BRIDGE of Eta Kappa Nu

Dr. Wen-Mei Hwu
Outstanding Young Electrical Engineer

Dr. Denice D. Denton
Outstanding EE Professor

Mr. Kenton L. Epard
Outstanding EE Junior

1993-WINNERS

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The Royal Chapel at Granada

by Paul K. Hudson

`EDITOR'S NOTE: This article was prepared by the late Paul K. Hudson just before his death. We felt it appropriate to include it in this issue.

Every school-child knows about Ferdinand and Isabella of Spain mainly because they were the people who sent Christopher Columbus on his voyages in search of the New World. Also, it was their marriage of convenience that united Aragon and Castile to form Spain pretty much as we know it today. At the time of their marriage they had no permanent Court because they were so busy driving the Moors out of Spain. It was not until they finally captured the Kingdom of Granada that the committee could be considered completed and a stable law and order established. It is very fitting, therefore that these pioneers of Spain should have their place of burial in Granada.

In the great Cathedral of Granada there is a very handsome and elegant Royal Chapel. Within the Chapel and within a fenced-in enclosure will be seen four tombs with a curved effigy above each. As might be expected, the two in the left are Ferdinand and Isabella. But who are the other two? A first time visitor would be quick to guess that they are other famous members of the clan—Charles V, or perhaps Philip II, or even Philip IV. That is not the case. These two do not get much of a spread in the Spanish history books and there is a good reason. Spain is not very proud of them. Nevertheless theirs is one of the greatest love stories in the history of the world. They are Philip I and Queen Joanna. Joanna was the daughter of Ferdinand and Isabella.

Isabella was determined to marry all of her children to royalty and was, for the most part, successful. Her daughter Catherine was married to Henry VIII of England for a while and his desire for a divorce led to the establishment of the Church of England. The man picked for her daughter Joanna was Prince Philip, son and heir of the German Emperor Maximilian I. They made a beautiful couple. Philip was so good looking that he was known in history as Philip the Handsome. Joanna was a dark, slender and very beautiful Spanish girl. Also, she had a brilliant mind and was quite poised.

The first meeting of Philip and Joanna was memorable. Joanna had been taken to the royal court in northern Europe and, with others, was waiting in a room for Philip to arrive. He had ridden a horse all day to get there and must have been tired, dirty, sweaty, and smelling like the horse. He walked into the room, took one look at Joanna, she took one look at him, and the bells rang loud and clear. It was love at first sight for both of them. He said to his Aid, "Get me a Priest." His Aid replied, "You can't do that. This is a royal wedding. It will take days and weeks." Philip replied, "Get me a Priest right this minute or Joanna and I are going to a room together without being married." It was not recorded what Joanna said about that but since the love was mutual, she likely did not register any complaints. In spite of her upbringing, she was a very warm blooded girl. So, there was nothing to be done except call in a Priest. He married them and then Philip took Joanna by the hand and together they ran to a room, tore off their clothes and stayed there for a long time. Joanna did not mind that Philip was gamey and smelled like a horse.

Joanna's love for Philip was complete and for all time. Philip's love for her was complete but not for all time. After a few years he started treating her very poorly. He would order her around like a child, sometimes sending her to her room in the presence of company. He even got to the point of romancing other women of the court in the presence of Joanna. But she never turned against him and loved him as much as ever.
Sometimes later they visited Ferdinand and Isabella in Spain. When Isabella saw how poorly Philip was treating her daughter she told him that if he did not change his attitude then she would not permit Joanna to return to Germany with him. He replied, “That is great news. I have been trying to figure out someway to get rid of Joanna. I can just leave her here with you until you die and then I will return and lock her up someplace and take over your country.” Nice guy, huh? When it came time for Philip to leave, Isabella told Joanna that she could not go with him. But Joanna had other ideas. Her love for him was so great that she could not give him up or even think about such a thing. She told her mother that she was going and no one could stop her. Isabella had to lock her up in a gatehouse to restrain her. Joanna kicked the doors and screamed and fought with her jailers day and night. She managed to escape a couple of times but was soon captured and sent back. Finally Isabella just gave up and told Joanna that if she was so determined to live with that terrible man that she could go ahead and leave. Joanna left immediately. But Philip did not treat her any better than before.

