engineering, was featured in the September 4, 2003 issue of the *Rocky Mountain News*. Matt, a civil engineer in Aurora, Colorado, is the webmaster for an internet site called Highways of Colorado. Salek started building the site while at Colorado State, putting the first version online in 1997. The site has information on every numbered interstate, U.S. and state highway in Colorado. There are picture galleries, average daily traffic counts, and histories. The address for the site is www. mesalek.com/colo.

Jason Woolard, B.S. 2000 Civil Engineering, is with the Air Force, working in design and construction management. He was deployed for six months beginning November 2002 to Operations Enduring Freedom and Iraqi Freedom. Woolard was recently restationed at Peterson Air Force Base in Colorado Springs.

Mark McWilliams *(shown above right)*, B.S. 2002 Civil Engineering, attended officer candidate school in Pensacola, Florida, for four months before being commissioned in the US Navy as a Civil Engineer Corps officer. He completed basic officer school in Port Hueneme, California, in the summer of 2003. McWilliams is now stationed for two years in Yuma, Arizona, working as a Facilities Engineer for the Marine Corps Air Station.

Ted Bateman, M.S. 2003 Civil Engineering, is an assistant professor at Clemson University in Bioengineering. His current areas of research include molecular therapies for disuse osteoporosis, mitigating bone loss associated with spinal cord injuries, hypo/hyper mineralization and biomechanics of bone, and spaceflight as a test-bed for biomedical disorders.

Upcoming Events

E Days

Friday, April 16, 9:00 am - 3:00 pm, Main Ballroom, Lory Student Center

Engineering Dinner Dance

Saturday, April 17, 5:30 pm reception,
6:30 pm dinner, Lory Student Center.
For more information, contact Shannon Davis at 970-491-7028 or SupportEngineering@engr.colostate.edu.

Reception at EWRI Conference

Tuesday, June 29, 4:00-6:00 pm,
Sheraton City Centre Hotel, Market Street West Room, 150 West 500 South, Salt Lake City.
We welcome alumni and friends to drop by to visit with CSU faculty and classmates.
Please RSVP to 970-491-5247 or mrowe@engr.colostate.edu.

Alumni & Friends Picnic

Sunday, August 29, 1:00 - 3:00 pm, Fort Collins City Park
Please bring a dish to share. We will provide hamburgers, buns, and drinks.
Please RSVP to 970-491-5247 or mrowe@engr.colostate.edu.

Alums and friends gathered for the first Civil Engineering picnic last August. Shown above: Ty Mull, Phenvana Panpradith, Bill Bellamy, and Cheri Bellamy.

Alumni Focus: Two Civil Alumni Honored

Scott S. Lynn, B.S. 1973, Civil Engineering

Scott Lynn

Scott Lynn will receive the 2004 Distinguished Alumni Award from the Department of Civil Engineering at the College of Engineering Dinner Dance on Saturday, April 17, 2004.

Mr. Lynn is the President and Chief Executive Officer of Atkinson Construction, LLC, a heavy and highway construction company serving the United States markets. Previously, he was the President and Chief Executive of Flatiron Structures Company and FCI Constructors, a heavy and highway construction firm active in the US market and the Caribbean. Lynn supervised revenue growth at Flatiron from $5 million in 1982 to approximately $400 million in 2002. He joined Flatiron in 1979 as a project superintendant for its structures division and took the helm as president in 1982.

While at Colorado State, Lynn was a member and officer of Alpha Tau Omega fraternity and a member of Chi Epsilon honorary society. After graduating from Colorado State University, he completed an M.S. in Civil Engineering and an MBA at Stanford University. He has served on numerous non-profit boards, and is currently an advisor to Leaders Challenge, a leadership training program for high school seniors in Colorado.

Rex W. Sjostrom, B.S. 1952, Civil Engineering. M.S. 1956, Electrical Engineering

Rex Sjostrom

Rex Sjostrom will receive the 2004 College Honor Alumnus Award from the Alumni Association at the Third Annual Dinner & Dance. The Alumni Association will honor Mr. Sjostrom as an outstanding Engineering alum, who, by his distinguished career and service to the university, state, nation, or world, has brought honor to Colorado State University and to himself.

Mr. Sjostrom worked for Martin Marietta Astronautics Group from 1956 to 1992. He held various engineering staff and Management positions culminating in the position of Vice President of Special Programs in the period from 1984 to 1992. Previous accomplishments include design of ground system instrumentation for Titan I and II, design of telecommunications for the OV4-3 satellite, design and management of the telemetry and total electronics for the highly successful Viking Mars Lander and control of Lander operations on the surface of Mars.

Captain Michael G. Haines, M.S. 2003 Civil Engineering, is with the Air Force, doing consulting work in water vulnerability assessments. Haines is based in Brooks City-Base in San Antonio, Texas.

Jonathan M. Kiefer, B.S. 2003 Civil Engineering, is a design engineer with the Bucher, Willis & Ratliff Corporation in Tyler, Texas.

An Vinh Tran, B.S. 1998, M.S. 1999, Ph.D. 2002 Civil Engineering, was awarded the Mountain Plains Consortium Outstanding Student of the Year Award, presented at the Annual Meeting of the Transportation Research Board, January 2004 in Washington, D.C. Dr. Tran completed

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Faculty News

Several Civil Engineering faculty and staff celebrated service milestones this academic year. They include **Research Associate Chad Lipscomb**, 10 years; **Professor Paul Heyliger**, 15 years; **Professor Darrell Fontane**, 25 years; **Professor Richard Gutkowski**, 30 years; **Professor Erik Thompson**, 35 years.

