



The Alumni Newsletter of the Civil and Environmental Engineering Department
Brigham Young University - Summer 2001

Department Chair's Message

Dear Alumni & Friends,

It is a pleasure to greet you and give you an update of the progress and happenings in the Civil & Environmental Engineering Department. This past year has been a successful and productive one for our students and our faculty. Several accomplishments are noted in the articles within this newsletter.

Our faculty has remained unchanged during the past year with no retirements and no new additions. Professor Benzley has returned to full time teaching and research in the department from his assignment for the past several years as Associate Dean of the College of Honors and General Education and is assisting me as Associate Department Chair. We have an outstanding faculty who are all committed to effective teaching and mentoring. This past year faculty had over 30 technical papers published, made over 60 scholarly presentations, and were awarded 20 research proposals for over \$1.6 million. They are excellent examples to the students through their contributions to the profession as well as service in the church and dedication to their families.

We also have outstanding students who are academically strong, work hard to prepare themselves for successful careers, and are loyal to the high standards of ethics and



Dr. Woodruff Miller

spirituality traditional of BYU. This past year we awarded 100 Bachelors Degrees, the 15th largest number of B.S. degrees in the nation; and we awarded 48 Masters Degrees, the 18th largest number of M.S. degrees. The ASCE Student Chapter again had a terrific year. They received the Zone IV Vice President's Award as the most outstanding student chapter in the Western States and were one of the five finalists for the Ridgeway Award. Their numerous activities and service projects were again very commendable (see article on page 19).

We are making significant progress towards preparing for our ABET accreditation visit next fall. Our syllabi now present the competencies which are expected to be taught and learned in each course. Questions on our exams are designed to evaluate one or more of the competencies. From these results we have been able to assess the strengths and

weaknesses of our courses and have made changes where appropriate. Along with our course exams, we are using the FE Exam results, student interviews, and feedback from alumni to provide information for assessments, evaluations, and program improvements. We expect to be in good shape for reaccreditation.

Again, as faculty and students, we sincerely thank the dozens of you who have contributed to our student scholarship fund. During this past year, we have been able to financially assist almost 100 undergraduate and graduate students. Please read the article (page 8) about the unique opportunity which we have to receive matching funds for your donations towards scholarships. We deeply appreciate the work of the Scholarship Society in fund raising and also as our curriculum advisory board. The Scholarship Society will again sponsor the annual Alumni Fish Fry at Homecoming October 19th (see announcement on page 9). We hope to see all of you there.

You will notice that our newsletter has a nice section of alumni updates. We are pleased to pass along to all the alumni your professional and personal activities and achievements. Also, please feel free to stop by and visit your friends in the department whenever you are in the area. We wish you all a successful and enjoyable fall season.
Sincerely, Wood

Faculty Research

Land Use/Transportation Planning Project & Italy

I continue my work with Dr. Saito, Dr. Jackson (geography), and Dr. Walters (public management) on our land use / transportation planning project. This project has been funded by the National Science Foundation for the past six years, and will continue for two more years. In this project we address the issue of land use and transportation planning for future growth on the Wasatch front. Our method employs new genetic algorithm technology to search over millions of plans for those plans that minimize objectives such as traffic congestion, cost, and change. The plans are constrained to have enough residential land for the projected population and enough commercial land for the projected employment. We have run the algorithm to generate plans for Provo and

Orem cities and we are currently revamping our software and results in accordance with suggestions from the planning staff of both cities. We are also preparing to generate plans for the entire Wasatch front region (Utah, Salt Lake, Davis, and Weber counties). We have worked with the staff at the Mountainlands Association of Governments, the Wasatch Front Regional Council, and the Utah State Automated Geographic Resource Center. Our work was featured two years ago in an article in BYU Magazine.

We have presented our results for Provo and Orem to transportation planners at the Transportation Research Board national conference in Washington DC. We also presented an entire session on our work at the American Planning Association Conference in New Orleans this past March. This summer, I presented our approach to the genetic algorithm community at the Genetic and Evolutionary Computation Conference in San Francisco, and to the optimization community at the Optimization in Industry III Conference in Tuscany, Italy. The latter conference was spon-



sored by the Engineering Foundation, and I was on the organizing committee. I was able to take my wife, Cindee, my parents, and my mother-in-law with me to that conference (at our own expense, of course), and we were able to visit Germany, Austria, and Italy for the first time. We enjoyed seeing Bavaria, the Alps, the Dolomites, Florence, and Rome. Some of you may know that my wife uses a wheelchair due to the neurological disease that she has. On the first night of our trip, my mother-in-law fell and broke her foot. We had the experience of going to the emergency room of a hospital in a small town in Germany at 2 o'clock in the morning. We also bought a second wheelchair in Salzburg, Austria. I told my own mother that if she went down, we would have to go home because we would be out of wheelchair pushers. In spite of these setbacks, we had a wonderful time.