Several years later Philip and Joanna started out on another trip to Spain to visit her parents. One afternoon they established camp in a beautiful woodland meadow in France. There were no Hilton Hotels in those days. Philip could have no way of knowing that the Angel of Death was waiting for him in that lovely meadow. During the afternoon he challenged one of the soldiers of the guard to a wrestling match. It is not known exactly what happened. It may be that he injured his spleen or some other vital organ. In any case, a few hours later he took a severe chill. Two days later he died.

When Philip died, Joanna just went wild with grief. Preservation of the dead was not much of a science in those days with results that can be imagined. Nevertheless Joanna would not allow Philip to be buried and just kept him with her all the time. Each evening she would open the lid of the box to look at him but she would not allow any other woman to look at him or be in the room with him. When she arrived in Spain she kept him at the altar of her church the rest of her life.

In due time Isabella died. Since she was the Sovereign, Joanna promptly became Queen. But Ferdinand had different ideas. He announced to the people that Joanna was not mentally able to serve. He locked her up in a castle and took over the government. When Ferdinand died, Joanna’s son Charles locked her up again and took over the government. So, the three men who were important in her life—her husband, her father, and her son—had all been cruel to her. Because of that and the fact that she had been locked up for so long, she did indeed become mentally incompetent. People who loved her started a revolution to put her back on the throne but by then she was unable to cooperate and the revolution failed before it was well started.

As we stand (either in person or in our imagination) in the Royal Chapel at Granada and view the last tangible remains of the early Spanish government, our sympathy has to go out to Joanna. “Joanna the mad,” if you must, but Joanna all the same. She lost her crown and mind for no worse reason than the fact that she loved someone with her whole heart and for all time. How many other people are there in the world who love someone that much? Or who are loved that much? If we look carefully we see that the sculptor has Joanna looking away from Philip. I am sure it was done knowingly but Joanna would never have done that in life.

Paul Hudson’s Favorites

A visitor entered a western bar and found several men and a dog seated at a table playing cards. “Can that dog actually read cards?” asked the visitor. “Yes,” replied the dealer. “But he is a terrible poker player. Every time he gets a good hand he wags his tail.”

Any 20-year-old who isn’t a liberal doesn’t have a heart, and any 40-year-old who isn’t a conservative doesn’t have a brain.

Winston Churchill

Our Founding Fathers objected to taxation without representation. They should see it today with representation.

A gray-haired old lady, long a member of her community and church, shook hands with the minister after the service one Sunday morning. “That was a wonderful sermon,” she told him, “just wonderful. Everything you said applies to someone I know.”

“How could you have a son that age?”

“I didn’t. When I had him he was just a baby.”

Father was always bothered by flat feet. They kept giving him tickets for speeding.

Most of us can keep a secret. It’s the people we tell it to that can’t.
Established by the Board of Directors in April 1992, this important fund will honor the memory of Paul Hudson, a devoted servant of HKN and a man who truly exemplified the qualities that “balance the bridge.”

The Hudson fund, managed by the HKN Board of Directors, will be used to support the general development of Eta Kappa Nu. For example, the fund will be used where necessary to help support HKN’s national award programs; expansion, including the development of new college chapters and alumni chapters; and chapter visitations by current and past national officers and directors to assist with special occasions. All of these examples represent activities which Paul so heartily endorsed. Other developmental projects will be considered by the Board as funding grows and new objectives important to HKN become established.