Brian Bledsoe, **Jorge Ramírez**, and LeRoy Poff of Biology were just awarded a three year USEPA grant. USEPA has funded several large grants nationwide to develop "watershed classification" schemes that will enhance the development of science-based guidelines to protect the ecological integrity of the nation's waters. The new project at CSU (among ecologists, engineers, and modelers) is designed to investigate how water quantity and quality interact to determine stream health. The researchers will also focus on how reduced streamflows (from drought, diversion, regulation by dams, etc.) influence sedimentation in streams and biological integrity.

Brian Bledsoe

Dr. Timothy K. Gates was awarded the 2003-2004 Chi Epsilon Excellence in Teaching Award for the Rocky Mountain District. Dr. Gates was nominated by Colorado State University Chapter of Chi Epsilon in recognition of his dedication to teaching.

Tim Gates

Dr. Gates has been studying salinity in the soil and water of Colorado's Arkansas Valley, caused by high water tables which create waterlogged and saline soils and reduce the yield of farm crops; and dissolution of salts within the aquifer, which carries salts and other pollutants back into the river.

Neil Grigg published a book in 2003, titled *Colorado's Water: Science and Management, History and Politics*. His recent research on infrastructure has focused on renewing old pipes and protecting distribution systems from threats. Neil and his wife Peggy are finding plenty to do with their grandchildren in the Fort Collins area.

Neil Grigg

For many years, **Jim Loftis** has been helping Front Range water providers deal with water quality problems. Most recently he has organized a Front Range Drinking Water Consortium with a goal of "bringing Front Range water providers and university researchers together to tackle problems of common interest and concern." The Consortium intends to meet three times per year and includes most Front Range cities, along with faculty from Colorado State University, University of Colorado, and Colorado School of Mines.

Jim Loftis

Dr. Robert N. Meroney, Professor in our Fluid Mechanics and Wind Engineering Program will retire at the end of Spring 2004. He plans to actively pursue research on computational fluid dynamics in fluid mechanics and wind engineering. He and his wife, Joan, are also proud to announce that their daughter, Donna Catalfamo, just gave birth to their first grandchild, Teagan Ashley, on January 30.

Robert Meroney

Dr. Meroney is an invited lecturer and member of the organizing committee for the NATO Advanced Study Institute titled "Flow and Transport Processes in Complex Obstructed Geometries: from cities and vegetative canopies to industrial problems." This workshop will be held in Kiev, Ukraine, at the Institute of Hydromechanics of the Ukrainian National Academy of Sciences from May 4-15, 2004. Dr. Meroney will coordinate student presentations and activities as well as speak on the effects of arrays of bluff bodies on transport and dispersion.

David Neff

During 2003 **Drs. David E. Neff** and **Robert N. Meroney** performed physical and numerical model experiments to define the wind resistance of photovoltaic panels on building rooftops. Computational fluid dynamics and wind tunnel modeling revealed optimal configurations of panel geometry and distributions that resist lift and displacement during strong winds.

Professor John D. Nelson teaches graduate classes in Design of Dams and Expansive Soils. He is currently director of the Expansive Soils Field Test Site at the Engineering Research Center and a consultant on a Vanadium Tailings Dam in Hot Springs, Arkansas. He also has worked on several uranium and coal tailings dams in Colorado, Wyoming, and New Mexico. Dr. Nelson also consultants on forensic studies of buildings subjected to distress from heave caused by expansive soils. These include the FAA building at DIA, a proposed subdivision near Minneapolis MN, and several multi family residences in the Front Range area of Colorado. He recently was an invited speaker, speaking on "Design of Foundations on Expansive Soils" at the annual meeting of the California Geotechnical Engineers Association, in Carmel, California.

John Nelson

Dr. Jeffrey Niemann is initiating his research program at Colorado State University. His research group has been studying the role of hydrologic processes in river basin development and has been studying soil

Jeff Niemann

Yang Joins Civil Engineering Faculty

Dr. Chih Ted Yang

Dr. Chih Ted Yang will join the Department of Civil Engineering as the Borland Professor of Water Resources and Director of the newly formed Hydroscience and Training Center. Dr. Yang brings a wealth of knowledge in the areas of sedimentation and river hydraulics to the department. Dr. Yang retired after 30 years of government service at the Bureau of Reclamation. Yang has served as an Affiliate Professor of Colorado State University's Department of Civil Engineering since 1993 and an Adjunct Professor of the Civil Engineering Department at the University of Colorado at Denver since 1982.

Yang received his B.S. in Hydraulic Engineering from National Cheng Kung University in Taiwan, and his M.S. and Ph.D. in Hydraulic Engineering from Colorado State University. Ted's first position was with the Illinois State Water Survey from 1968 to 1974. Yang began his Federal career in 1974 with the U.S. Army Corps of Engineers. He began working with Reclamation in 1979 as a member of the technical review staff, served as Manager of the International and Technical Assistance Program from 1988 until 1994, and then as Manager of the Sedimentation and River Hydraulics Group from 1994 to 2004.

Yang has published two theories, the Theory of Minimum Energy Dissipation Rate for river systems and the Theory of Unit Stream Power for sediment transport. Yang has more than 100 professional publications in hydraulics, hydrology, sedimentation, river morphology, and water resources engineering including two textbooks, *Sediment Transport: Theory and Practice*, and *Coastal Aquacultural Engineering*.