Faculty Research

EMRL in China

In May of 2001, the Brigham Young University Environmental Modeling Research Laboratory (EMRL) launched the BYU – China Water Resources Technical Exchange. A team from the EMRL traveled to China to conduct a water resource modeling seminar at Beijing Normal University. The BYU team consisted of Dr. Norm Jones, Dr. Alan Zundel, Dr. Jim Nelson, Jonathan Green, Darren Gonzales, and Chris Smemoe. Our team was also assisted by Gerrit Gong, who met us in Beijing, and helped us for the first two days of our visit. Elder Chia of the Quorum of the Seventy was in attendance at the opening session and afterward offered some kind words of encouragement. Our sponsor at Beijing Normal University was the Institute for Water Resources, which is also known as the State Key Lab for Environmental Simulation. The Institute is directed by Dr. Zhi-Feng Yang and has 28 faculty, 50 M.S. students and 25 Ph.D. students.

One of the main goals of the BYU – China Water Resources Technical Exchange is to capitalize on our expertise in this area to help China solve some difficult problems in water resources and establish meaningful areas of collaboration. The purpose of the seminar was to train the Chinese attendees how to use the modeling software developed at the EMRL. The EMRL software covers three categories of applications: ground water, surface water, and watersheds. Accordingly, the seminar was divided into three concurrent sessions (or tracks), one for each specialty area. We were pleased with the diversity of people that were invited to the seminar. There were representatives from top



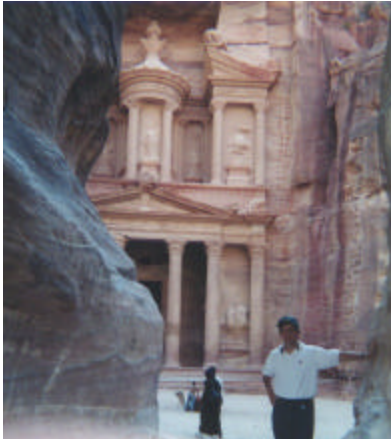
Chinese universities (Qinhua, Beijing, Wuhan, etc.) and from various groups within the Chinese Water Ministry. Each session had a translator and although there were a few difficulties with the language, the sessions seemed to go quite well overall. Most attendees seemed enthusiastic about learning how to use the software and were anxious to discuss how to use it on their own problems. The feedback we got from the attendees was uniform and positive. On the evening of the last day of the seminar, the BYU delegation was invited to a party celebrating the success of the seminar with the senior faculty of the Water Institute. They asked each of us to share our thoughts and impressions of China and BNU. Each of the Chinese professors then made a short speech. The comments made were warm, sincere, and moving. We felt like we had connected with our hosts on a personal level and made some wonderful friends. It was a great experience and there was a good feeling among the BYU delegation about the success of the seminar.

Of course, we weren't going all that way and not spend a little time as tourists, so following the seminar, we were taken on a tour of the Forbidden City, Tiananmen Square and the Great Wall. We were also treated to a visit to a Chinese teahouse and to a performance of the Beijing Opera.

We look forward to future collaborations with our friends from BNU. Presently, we are planning to have a contingent of professors and scientists visit BYU for 2-3 months to work on specific modeling projects and develop more expertise in the application of the EMRL software. Dr. Yang has also been invited to make a presentation at the department or college seminar on his work with the Three Gorges Dam project this coming academic year.

Faculty Research

Short Course on Wadi Hydrology for UNESCO in Amman, Jordan



Dr. Jim Nelson at the Treasury at Petra

From June 13-21, the United Nations Education, Scientific and Cultural Organization (UNESCO) Cairo Office sponsored a training course on Wadi (Arid Land) Hydrology at the University of Jordan in Amman. I was invited to be the key lecturer at the training course and teach scientists (agricultural, irrigation, hydrologic, etc.) in the Arab region watershed modeling techniques using the WMS software developed at the Environmental Modeling Research Laboratory (EMRL) of BYU. On June 16, I met briefly with Dr. Shatanawi (Dean of the College of Agriculture) who welcomed me and expressed his interest in having a successful course and hopes of developing stronger ties between our universities, especially in the area of water resources. A short field trip to a neighboring watershed was conducted for the students in the morning. Afterwards, Dr. Radwan Al-Weshah (regional hydrologist for UNESCO and responsible for the organization of the short course) and I met the party in Jerash for a luncheon. From June 17-21, I conducted lectures on the use of the

WMS software and its application to the regions surrounding Jordan. In attendance were engineers and scientists from Jordan, Egypt, Sudan, Libya, and Saudi Arabia. The primary purpose of the training seminar was to educate attendees on useful hydrologic modeling practices for Arid regions and train them in WMS so that they can be more efficient and productive in their hydrologic analysis and design. Water is one of the key issues, cultural and political, in the region and better practices to quantify and manage their limited resources are needed.

Dr. Al-Weshah pioneered many initiatives to advance and develop hydrologic modeling practices while working as a professor at the University of Jordan. A previous visit to the University of Jordan by Dr.'s Wood Miller, Kyle Rollins, and LaVere Merritt in 1995 introduced Dr. Al-Weshah to BYU and our Civil and Environmental Engineering Department. Subsequently, he visited the BYU campus and our department in January of 1998, where he spent about one month familiarizing himself with the work of EMRL and in particular the use of WMS. He has since been involved in several applications of WMS, including flood mitigation alternatives for Petra, Jordan. Because of this past history of working together, Dr. Al-Weshah, now acting as the UNESCO Program Director for Hydrology in the Arab region, invited me to teach the seminar in Amman.