As we honor Paul, we also honor donors to the fund by recognizing them as Paul K. Hudson Fellows. Five levels of giving are recognized, as in the form below. One-time donations at any level will be gratefully accepted. In addition, donors may now make pledges for annual donations. All donations will be counted cumulatively for the purpose of establishing the donor’s current level of giving. Fellows at each level will be recognized annually by name in the BRIDGE.

Eta Kappa Nu thanks those who have already become Paul K. Hudson Fellows. We invite all members and friends of HKN to join the growing list of Fellows. And whether or not you are presently a Fellow, consider extending your support of the Hudson Fund on an annual basis. Simply fill out and return the form below. Thank you for your part in supporting and strengthening Eta Kappa Nu.

I wish to become a Paul K. Hudson Fellow at the level of (check one)

- [ ] Distinguished Fellow ($2000 and above)
- [ ] Century Fellow ($1000 - $1999)
- [ ] Sustaining Fellow ($500 - $999)
- [ ] Supporting Fellow ($100 - $499)
- [ ] Fellow ($25 - $99)

with the enclosed contribution of $_________.

I wish to pledge a total of $_________ to the Hudson Fund, at $____ per year for ______ years.

beginning ____________

NAME ____________________________________________
ADDRESS ________________________________________
CITY, STATE, ZIP CODE ____________________________

Return to: Eta Kappa Nu International Headquarters
Box HKN
University of Missouri-Rolla
Rolla, Missouri 65401

Nominations Invited for The Fourth Vladimir Karapetoff Eminent Members’ Award

Nominations for the fourth Vladimir Karapetoff Eminent Members’ Award are now being solicited. Nomination forms and guidelines may be obtained from Donald Christiansen, Eminent Member Committee Chairman, 434 West Main Street, Huntington, N.Y. 11743.

In 1901, the Eta Kappa Nu Board of Directors announced the establishment of an award in honor of Vladimir Karapetoff, an Eminent Member of HKN and Fellow of IEEE, who died in 1948. The first award was given on April 27, 1992.

The award, the Eta Kappa Nu Vladimir Karapetoff Eminent Members’ Award, is made annually to an electrical engineering practitioner who has distinguished himself/herself through an invention, a development, or a discovery in the field of electrotechnology. The fund to support the award was initiated through a bequest from Dr. Karapetoff’s wife, R. M. Karapetoff Cobb, herself a distinguished chemical engineer.

A monetary honorarium is provided to the recipient (or shared by the recipients) of the award.

Factors that will be weighed by the jury will include the impact and scope of applicability of the invention, development, or discovery; its impact on the public welfare and standard of living and/or global stability; and the effective lifetime of its impact.

Dr. Karapetoff was born in St. Petersburg, Russia, January 8, 1876. His father was an engineer and his mother a student at a military medical school. Dr. Karapetoff emigrated to the United States in 1902, and became a naturalized citizen in 1909. In 1904 he joined the engineering faculty of Cornell University as an assistant professor. In 1908 he was made a full professor and continued in that capacity until he retired from active teaching in 1939. In an account of Dr. Karapetoff’s career, his Cornell University colleagues R. F. Chamberlain, N. A. Horwitz, and Everett M. Strong, recalled his continuing dedication to Eta Kappa Nu. During World War II he was commissioned a Lt. Commander in the U. S. Navy. But beginning in 1942, Kary, as he was known to his associates, began to lose his sight in both eyes, and despite temporary relief through operations, he ultimately lost his sight and schooled himself in Braille and “talking books.”

Even after his blindness he seldom missed the annual Eta Kappa Nu Award dinner in New York City, and would address those in “refreshingly original and lucid expositions” of his technical interests. Fellow HKN members viewed these occasions as sort of a “national kary reunion.” His handicap notwithstanding, his cheerfulness, determination, and ingenuity prevailed.

His colleagues remembered him as an accomplished musician on piano, violin, and double bass. He toured the country giving recitals and lectures on Wagner, Liszt, and other major composers, and developed a five-string cello on which violin music could be played. He received an honorary Doctor of Music degree from New York College of Music.