Yang has a vision to develop a national and international reputation of excellence for the Hydroscience and Training Center. He is also eager to teach and conduct research in erosion and sedimentation. His research will focus on the areas of watershed erosion and stream restoration.

moisture patterns and their influence on hydrologic processes. Dr. Niemann also taught Basic Hydrology in the fall and a new graduate course on River Basin Morphology in the spring.


Terry Podmore

Terry Podmore attended PANAFCON, the Pan-African Implementation and Partnership Conference on Water, as an invited participant and a member of the Scientific Committee. PANAFCON was held in Addis Ababa, Ethiopia on December 8-13, 2003. The conference addressed broad-ranging water issues in Africa. Dr. Podmore was the only faculty member of a U.S. university to be invited to attend the conference. While at the conference he met with a number of CE and BAE alumni including **Dr. Stephen (Max) Donkor**, Ph.D. 1991 Agricultural Engineering, one of the conference organizers; **Dr. Khaled Abu-Zeid**, Minister for Water Resources in Egypt; and **Dr. Mathias Fonteh**, Ph.D. 1990 Agricultural Engineering, from Cameroon.


Amy Pruden


Ken Carlson

Professors Amy Pruden and **Ken Carlson** have just been funded by the USDA to study agricultural antibiotic fate and treatment. The USDA will use the results of the research to develop guidelines for the treatment of antibiotics in animal waste. Professor Pruden's research passion is finding ways to harness the vast potential of microbes (bacteria, bugs, etc.) to clean the environment by applying some of the latest developments in biotechnology. She also loves language and culture and is interested in the important relationship between engineers and the society that they serve.

Dr. Jorge Ramírez is co-principal investigator on a recently funded NSF four-year, $1.7 million project for interdisciplinary research on biocomplexity. This interdisciplinary research project (hydrologists, biologists, civil engineers, geographers, economists) coordinated among several universities (Colorado State, Utah State, the University of Pennsylvania, and the University of Puerto Rico) will compare the hydrology, geomorphology, visitor behavior, and food web structure at river segments with and without river-road junctions to determine the influence that roads and visitor access have on biotic systems. Other co-principal Investigators at Colorado State University include John Loomis, Department of Agricultural and Resource Economics; Melinda Laituri and Ellen Wohl, Earth Resources Department; and Alan Covich, formerly of Fishery and Wildlife Biology and now Director of the Institute of Ecology, University of Georgia.


Jorge Ramírez

Michael Robeson is the proud father of a girl, Sarah Michelle, born on January 19, 2004. In addition to parenthood, Michael has been working on a variety of physical hydraulic models in the Hydraulics Laboratory at the Engineering Research Center.


Michael Robeson

The Urban Water Infrastructure Center was recently awarded a contract by the Water Environment Research Foundation to develop Protocols for Studying Wet Weather Impacts and Urbanization Patterns. The $300,000, two-year study will develop the protocols during the first year, and apply them to selected test sites in the second year. **Larry Roesner** and one of his graduate students continue to study the graywater system that he has installed at his home, focusing on development of a system that will provide reliable safe supply of graywater for toilet flushing and drip irrigation.


Larry Roesner

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Howard Receives Achievement Award

Laurie Howard, Civil Engineering academic adviser, was awarded a 2003 Outstanding Achievement Award for classified personnel. This University-wide award recognizes Laurie for outstanding achievement in job skills and service to the University. Laurie has been working in Civil Engineering for 14 years and her job has evolved to include direct student advising and mentoring, recruitment, course evaluations, and all other academic matters. Laurie was also recognized in 2001 with a Staff Excellence Award by the College of Engineering. Student, faculty, and staff continue to benefit from her people skills, work ethic, and commitment.


Laurie Howard

Laurie also was awarded the Joan Kuder scholarship in 2003. This scholarship goes to employees who have made sustained progress toward their degree with the stated goal of attaining a degree from Colorado State University. Laurie is pursuing a Master's degree in Education.

CSU Hosts River Mechanics '04

Professor Pierre Y. Julien will host the Short Course and Symposium River Mechanics '04 June 21-26, 2004 at CSU. These activities are designed for hydraulic and environmental engineers, local, state and federal employees, as well as graduate students.

On June 21-22, the River Mechanics Short Course will be held on campus and will present recent advances in the field of river engineering. The course is based on the recent textbook, *River Mechanics*, published by Cambridge University Press. It presents a survey of the state-of-the-art in river mechanics, and includes recent developments in computer modeling, theory and field applications, with an emphasis on solutions to river engineering problems.

On June 23, a full-day field trip will provide a guided overview of the Big Thompson River Canyon, the Colorado-Big Thompson Project, Estes Park, the Fall River alluvial fan, Rocky Mountain National Park and Trail Ridge Road.

On June 24-26, the River Mechanics Symposium will be held at the CSU Pingree Park mountain campus. It will provide a forum for engineers and scientists to share and discuss experiences solving river engineering problems. The Symposium will focus on river dynamics, river modeling, and river engineering.