Without exception, the students were enthusiastic about learning and worked hard during workshop sessions to understand and apply what was covered during the lecture. At the end, comments were positive

with the only complaint being that they wished the course could have lasted longer. I found the people in charge of putting on the program and the students both receptive and competent. Arrangements for the course were thorough and professional and they were eager to provide me with transportation, food, and saw to it that I enjoyed my free hours by arranging/taking me to visits of Jerash, the castle and Roman theater in Amman, the Dead Sea, Jordan Valley and Petra. I feel that in addition to the professional contacts, I have made several friends and developed a much greater appreciation for the people and culture of that region.

Special Faculty Recognitions 2000-2001

College "Most Inspirational Teacher" Award

Dr. Hank Christiansen

College "Stand and Deliver" Award

Dr. Fernando Fonseca

College "Outstanding Teacher" Award

Dr. Fernando Fonseca

2000 "Engineering Educator of the Year" Award - From

Utah Engineers Council

Dr. Kyle Rollins

Faculty Research

Evaluation of Coordinated Ramp Metering Algorithms

The implementation of ramp metering along the Wasatch Front is one portion of the ATMS currently in deployment by the Utah Department of Transportation (UDOT). The purpose of the ATMS is to reduce traffic congestion, primarily within the freeway network in the Wasatch Front region. Ramp metering has been proven in other parts of the country and around the world to be an effective tool in reducing and delaying the onset of traffic congestion. As such, a comprehensive, coordinated metering system has been proposed as a part of the ATMS deployment.

The implementation of ramp metering along the Wasatch Front will follow a segmented deployment schedule, with the following priorities used for deployment in the near-term future:

~The north I-15 Corridor in Davis County, northbound (NB) and southbound (SB), from Beck Street to Kaysville.

~The I-15 Corridor through Salt Lake County, NB and SB, from 1300 South to 10600 South.

~The west side of the I-215 Belt Route, NB and SB, from the I-15 South Interchange to 700 North.

~The east side of the I-80 Corridor, eastbound (EB) and westbound (WB), from the I-15 Interchange to Foothill Boulevard.

~The east side of the I-215 Belt Route, NB and SB, from the I-15 South Interchange to Parleys Canyon.

UDOT asked Dr. Saito to evaluate the effectiveness of three coordinated ramp-metering algorithms recommended by TRANSCORE as most appropriate algorithms for the Wasatch Front region. These algorithms include the Denver algorithm, Seattle algorithm, and Minnesota algorithm.

The simulation study area covers the first priority section in the above list



from Beck Street to Farmington. Both north and south bounds have five on-ramps to meter. The interchanges were named using the names of the cross streets. From north to south, they are Glover Lane, Parrish Lane, 400 North, 500 South, and 2600 South. The entire length of the study is approximately 10 miles (16 km).

Dr. Saito formed a research team consisting of BYU, the Utah Traffic Lab located at the University of Utah, and KLD Associates. KLD is a well-known traffic software developer from Huntington, NY, and the developer of WATSIM simulation software. Additional ramp metering features are added to this software to meet the needs of this study.

The goal of this simulation study is to find whether coordinated multi-ramp control algorithms would be worth investing compared to local-responsive ramp metering methods. At present, the Denver algorithm is complete and Dr. Saito and his research assistants have been making simulation runs to identify bugs in the software and examine whether the simulation output is reasonable. Once this stage is passed, multiple runs will be made to accomplish the goal of this study.



Faculty Research

IsoTruss™ Gains World Recognition

The innovative structural design of the IsoTruss is catching the attention of organizations all over the world. With potential use in satellites, freeway pillars, telephone poles, aircraft, submarines, bicycle frames, and other products, this lightweight composite is extremely strong and is less expensive and longer lasting than traditional materials.

The structure of the IsoTruss is roughly cylindrical, its redundant geometrical patterns creating a three-dimensional hexagon. Looking down the center of the simplest version of the IsoTruss, its shape resembles a Star of David (two inverted triangles). At each of the six points of the star (called nodes), lateral connectors run the length of the hexagonal form, adding stability.

In 1995 Larry Francom approached BYU with the design, requesting help in acquiring a patent. Dr. David Jensen helped secure the patent and since that time has developed ways to increase the IsoTruss' strength and functionality for potential applications.

One of Dr. Jensen's adaptations was to make the IsoTruss more structurally efficient. On the six-node model, more than half of the area is eaten up by the structure. So he experimented with other design possibilities, including an IsoTruss with eight nodes. The six- and eight-node models have the same overall volume, but the eight-node model adds interior space.



Photograph by Bradley Slade

Though the eight-node model has somewhat reduced radial compression strength, other structural improvements of the innovation outweigh any negatives.