Abstracts are being accepted and completed papers are due April 15, 2004. For abstract details contact Jenifer Davis at 970-491-8630 or jldavis@engr.colostate.edu and for questions regarding program content contact Pierre Julien at 970-491-8450 or pierre@engr.colostate.edu. A pdf copy of the short course brochure is found at http://kiowa.colostate.edu/cwis308/docs/RiverMechanics.pdf and on-line registration is available at https://kiowa.colostate.edu/CSUConferenceReg/

Faculty Focus: Darrell Fontane
Putting Water Resources Courses on the Internet

For the past few years, Dr. Fontane has pursued the goal of making water related graduate courses developed by the Civil Engineering Department available on the Internet. Dr. Fontane believes that Internet technology allows our department to become a "virtual classroom" to the world. The Department plans to offer a Master of Engineering degree on the web within the next three years. The first activity that Dr. Fontane began five years ago was to link his graduate CE 546 water resources systems analysis course with a similar graduate course taught by Dr. Rubem La Laina Porto, Professor of Civil Engineering at the University of Sao Paulo, Brazil. Each course web site has a link to the other. Students in these two courses share resource material, models and assignments. Dr. Porto and Dr. Fontane have developed multi-lingual models that can display information in either English or Portuguese. Dr. Fontane has expanded his models to include a variety of other languages. The linkage and interaction of the courses is organized to give students a broader perspective on the solution to common water resource engineering problems.

For the past year, Dr. Fontane has offered his CE 546 course for distance students via the web. To date all the online distance students have been from the USA. However, Dr. Fontane hopes the course will expand in the near future to include students from all over the world. Also last summer, Dr. Fontane and Dr. John Labadie, participated in a pilot web-based World Bank training course on Water Resources Allocation. This online course had 29 participants from all over the world. The six course presenters were from the USA, Brazil and Portugal. The course was designed in modules with each module building upon the previous one. It is hoped this will become a permanent web course offering by the World Bank.

Darrell Fontane

Example of the link to the University of Sao Paulo class.

Student Design *continued from page 1*

ing professional engineers.

At the beginning of the second semester, each team refines its study plan based on the client's review comments, and starts the project work. Through the semester, they meet periodically with their client to discuss progress and direction. They also meet every other week with the class instructor to review their progress. Teams are required to keep time sheets, keep an up-to-date project progress chart, and comparison of the proposed task schedule (from the proposal) to actual progress, task by task. Dr. Larry Roesner, the class instructor, says "Starting with the project development in the first semester through project completion in the second semester, we try to run this class like a consulting engineering operation so that students are prepared to jump right into their new work environment."

While incorporating real design problems into the curriculum requires a large investment of faculty, GTA, and practitioners' time, we feel that the benefit to our students, and their future employers, makes the investment well worth it.

Senior Design Projects *continued*

Hydropower Retrofit to Drop Structure – Pump Station Power Supply
Sponsor: *Bureau of Reclamation*

Hydropower Retrofit to Drop Structure – Potential Power Use
Sponsor: *Bureau of Reclamation*

Our thanks for the following individuals who are regular judges at the proposal and project presentations:

- Rick Thornton, CDM
- Scott Yanagihara, CH2M Hill
- Steve Smith, PBS&J
- Dr. David Stewart, Stewart Environmental Consultants, Inc.
- Ben Urbonas, UDFD
- Jon Jones, Wright Water Engineers

And thanks to our faculty advisors:

- Brian Bledsoe
- Ray Chamberlain
- Marvin Criswell
- Brian Dunbar, Construction Mgmt
- Darrell Fontane
- Neil Grigg
- Ramchand Oad
- Larry Roesner
- Tom Sanders
- Chuck Shackelford
- Bryan Willson, Mechanical

Anyone interested in serving as a judge should contact Larry Roesner at Larry.Roesner@ColoState.edu

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a computer-based study of load sharing with open-deck timber trestle railroad bridges based on results of full-scale field test loads. The work was part of a joint project with the Transportation Technology Center of the Association of American Railroads to examine the capacity of 40+ year old bridges for contemporary train loads. His dissertation, titled *Pier Moment-Rotation Behavior of High Performance Steel HPS70W I-Girders*, will assist the American Association of State Highway and Transportation Officials (AASHTO) to lift code restrictions on use of such girders in bridge construction.

Chris Boespflug, B.S. 1999 Civil Engineering, left Denver on a solo bicycle tour in August 2002. Almost 5,000 miles later, Chris is in San Jose, Costa Rica. Check out Chris' website with great photos and information about his travels at www.chrisboespflug.crazyguyonabike.com.

David Pizzi, M.S. 2002 Civil Engineering, is doing interesting work on streams with Tetra Tech in Research Triangle Park, North Carolina.

Toshiaki Yoshida, M.S. 2003 Civil Engineering, is a researcher for the Wastewater System Division and Water Quality Control Department of the National Institute for Land and Infrastructure Management in Japan. Mr. Yoshida's new research area is asset management of sewer systems.

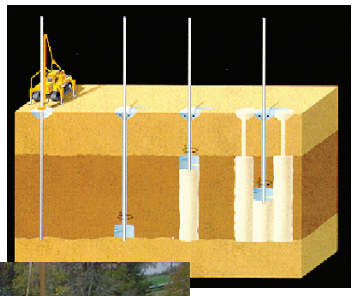
Civil Programs Recognized

Civil Engineering's Environmental and Water Resources Engineering Programs have been designated by Colorado State University as a Program of Research and Scholarly Excellence.

In 1991, President Albert C. Yates announced the designation of Programs of Research and Scholarly Excellence at Colorado State. Programs are selected because they have achieved great distinction and set a standard for excellence that may serve as a model for other programs throughout the institution. Programs are selected after an extensive nomination and review process that takes place every four years. This process allows the University to identify priority areas of research for focused support.