Steve Tsai, a Stanford Professor, called the structure "exceptionally revolutionary" and it is easy to see why. The design is power packed. For example, a six-foot-long IsoTruss beam weighs just 1.2 pounds. Alone, each individual component can support only about a half-pound load. But because of the stability of the design and its construction as a composite, the beam's total load capacity is more than 3,400 pounds.

The IsoTruss is also easier to maneuver than typical construction materials. For instance, a 40-foot IsoTruss beam, which can be used in tilt-up wall construction, is light enough that a single person can maneuver it. A steel beam used for the same job typically weighs about 400 pounds and must be carried by crane; it may

take as many as five workers to move the steel beam a few inches.

Engineers from many industries and many countries have shown interest in the IsoTruss. A satellite company has explored the possibility of using IsoTruss beams as the satellite's "arms"; its lightweight qualities make it easier and cheaper to launch into space, and its durability helps satellites last longer once they enter orbit. Automotive companies have also expressed interest in the IsoTruss because of its potential to reduce crash damage.

Dr. Jensen is currently working on several other IsoTruss applications. Two of the most promising are concrete reinforcement and utility poles.

To learn more about the IsoTruss see www.IsoTruss.com

Excerpt from BYU Magazine, Summer 2001, pp 24-25, Megan Vandre



Photograph by Joseph Phillips

Classroom Experiences

Dynamics Class Project

A first course in dynamics typically overlooks the messiness of the real world by ignoring sources of energy loss. When losses are introduced, as in a given value for sliding friction or a mathematical expression for aerodynamic resistance, they are treated, one might say, quite cleanly. It is often frustrating to the newly graduated engineer when mathematical analysis and observed behavior do not correlate well. To bring this dilemma into the class room, an exercise was introduced into CEEEn 204, Engineering Mechanics - Dynamics, using pinewood derby cars.

For this exercise, the students were divided into groups of three with each group purchasing a standard BSA pinewood derby car kit. They built these cars in any fashion desired but the dimensions and weight had to remain within BSA rules. This was to facilitate testing.



Dave Anderson & Dr. Durrant calculating trial results.

A track was prepared with a twelve foot acceleration section followed by a fifteen foot horizontal deceleration section. The vertical fall of the acceleration section was approximately three and a half feet. A timing sensor was imbedded in the center of the track at the end of each section.

Each team was provided with a digitized profile of the track. After building their car and determining its physical parameters, e.g., weight, location of the center of gravity, moment of inertia of the wheels, etc., they were to write a computer program that would produce profiles of speed vs. position along the track and time vs. position along the track. Their computer program was to have a loss term that would account for all frictional and resistance losses. Prior to testing their cars on the track, they were to plot their speed and time profiles with the loss term set to zero. Using these, they were able to predict the time the nose of their car would reach each timing sensor. The cars were then test run to obtain the actual times to the nearest hundredth of a second.

Following the testing phase,

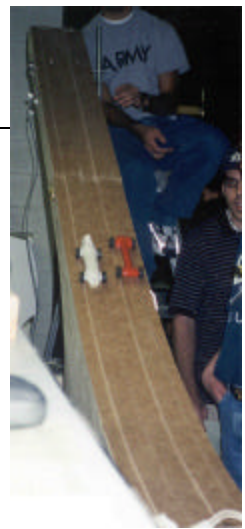


each group recalculated their speed and time profiles, iterating the loss term until the speed profile correlated as well as possible with the measured times. They then presented the value of their loss term and correlated profiles to the class for evaluation and comparison with the results of the other students.

In this exercise the students had to confront the following challenges:

- ~Write a computer program that would predict the motion of a distributed mass
- ~Measure the physical characteristics of a multi-component vehicle
- ~Deal with data scatter
- ~Rationalize the differences between analysis and actual performance.

In addition to the above, the spirit of the exercise was enjoyable and fostered a number of challenge races. Furthermore, future sons should build (?) competitive pinewood derby cars.



Scholarship News

Incredible Bonus for Scholarship Contributions

A tremendous opportunity has been provided to us from a very generous, albeit anonymous, donor. This individual has agreed to grant matching funds (as shown in the table below) for all donations to the University coming from BYU Students, Faculty, Staff and Alumni. Our Civil and Environmental Engineering Department has chosen to place all funds, received from this campaign, directly to the departmental scholarship funds. We should note that with this one-time opportunity, our student chapter has accepted the challenge to provide an endowed scholarship of \$10,000. We hope that all of our alumni will follow the example of the student chapter and take advantage of this opportunity to provide additional endowed scholarships for future students.

Per Dollar Matching Levels:

	Your Contribution	Donor's Match	Total Scholarship Donation
Current Students	\$1.00	\$5.00	\$6.00
Retirees, Alumni gone from BYU for 5 yrs. or less	\$1.00	\$2.00	\$3.00
Current BYU Faculty/Staff and Alumni gone from BYU for more than 5 yrs.	\$1.00	\$1.00	\$2.00

To have your donations eligible for this match, and to be placed in the department scholarships, simply follow the donation rules outlined below.