DuPont Donates Intellectual Property to CSU for Development, Marketing of Novel Process to Clean Hazardous Soils

The College of Engineering at Colorado State University received patent and grant gifts from DuPont that support the development and commercialization of an innovative process to clean contaminated soils. The technology holds the promise of being far more effective and much less expensive than current options for cleanup of such hazardous waste areas as Superfund national priority list sites, Department of Defense facilities, agricultural storage facilities, chemical plants, automotive maintenance facilities, dry cleaners and other sites contaminated with chlorinated solvents.



Top: Iron filings used to treat chlorinated solvents. Above: Deep soil mixing process. Left: DuPont's application of the ZVI-Clay technology at their Martinsville, Virginia Plant.

"The generous gift from DuPont provides the university a remarkable opportunity to address a critical national need that will greatly benefit society while also allowing outstanding opportunities for student education and leading-edge environmental research," said Anthony Frank, vice president for research and information technology at Colorado State. "We are truly appreciative of the generosity and support of DuPont."

The DuPont gift, awarded to Colorado State due to the university's world-renowned expertise in hazardous substance, remediation and groundwater research, has the potential to generate millions of dollars in licensing revenue for the university. These funds would be used to support further research relating to remediation and to advance other educational opportunities at Colorado State.

"We appreciate the confidence of DuPont in our ability to optimally develop this innovative technology as well as the university's capability to effectively commercialize and market the process," said Neal Gallagher, dean of the College of Engineering. "This is an outstanding example of an industry-academic collaboration that will have direct benefits to communities throughout the United States and the world."

The cornerstone of the gift is two patents that cover a process to remediate hazardous areas by mixing contaminated soils with degradative and stabilizing agents. Unlike current remediation efforts, the new process eliminates a costly step by not requiring contaminated soils to be excavated from polluted sites. DuPont also made a financial donation to the university to support further technical advancements and maintenance of the patents.

"We are pleased to provide Colorado State University with this intellectual property," said Robert Hirsch, director of DuPont Intellectual Assets. "When development on a DuPont technology is discontinued due to a shift in business strategy, we have found that a very productive use for that embryonic technology is to donate that technology to a non-profit organization, like Colorado State. This process puts the technology in the hands of competent researchers where the development work can be continued."

Colorado State, led by Tom Sale, Charles Shackelford and Dave Gilbert in the Department of Civil Engineering, will conduct laboratory and field research in an effort to optimize the technology's effectiveness and minimize its cost. The Colorado State University Research Foundation's (CSURF) Technology Transfer Office, led by Arundeep Pradhan, will collaborate with the engineering team to market and license the technology to industry.

Tom Sale

Charles Shackelford

David Gilbert

"We see this as both the reward and next step in our partnering with industry to solve environmental problems and educate tomorrow's environmental engineers and scientists." – Tom Sale

"The generous donation of this patented technology from DuPont will greatly benefit Colorado State's ongoing contaminant hydrology and geoenvironmental programs," said Sale. "We see this as both the reward and next step in our partnering with industry to solve environmental problems and educate tomorrow's environmental engineers and scientists."

The donated process patent by DuPont to help remediate hazardous waste sites is twofold. First, by mixing the contaminated soil with degrading and stabilizing agents, the process reduces the permeability of the soil that, in turn, prevents pollutants from penetrating deep into the ground or the groundwater table. Second, the process causes a chemical reaction that converts the toxic chemicals to non-toxic compounds.

Colorado State engineers will begin their work by initiating laboratory studies to address the potential to use the technology for other target pollutants such as pesticide-contaminated soils and mining sites. They also will conduct studies focusing on the appropriate mixtures of degrading and stabilizing agents for specific soil types. In coordination with these efforts, Colorado State researchers will conduct tests and review results from relevant laboratory and field investigations that already have been conducted by DuPont.

Colorado State is approaching potential end users of the technology to identify any other potential concerns. Once this is complete, a master implementation plan will be created for licensing of the technology. A business model is being developed by CSURF to target potential users of the technology. The group could issue commercial use of the technology as early as summer 2004.

Soil and groundwater pollution is a worldwide problem associated with government and industrial sites where mishandling or improper disposal of chemicals brings a variety of pollutants in contact with the soil. Once in the ground, chemicals gradually penetrate further into the soil and the water table and often spread the contaminants well beyond the source zone. This migration of pollutants can potentially contaminate drinking water and lead to serious health hazards. Many of these chemicals cannot be entirely removed by standard water treatment processes.

A 1997 National Research Council report stated the total cost of cleaning up the 300,000 to 400,000 contaminated sites could reach $500 billion to $1 trillion. Colorado State is striving to develop industry-university partnerships with organizations such as DuPont in a commitment to find and commercialize innovative, cost-effective solutions to these problems.

Student News

Mae Benvenga, Masters student, received the ADSC (Association of Drilled Shaft Contractors) Scholarship Award from the International Association of Foundation Drilling. She was flown to Orlando, Florida to join a conference staged by ADSC and the GeoInstitute of ASCE. She attended technical seminars, listened to keynote speakers, and took in exhibits and was selected to speak on behalf of the scholarship recipients during the President's award luncheon.

Senior **Sarah Henderson** attended the 2003 ASAE (Society for Engineering in Agricultural, Food, and Biological Systems) Annual International Meeting in Las Vegas, Nevada. Sarah is a 2003-2004 Preprofessional Officer, holding the Secretary position.