Rules:

1. All donations must be received by Dec 31, 2001
2. Checks should be made to "**Brigham Young University**"
3. In note section of check write: **Acct#23240082 Civil Engr.**
4. Donations are to be sent to:

Civil and Environmental Engineering Department
Attn: Scholarship Society
368 CB
Brigham Young University
Provo, UT 84602

5. Individual donations up to \$25,000.00 will be eligible for match.
6. Friends who would like to combine their donations might be eligible for an endowed scholarship in their names. Contact Dr. Steven E. Benzley, (801)378-3620 for details and questions.

Alumni Activities



Alumni Fish Fry brought to you by the Scholarship Society

Don't miss the chance to celebrate and reunite with old BYU friends. Come to the Civil & Environmental Engineering / Scholarship Society / Alumni Homecoming Reunion October 19, 2001. This is the last year we will meet in the Smith Family Living Center (SFLC) as this building is scheduled for replacement starting Spring 2002. We will begin with our leisure Social Hour from 5:00 to 5:30 p.m., on the Patio where you can visit with friends and make new acquaintances. At 5:30 p.m., our annual Fantastic Fish Fry Dinner will begin with fresh halibut and salmon from Alaska, followed by a short program. We will be finished by 7:15 p.m. which will enable you to enjoy other Homecoming activities on campus that evening.



Please send us the following information to BYU Civil Engineering., Attn: Janice, 368 CB, Provo, UT 84602. You may also RSVP at (801) 378-2811 or email at civil@byu.edu.

Name: Last _____ First _____ Middle _____
 Address: _____
 City/State/Zip: _____
 E-mail: _____
 Phone: wk () _____ hm () _____ Fax () _____
 Is this a new address? _____ Coming to Annual Fish Fry: No. attending _____ Adults _____ Children _____

Please RSVP by Monday, October 15.

Scholarship Society

Board of Directors

- Doug Ferrell, Society Chair
- Brent R. Farr
- Reese J. Goodwin
- King Husein
- Ramesh Khona
- Bruce Larson
- David Layton
- Melvin Nichols
- Gene Shawcroft
- S. Olani Durrant

BYU Civil and Environmental Engineering Scholarship Society annually provides many students with scholarships to help them as they complete their undergraduate and graduate degrees within our department. We encourage you to join us in this effort which will bless the lives of deserving young men and women. Students are very appreciative of scholarships they receive. All contributions are given in direct scholarship funds to students based on accomplishments and need. One of our goals as a department is to strengthen and increase alumni involvement. Please fill out the form below and return it with your gift for the students. If you would like to be considered as a member of the Board of Directors, please contact Dr. Wood Miller, Department Chair, (801)378-2811.

NOTE: Please see previous page of new details, rules, and mailing instructions for the 2001 year matching funds.

BYU Civil & Environmental Engineering Scholarship Donations	
Name _____	Date _____
Street Address _____	Amount _____
City, State, Zip _____	
Phone () _____	Fax () _____ Email _____
<input type="checkbox"/> Check this box if your company matches your contribution.	



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368 CLYDE BUILDING
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BRIGHAM YOUNG UNIVERSITY
PROVO UT 84602-4081



Faculty Recognition

Dr. Jones wins Huber Research Prize from ASCE

We are pleased to announce that Dr. Norm Jones has been awarded the 2001 Walter L. Huber Civil Engineering Research Prize by the American Society of Civil Engineers. Each year the Huber Prize is awarded to four researchers nationwide who are age 40 or younger and have made a substantial contribution to civil engineering research. Dr. Jones was nominated for the Huber award on the basis of his research in ground water modeling.

Dr. Jones has 62 publications and he has been a principal



investigator or co-investigator on over four million dollars of externally funded research.

Dr. Jones has developed a computer program called the Groundwater Modeling System

(GMS) that is used by 3500 organizations in 70 countries.

The Huber prize will be officially presented to Dr. Jones at the ASCE National Convention this October in Houston, Texas. This is a very prestigious research award and we are proud of the fact that we now have two Huber award winners in our department as Dr. Kyle Rollins won this same award two years ago.

Season of Weddings

Every year we have had our share of students getting married and having children. We have had professors whose children get married as well. But this year we have had a professor in our department get married. Such excitement!

Dr. LaVere Merritt married Diane Wellborn on July 14, 2001 in the Mt. Timpanogos Temple. They celebrated with an outdoor reception that evening.

Diane is from Oregon and has worked as a legal secretary.

Congratulations!!



ALUMNI



Craig R. Colvin '85

Craig has been the owner of Colvin Engineering for 4 1/2 years. He has also served as the ASCE chapter president. Craig is active in church service and he and his wife have four children.

Ron Crane '97

Since graduation, Ron has engineered numerous local commercial developments. He is now becoming more involved with some residential subdivision and "new urbanization" projects in the Austin, Texas area. Ron, his wife Chandelle, and Bryce, their 20 month old son, are awaiting another bundle of joy that's on the way.

Stephen R. Crowley '86

Since graduating from BYU, Steve worked for a defense contractor and an oil and gas related firm in the Dallas-Ft. Worth metroplex until late 1994. He worked on projects ranging from the stress analysis on the B2 bomber to designing and conducting 3D non-linear FEA on elastomeric structural bearings for floating tension leg platforms in the Gulf of Mexico, the North Sea, the Brazilian coast, among other places. During this period, Steve completed an MBA at Southern Methodist University in December 1991.

In late 1994, Steve went to work for GE Transportation Systems in Erie, PA. *cont. on p. 14*



Stephen R. Crowley, cont.

During the six years that he spent in this division, Steve led a design team that helped launch the AC6000 AC locomotive, led the first Center of Excellence, and managed Structures Engineering. He also led an after-market product and services team that grew sales from \$4mm to \$62mm in three years and launched several different business units/initiatives: Remote Diagnostics (health monitoring), a joint venture with Lubrizol Corp., Locomotive Modernization (new engine / control systems), and a Locomotive Wreck Repair Service. During the past 15 months, Steve has worked in eBusiness functioning as a consultant to the Railroads in helping them engage eBusiness. These efforts led to the launch of www.steelroads.com and a strategic GE partnership / joint venture with BNSF's Freightwise.com. Most recently, he was transferred to Ge Global eXchange Services in Gaithersburg, MD to lead efforts in launching the global Rail Exchange, a B2B marketsite which went live on 15 November 2000.

Steve, and his wife, Leslie, are the parents of 5 great children: Alex (10), Thomas (8), Sarah (6), Matthew (3), and Eliza (1). They are very busy with family, sports, church callings, and have had some great opportunities living in the "East Zion."

Eric R. Dixon '98

Eric and his growing family are living in American Fork, Utah. He has been working in AF with Franson-Noble & Associates since his graduation. He is responsible for geotechnical design issues related to water resource projects. His current main responsibility is helping with the design of the rehabilitation of Piute Dam, in Central Utah, to meet current Dam Safety standards.

Eric and Bonnie have three children. Their little girl, Hannah, is 3 years old and they have 15-month-old twin boys, Ryan and Kevin. Life is hectic and fun! They moved into a home almost two years ago and are still trying to find time to get the yard in shape, between changing diapers.

Valerie Tripp Eskelsen '87

Valerie and her husband Steven have recently moved to Missouri. They had a baby last Christmas and now have 5 children.

Bradley Gilson '98

Since he graduated in April 1998, Brad has worked as a project manager for the Riverton City secondary irrigation system. They received the Governor's 2000 medal for developing a unique method of capturing shallow well water with Utah Lake water rights. He has developed several drinking water source protection plans along the Wasatch Front. He and his wife built a

small house in Draper and have two full-time children. Since their last girl was born on Halloween, Brad mostly just works and tends.

Larry Hieb '78

In June of 2000, Larry transferred to Burley, Idaho where he was appointed Manager of Operations, Maintenance, and Technical Services for the Bureau of Reclamation's Snake River Area Office. In this position he, along with his staff, are responsible for the operation and maintenance of eight dams and three hydro plants on the Snake River. These facilities stretch from Jackson Lake Dam in Wyoming to Minidoka Dam in Idaho. This is a challenging position that has returned Larry to his hometown. He and his wife, Sharon, live in Twin Falls, Idaho. Their family is shrinking with one daughter now living on her own, one son completing a mission to Croatia in August and then on to BYU, and their youngest daughter is still at home.

Paul Hirst '94

Paul completed a Master of Architecture Degree from Washington University, in St. Louis, Missouri, in 1998. He worked for two years in the St. Louis area before relocating to Brainerd, Minnesota last April. He and his wife Teresa have three children, ages 6 years to 18 months. They are active in their church callings and enjoy participating in various community organizations.

ALUMNI



Chris Hooke '85

After graduation from BYU in 1985, Chris was employed by a private consultant in Ventura, CA for 14 years. He initially designed projects in waterworks, but in 1993 changed to transportation. He is currently a principal engineer for the County of Ventura responsible for design and construction of county roads. Chris has been responsible for the design of freeway interchange improvements as well as local roads.

Chris was married in 1982 while at BYU, and they now have five children. Their oldest is 16 and the youngest is five years old. Chris has served in scouting for many years and has been a bishop

Darren Hymas '93

Darren has recently taken a position with Nolte & Associates to try and help build their highway design abilities. Right now he is working on several projects for the City of Denver and going after CDOT projects. Darren received his PE a year ago and is registered in Colorado.

Kirk McLaughlin '83

Kirk is currently involved in the structural update on the P-3C military aircraft. The P-3C aircraft have been flying for the Navy since the 1960's; they are currently doing a structural modification program that will add an additional 20 years of life to these aircraft. He is the lead design engineer on this program and leads a group of

seven structural designers. This program also has international partners since the P-3C aircraft is used by many nations around the world. If they have a successful program for the US Navy, they will have follow-on work for other nations as well. Kirk has been living in Georgia since 1994 and since moving there has worked on the P-3C aircraft, the S-3 submarine hunter aircraft, and the F-22 advanced fighter currently under production for the US Air Force.

Prior to moving to Georgia, Kirk lived in Southern California from 1983-1994. While there, he worked on a number of aeronautical programs including the Space Shuttle, the B-2 Bomber, the Space Station, and the F-18 fighter. He has met many engineers who have degrees in civil engineering in his 17+ years in his field and he wants to let BYU civil engineering students know that there are opportunities for them in aerospace should they desire to work in that industry; especially for those who have a structural background in their course work. Outside of work, Kirk and his wife Darlene have 3 children: Brandon (16), Ashley (14) and Matthew (9).