Joseph Kane, junior, was awarded the Margery Monfort Wilson Scholarship. Last year, he also won an engineering photo contest held by ASCE Northern Branch. The winning photo *(shown at right)* is the inside of a 2M gallon water tank for the town of Wellington. Joe was approved by the town to do inspections for them and this was an inspection photo. Aside from working professionally, primarily in land development and environmental design, and taking a full-time course load, Kane has been engaged in research into the causes of the rising number of embankment dam failures in the western region, primarily Colorado and Wyoming.

Masters students **Melanie Criswell, Liz Fagen, Elaina Holburn, Jenny Mueller,** and Watershed Science sophomore **Amanda Suedmeier** are working with **Professor Jim Loftis** on a student research project supported by CSU. The overall goal of the study is to identify and quantify (in term of seasonal and annual loads) the major sources of phosphorus in the Big Thompson Watershed. To support both this project and the new environmental engineering teaching lab, CSU has received a donation from Hach of a DR4000 spectrophotometer *(see photo at right)*. A report of progress and findings will be prepared at the end of this academic year. If additional funding is secured, the study will continue into the summer and next academic year.

The new CSU chapter of Engineers Without Borders is up and running. **Rob Jackson**, an environmental engineering senior, is president, and **Laura Girard**, a hydraulics graduate student, is secretary. The mission of Engineers Without Borders is to help disadvantaged communities improve their quality of life through implementation of environmentally and economically sustainable engineering projects, while developing internationally responsible engineering students. **Dr. Brian Bledsoe** and Dr. Bryan Willson of Mechanical Engineering are co-advising the group.

Liz Fagen measures the concentration of total phosphorus in a water sample from the Big Thompson River using a Hach DR-4000 spectrophotometer donated by Hach Chemical Company in Loveland, Colorado.

Senior **John Treacy** made his first start as a long snapper for the CSU Rams football team in a game against Utah on September 27, 2003.

The American Council of Engineering Companies of Colorado has awarded senior **Dillon Cowan** the Jack Bruce Memorial/APWA Scholarship and juniors **Ryan Fleming** and **Andrea Menchaca** a ACEC/CO

2003-2004 Graduate Scholarships

Morton W. Bittinger Scholarship ..... Christopher O. Cuhaciyan
Arthur T. Corey Scholarship ..... Ryan Taylor
Raju Jairam Scholarship ..... Fernando Ramirez
Hsieh Wen Shen Water Resources Graduate Award ..... Ernesto Trujillo
Tipton & Kalmbach Graduate Fellowship ..... John Eugene Meyer and ..... Mike Sixta
Jeng Song Wang Memorial Scholarship ..... Mark Velleux and ..... Joseph Donnelly
Watson Family Civil Engineering Graduate Scholarship ..... Blair Elizabeth Hurst

Fall 2003 Commencement

Front row (left to right): Chris Vokurka (CE), Branden Rakita (CE), Jason Crownholm (CE), Trevor Taylor (CE), Kristoph Kinzli (CE), Travis Brinkman (CE), Tina Vigil (CE), Sheri Taylor (CE), Dr. Jorge Ramírez. **Second row:** Laurie Howard, John TeBockhorst (CE), Dr. Charles Shackelford. **Third row:** Dr. Sandra Woods, John Edgerly (ENV), Jon Wicke (CE), Kurt Kionka (CE), Brian Herbolsheimer (CE), Mark Bilby (CE), Brian Leavesley (CE), Dr. Johannes Gessler, Dr. Larry Roesner. **Back row:** Dr. Darrell Fontane, Dr. Marvin Criswell, Dr. Robert Ward, Dr. José Salas, Dr. Ramchand Oad, Dr. Maury Albertson.

Scholarship. They will be recognized at the Annual Meeting, April 30 at Lakewood Country Club.

Senior **Dillon Cowan** also received the Macravey Scholarship from the Colorado Foundation for Water Education. The award covered the costs of registration, travel, food and lodging for the Colorado Water Congress Convention held January 28. Dillon also attended the ASCE Zone III Workshop for Student Chapter Leaders in Chicago in February. He represented CSU as Chapter President and was accompanied by junior **Jeff Goodell**, Vice President, and sophomore **Eric Tracy**, Secretary. At the conference they had the opportunity to interact with section and branch leaders and national ASCE officers.

Senior **Linda Vandamme** was named one of 40 Star Students of 2004 in the December 2003 issue of *CE News*. The article introduces the best and brightest new graduates-to-be from the nation's top engineering schools. Vandamme's interests include water resources management, environmental studies, and sustainable design. She studied abroad at the University of Wales, Swansea and interned at Rocky Mountain Prestress. She is also active in ASCE, Chi Epsilon, Engineers Without Borders, University Symphonic Band, and CSU's Equestrian Team.

CSU's ASCE Students Invite Teams to Test Their "Metal"

While making rocks float may seem like an April Fool's joke, students from the Rocky Mountain region will attempt to do just that as they race full-sized canoes made of reinforced concrete. The Concrete Canoe Competition is one of two regional engineering competitions hosted by Colorado State University, April 1-3, during the 2004 ASCE Rocky Mountain Regional Conference.

During the two-day conference, professional engineers will judge students' ingenuity at designing, fabricating and constructing concrete canoes and reinforced steel bridges. This event will bring together hundreds of Civil Engineering students for a time of fun and education as they present their projects and learn from the designs of others. Twelve teams from Colorado, New Mexico, South Dakota, Utah, and Wyoming will come to compete.