Scott C. Mercer '00

Scott is working on a Master of Architecture degree at the University of Illinois, Urbana-Champaign. He has a research assistantship through the Department of Civil Engineering. He and his wife, Laura, have a two-year-

old daughter, Margaret, and were expecting a boy in January of 2000.

Melinda Monson '99

The Monsons are enjoying life in beautiful Pittsburgh and in playing with their son, James, born last October. Household Engineering is proving to be more challenging and rewarding than Civil Engineering ever could be!

Markus Nordlin '88

After graduating from BYU, Markus joined Andersen Consulting's Financial Service practice in Los Angeles. After 11 years at Andersen, Markus joined Farmer's Insurance as Vice President of IT applications and development. In his current role, Markus is responsible for all IT application and development groups including auto, home, commercial, agency, HR commissions and claims. Markus married Wendy in 1988 and they have three children. Markus received an M.B.A. from UCLA in 1995.

Heidi Palmer '97

Heidi has been in the Air Force for 2 1/2 years and has worked as the Civil Infrastructure Engineer and the Chief of Maintenance Engineering at Tyndall AFB in Panama City, Florida. She has a shop of Electrical, Mechanical, and Civil Engineers and several draftsmen. They maintain all
cont. on p.16



Heidi Palmer, cont.

infrastructure on base (from roofs and pavements to backflow preventors and HVAC system). Their little family was excited to move to their next assignment at Eielson AB in Fairbanks, Alaska, during December 2000, right in the middle of the dark, freezing winter! They have been blessed this year with a beautiful redhead, Riley. She is 7 months old and a ball of fire! Jon and Heidi love being parents and can't wait for their new adventure in Alaska!

Tony M. Pearce '80

The first thirteen years of his career, Tony was in the field of advanced materials, as a project manager and then as a marketing manager. Mostly, the companies he worked for (Hercules, SCI, ACT, and EDO) focused on filament winding of glass, Kevlar, and carbon composites. In 1993, he started a company with his civil engineering brother, Terry Pearce, to invent and develop products for licensing to other companies. They developed a product line of wheelchair products (cushions, wheelchairs) and sold it to a German company in 1995. Most of their inventions have centered around high-tech cushioning, and are found in backpack straps, footwear, foot care products, wheelchair cushions, hospital bed mattresses, pillows, golf bag straps, etc.

Justin Record '00

Justin is enjoying his work in water resources and environmental engineering. Last year he completed several water related studies including two septic system density studies and one aquifer classification study. They also (Oct. 23, 2000) had their first child, a baby girl named Eden Olivia Record.

L. Scott Rogers '82

After working at RB&G of Provo, after graduation, and the South Davis County Sewer Improvement District as District Engineering, Scott started his own consulting companies. Aqua Engineering and Aqua Environmental Services provide consulting services and construct operations primarily in the water and wastewater fields. With over 20 full-time and part-time employees, it has become quite a challenge to keep the work coming in. Scott has consulted for over 60 treatment facilities, most of them in Utah, and surrounding states. Current projects include major treatment plant upgrade for Payson and Orem, Utah and a new treatment facility for drinking water in the Park City area. His operations group operated five water systems and two sewer systems. Scott and his wife Alana have two boys and two girls. They very much enjoy the Bountiful area and stay very busy with school activities and church responsibilities.

Scott Sensanbaugher '96

Scott and his wife, Rebecca, have moved to New Mexico. Scott has joined the City of Rio Rancho as the Utilities Engineer and will be supervising the city's engineering group. He now has to retract some of his right-wing political zealot statements like, "Government Worker is an oxymoron." It's a good job and he is excited at the opportunity to make a difference in his home state. Rio Rancho is a suburb of Albuquerque with about 52,000 people. He passed his PE exam in April 2000. It was a cake walk compared to the average Dr. Miller exam. BYU sure prepared him for it.

Keven T. Shreeve '94

Keven just moved back to Boise, ID after working with his father for a couple of years in Arizona and is now starting a new Idaho Branch office. He has five children ranging in ages from 10 to 1 years. After many years serving with the Young Men, he is now the "5-year-old" Primary teacher.



Patrick Q. Stewart '92

After 4 1/2 years of the wind and sand of Tuba City, AZ, the Stewarts recently moved to Flagstaff, AZ. They are enjoying the mountains and snow again. Every work day, Patrick makes a 45 minute commute to Winslow, AZ where he continues to work on the design of water and wastewater systems for communities on the Navajo Reservation. The best part of the job is the beautiful scenery.

His wife, Karina, will be traveling with their 3 year old son, Benjamin, to visit her parents in Oaxaca, Mexico. The trip has become a once a year adventure that they always look forward too. Benjamin enjoys visiting his grandma Chayo and his Grandpa Ito. They hope his Spanish will improve once he gets away from English T.V.