Each team will compare its bridge or canoe with other schools' designs in a competition similar to a professional bidding process. Bridge teams will be awarded prizes based on construction speed, lightness, aesthetics, stiffness, construction economy, structural efficiency, and overall performance. Final scores for canoes will be based on the canoes' structural integrity and the teams' oral presentations, design papers, and canoe races. Students from each team will paddle the watercrafts in men's, women's, and co-ed slalom/endurance and sprint races.

Adam Prior, junior, and other CSU canoe team members at work on their concrete canoe in February.

The top two finalists of each competition will advance to national competitions. The National Steel Bridge Competition will be held in Golden, Colorado in May, and the National Concrete Canoe Competition will be held in Washington, D.C. in June.

The competition is being sponsored by the American Institute of Steel Construction, the American Society of Civil Engineers, and Master Builders, Inc. A special thanks to the many alumni and friends who have generously volunteered their time and made donations to help make this regional conference possible.

2003-2004 Civil and Environmental Engineering Undergraduate Scholarship Recipients

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David Richard Varyu

Nicholas Angelopulos Scholarship
Robert B. Case
Sean W. Kimbrel

Ayres Associates Scholarship
Gretchen Rike Hardy

Black and Veatch Annual Scholarship
Linda Kathryne Vandamme

Colorado Contractors Association Scholarship
Steven Thomas Pool

Engineering College Scholars Scholarship
Erica Reif McKenzie

John R. Fraser Memorial Scholarship
Christopher J. Burnett

Fred B. Hamilton Memorial Scholarship
Gregory L. Snow

Edward B. House Scholarship
Branden Tyler Rakita

Harold and Katherine Kidder Scholarship
Tracey Lynn Farrow
Sheri Lynn Taylor
Trevor Dean Taylor
Lisa Katherine Wolking

Edwin C. and Kay S. McDowell Scholarship
Paul A. Espinoza
James Bennett McKelvie

Ralph Parshall Memorial Scholarship
Christopher Lee Lehrman

Dr. Joseph A. & Elizabeth Pennino Memorial Scholarship
Steven Thomas Pool

Sean Michael Robinson Memorial Scholarship
Erik Wilhelm Rimpley

Carl Rohwer Scholarship
Joshua Allen Hager
Ashley Nicole Heidenreich
Brian Joseph Mascio
Justin Cory Nielsen
Jennie Marie Stabler
Matthew John VanCleave
Ian Scott Wilson

Herb and Ellen Schweizer Civil Engineering Scholarship
Linda Kathryne Vandamme

Delano F. Scott Scholarship
Takao David Sawahata

Walter Scott, Jr. Scholarship
Noah I. Friesen
Kendra M. Gabbert
Benjamin A. Morse
Kayla M. Rizzoli

Harold H. Short Scholarship
James A. Bruntz
Joshua David Johnson
Alana Alexis Knudsen
Travis R. Rounsaville
Victoria Marie Rupp

Chester C. Smith Engineering Scholarship
Dillon Michael Cowan
Ryan Clark Fleming

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Devon P. Horntvedt

Departmental Donors

The Department of Civil Engineering is fortunate to have many generous alumni and friends whose contributions of time, expertise and financial support have made a significant impact on our department. This year we thank over 500 donors who have contributed funds to help construct a new environmental engineering teaching laboratory, support new scholarships for graduate and undergraduate students, supplement funding for the Borland Professorship, support research and graduate education, support our student organizations, and provide discretionary funds to allow our department to develop new initiatives. We are deeply grateful for your continued support of our students, our faculty and our programs.

This year, we are especially pleased that the generosity of many individuals will allow us to recognize contributions by several emeritus faculty through endowed scholarships (page 12). One of our goals for 2004 is to complete several scholarships to honor Drs. Richardson, Sunada and Albertson and to develop funding to perpetually support our freshman and senior design courses.

For all of you who have contributed to the department though financial support, but also by lending your expertise, thank you.

Sandra Woods

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Kwest Engineering
Meurer & Associates,
Inc.
Munekiyo & Hiraga,
Inc.
Shen Family Trust
Water Resource
Consultants, LLC
Western States Eng.
& Insp. Srvc., Inc.
William H. Baker
Construction, Inc.
Zapata Seed Company

Faculty News *continued from page 5*

Charles Shackelford is currently serving his third year as the Director for the Rocky Mountain Regional Hazardous Substance Research Center funded by EPA, and has started his seventh year as one of four Editors for the *Journal of Hazardous Materials* published by Elsevier. He is now serving as the senior Editor. Dr. Shackelford recently resigned after four years serving as an Editor for the *Journal of Geotechnical and Geoenvironmental Engineering* published by the American Society of Civil Engineers. He previously served as an Editorial Board member for the same journal, 1996-99.


Charles Shackelford


Dan Sunada

Professor Dan Sunada was named Outstanding Professor from the College of Engineering. The award, voted on by sorority and fraternity members at CSU, was presented at a faculty appreciation tea in October 2003.

Dr. Christopher Thornton and Tonya welcomed their first child, Max, on February 8, 2004. Dr. Thornton is the Director of the Hydraulics Laboratory at the Engineering Research Center and is very active in hydraulic and river restoration research.


Christopher Thornton

Robert C. Ward is Director of the Colorado Water Resources Research Institute (CWRRI) and Professor of Civil Engineering. During 2002-03 he served as President of the National Institutes for Water Resources (NIWR) – the organization that represents the 54 state-based water institutes created and operated under the federal Water Resources Research Act. As director of CWRRI, Robert works with an advisory committee of Colorado water managers to connect the water expertise of Colorado's higher education system with their water research and education needs. CWRRI annually operates a state-based water research competition that funds four to five water research projects. He is the author of two books on water quality monitoring and teaches a graduate level course on the subject. He received his Ph.D. degree from North Carolina State University and has been on the CSU faculty for 33 years. His e-mail address is: Robert.Ward@ColoState.edu.