Luis E. Tovar Jr. '82

By day, Luis is a technical engineering specialist dealing with state-of-the-art CAD/CAM technologies. By night, he is the Master Scheduler, trying to ensure that everyone gets to all their activities and that nothing is forgotten. His wife, Kimberly, is a full-time school teacher at their oldest daughter's High School. She teaches Business Communications and Multi-media, so she keeps busy with nightly lesson assignments and off-site classes to keep her up-to-date. Their daughter, Angela (14), keeps busy with Honors classes, march-

ing band (flute), university piano lessons and competitions, semi-nary, and church activities. Their second daughter, Melissa (13), keeps busy with Honors classes, Honor Band (baritone), soccer team, tennis team, piano lessons, and church activities. Their third daughter, Jennifer (11), keeps busy with Honors classes, band (clarinet), university piano lessons and competitions, soccer team, and church activities. Their fourth daughter, Alicia (9), takes piano lessons and comes along for the ride. Their youngest, Jacob, is on a soccer team and likes to play with the neighborhood boys. Whenever someone has a free night, it instantly becomes a party night with sleep-overs or all night movies. Last spring, Luis began taking his children to all their doctor appointments and he's noticed that he visits the doctor about three times a month, mostly because they have 3 in braces -- luckily they're all very healthy. In these go-go times, they all heed the wise admonition of their Father in Heaven to rest on the Sabbath. That they do, and then they're ready for another hectic week. They're all very happy and grateful for all their blessings.

Cameron Waite '00

Cameron is currently attending the University of California at Berkeley and is working on his MS degree in Transportation Engineering. He and his wife had a second daughter, Grace Evelyn Waite, on April 27, 2000.

Hannah is 2 1/2 years old now. He is also looking for job opportunities in the Boise area after his May 2001 graduation.

Student Activities

Balsa Wood Bridges



The Balsa Bridge Project has continued to involve many B.Y.U. Civil Engineering students by providing leadership roles, and providing a unique service to the community. High school students and teachers show much involvement and appreciation for this student chapter service project.

This project is currently directed by Dr. Don Budge who started the project twenty-five years ago. For the past several years, David Anderson has tested most of the bridges with the hydraulic press and the project has become a tradition for both the high schools and many B.Y.U. Civil Engineering students.

Between 2,500 and 3,000 complete kits are ordered each year with about 2,500 stick kits ordered as well. Orders come from fifteen to eighteen high schools along the Wasatch front, from Nephi to Salt Lake City.



There is a project chairman appointed by Dr. Budge who is responsible to find project leaders, advertise kit assembly projects, and make sure orders are put together for each school. Assembly lines efficiently produce the required number of kits.

During Fall semester, bridge kit assembly projects are held on Saturdays. Each project lasts about two hours and involves a half dozen to two dozen Civil Engineering students. Winter semester, projects are held to assemble the kits for delivery to the high schools. Service hours from the students total about 160 for Fall semester and 260 for Winter semester.

The Balsa Bridge Project inspires and educates high school students. This past year, Dr. Budge and Nathan Thompson visited high school classes to teach the science of balsa bridge building. To start off the high school students on their bridges, Dr. Budge teaches them some competitive strategies to select the best wood and construct the bridges. Also, during this instruction, the high school students are introduced to Euler's equation, basic methods to solve moments of

inertia, and how to apply these engineering methods.

The high school students test their bridges in March. For two weeks in March, Dr. Budge and Dave Anderson, along with two or three B.Y.U. engineering students, visit each high school to weigh and test each bridge. During Engineering Week, the Civil Engineering Department conducts its own competition among faculty, staff, students, students' spouses and children, and students from various B.Y.U. departments and other schools. During testing, some students have been disappointed because their glue did not dry fast enough from building their bridge the night before. Generally, all anxiously await to witness test results. The activity uniquely provides students a chance for hands on learning and classroom participation.

Bridge test day provides a moment for the students to shine. Many are carefully constructed bridges holding from 1200 lbs. up to 1800 lbs. Others may not hold as much but demonstrate genuine creativity. Testing time gives the high school teachers a chance to commend their students.

Student Activities

The ASCE Student Chapter here at Brigham Young University has been very busy since January 2001. The new student chapter officers (as of January) are: Michael Lowry, President; Damaris Helps Kjar, Vice President; Mark Nugent, Vice President; Rachel Young, Secretary; Ben Lund, Treasurer; Andrew Maas, Publications Secretary.

This ASCE student chapter consists of 300+ active members over half of which are national ASCE members.

This year they have stressed the importance of learning from the professionals. They have taken many field trips to different sights around Utah and the Southwest. In February, a group of 15 students received a tour of the Delta power plant. March and April included road trips to Hoover Dam, the Stratosphere in Las Vegas, Nevada, and Rocky Mountain Conference in Colorado Springs, Colorado. The student chapter has many

plans for the future, including trips to Moab, Utah, and Idaho. They hope that these trips will give students the opportunity to meet professionals from a wide range of disciplines and increase students desire to learn.



ASCE trip to Hoover Dam



Steel Bridge Contest at Rocky Mountain Conference



Concrete Canoe Contest at Rocky Mountain Conference



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