Robert Ward

Dr. Sandra Woods has been appointed Interim Vice Provost for Special Projects. Sandra will have oversight for and work on special projects related to continuing education, international programs, diversity, and other projects in this 40% appointment. Dr. Woods will continue in her role as department head in Civil Engineering.


Sandra Woods

Scholarship News: Civil Faculty Create Opportunities for Future Students

Neil Grigg makes remarks while the Richardsons, two of their children, and Sandra Woods react.

Dr. Everett and Billie Richardson were very surprised the evening of December 6. They thought they were attending a traditional Engineering event with their daughter and son-in-law, Gail and Dave Frick. They entered Ammons Hall to find more than 80 friends, family, alumni, faculty, emeritus faculty, and staff, there to honor their contributions to Colorado State University.

Gail and Dave worked with the Engineering Development Office and the Civil Engineering Department to arrange the reception and to establish the **E. V. and Billie K. Richardson Scholarship**. Once the fund is endowed, this undergraduate scholarship will be awarded annually to a full-time junior or senior Civil Engineering student interested in pursuing a career in hydraulics or water resources. The scholarship fund is only a few thousand dollars short of being endowed.

Dr. Richardson and his wife are both alumni of Colorado State University. Dr. Richardson has been instrumental in building the Civil Engineering Water Resources Program at Colorado State, making it one of the premier water resources programs in the world. His contributions to the profession include work in sediment transport, scour at bridges, irrigation, and on-farm water management in developing countries.

In 1953 Robert Longenbaugh came to Colorado State to become an engineer with a water and agricultural emphasis. From the age of eight he had been involved in farming operations on the family farm in Durango. Both of his parents graduated from Colorado State, then known as Colorado A&M, marrying on their graduation day. Bob's interest in science and mathematics, his family ties to Colorado State, and his experience on the farm made choosing his academic path an easy one. Bob was one of the first agricultural engineering students and held one of the first graduate assistantships in groundwater at Colorado State.

Robert Longenbaugh

Bob reports that he was fortunate to be supported by 4-H scholarships during his college years. He wants others to have that same opportunity, so Bob and his wife, Eulalia, have established the **Longenbaugh Scholarship Fund**. This endowed scholarship will be awarded annually to strong undergraduate Civil Engineering students with an interest in water resources, demonstrating financial need and involved in extracurricular activities.

Bob's 4-H scholarships served him well, allowing him to complete his B.S. in 1957, then enter the United States Air Force, and complete his M.S. in 1962. Bob was on the staff at Colorado State University in the Civil Engineering Department from July 1961 through December 1980, administering numerous research projects. He served as Assistant State Engineer from 1981 to 1991, and continues to work as a consulting water resource engineer.

Dan Sunada has been focussing on the best ways to connect with his students since he began teaching at Colorado State in 1965. His teaching awards are an indication that he has made that connection. Three times he has been honored as Gold Key Award Outstanding Civil Engineering Professor by Chi Epsilon. In 2000, he was named University Honors Professor. In 2001, he received Chi Epsilon's Excellence in Teaching Award for the Rocky Mountain District. In 2003, he was named Outstanding Engineering Professor by the Panhellenic and Intrafraternity Council.

Dan Sunada presents awards at a Spring GAP "Going Away Party."

It's not surprising that in 2000, Dr. Sunada and his wife, created the **Dan and Kris Sunada Scholarship Fund,** which provides support for Civil Engineering undergraduate students. The Department of Civil Engineering would like to honor Dr. Sunada upon his retirement by permanently endowing this scholarship that has already made a difference in the lives of engineering students and once endowed, will continue to do so for years to come.

As a faculty advisor, Dr. Sunada enjoyed collaborating and coordinating with his students on many aspects of civil engineering education, including groundwater research, geotechnical engineering, international development, and structures. As a researcher, he worked as project coordinator and director on many projects, including the Egyptian Water Research Center Project, the Egyptian Irrigation Improvement Project, and the Water Management Synthesis Project.

Maury Albertson just keeps giving back to the world. Albertson has been at Colorado State for more than 50 years. He has held positions of Professor of Civil Engineering, Director of the Research Foundation, and Director of International Programs. Many consider Albertson a co-founder of the U.S. Peace Corps, after he won a highly competitive $10,000 grant in 1960 to study the advisability and practicality of the "Point-4 Youth Corps" and then worked with the first Peace Corps director, Sargeant Shriver, to mold the program.

Dr. Albertson greets friends at the party celebrating the 50th anniversary of his civil engineering career in March 1998.

Dr. Albertson and his wife Audrey Faulkner have allowed the Department of Civil Engineering to create the **Maury Albertson Scholarship Fund**, which will provide support for Civil Engineering graduate students with an interest in international projects. The intent is for the scholarship to become permanently endowed by raising $25,000, and honoring Dr. Albertson's commitment to civil engineering, Colorado State University, and international projects, by awarding scholarships to future civil engineering students for years to come.

Albertson's professional interests are environmental engineering, the hydrogen economy, water resources engineering, irrigation engineering, hydropower engineering, low-cost and low-energy sustainable wastewater treatment, and international development, specializing in sustainable village-based development.