Professor Simpson Linke, writing in the Winter 1964-65 Engineering Cornell Quarterly, cited the following excerpt from Karapetoff’s Electrical Laboratory Notes, published in 1936, as reflective of the flavor of EE studies in that era:

In coming to the laboratory, bring with you a slide rule, an inch rule or tape, a speed counter, a screw driver and a pair of pliers [sic]. This will save you time and trouble of looking for them or borrowing them. Do not forget to have a pocket knife for skimming off wire; a bicycle wrench is also sometimes very handy to have.

Dr. Karapetoff was the author of several standard texts on electrical engineering that were widely used and revised through several editions, as well as other texts on electrical and magnetic currents, electrical testing, and engineering mathematics.

He was a member of AIEE, the Franklin Institute, the AAAS, the American Mathematical Society, the Mathematical Society of America, the American Physical Society, the U. S. Naval Institute, and the U. S. Naval Reserve Officers’ Association.
Dr. Wen-Mei Hwu, Associate Professor at the University of Illinois Coordinated Science Laboratory, has been chosen by the Jury of Award as the Outstanding Young Electrical Engineer of 1983, and Dr. Christopher P. Yakymychyn of the GE Research and Development Center as the Honorable Mention. In addition, three new finalists were picked by the Awards Organization Committee for possible further consideration in next year's judging. These three include Scott Campbell of the NCR Corporation in Dayton, Ohio, Paul MacGregor of the General Electric Company in Schenectady, New York and Steve Watkins of the University of Missouri-Rolla. The 1983 awardees were recognized at Eta Kappa Nu's fifty-eighth annual awards banquet on April 25, 1994 at the Princeton Marriott in Princeton, New Jersey.

This year's Jury of Award panel consisted of the following distinguished members:
- Charles F. Fuehret, the Director for Communications and Data Systems at the National Aeronautics and Space Administration
- Saleem A. Kassam, the chairman of the Department of Electrical Engineering at the University of Pennsylvania
- David G. Meyer, Electrical Engineering Department, Purdue University, and 1963 President of the Eta Kappa Nu Association
- Gregory H. Olsen, President of Sensors Unlimited, Inc.
- Bruce A. Rena, Vice President, Transmission and Distribution Services of the American Electric Power Service Corporation
- Peter Schneider, Vice President, World Wide Development of the International Business Machines Corporation.

Dr. Hwu's citation reads, "By virtue of his very significant contributions to computer engineering, and for his dedication as an outstanding teacher, advisor, and leader in his profession. He was recognized for his innovations in computer architecture and compiler technology which have been embraced by almost every major computer manufacturer. After founding the IMPACT architectural framework project at the University of Illinois in 1987, his work has contributed substantially to the design of superscalar microprocessors at such corporations as NCR, Intel, Advanced Micro Devices, Hewlett-Packard, and SUN Microsystems. The concept of non-trapping instructions developed by Hwu and his students has been adopted by the SPARC V9 architecture, and his work in compiler optimization techniques has also been adopted by many of these companies. In addition, the University honored him with a faculty initiate for both his excellent teaching and advising activities, and many of the PhD students he supervised have assumed leading positions within the above companies. Also, he has been involved with the program committees of many IEEE and ACM-sponsored conferences, including the chairing of the very successful 1992 International Symposium on Microarchitecture. Despite his very busy professional schedule, he still managed time to become a certified teacher in bible studies, and to devote many hours to bible teaching activities.

Dr. Yakymychyn, an OYEE Finalist last year, was cited, "By virtue of his extraordinary abilities as a scientist and problem solver, his dedication to helping others, and his innovative approach to recreation through sports, nature, and the arts." His recognition comes not only because of his many papers and patents, but also because he has been recognized by his colleagues and managers as an engineer, in the best sense; one who solves real problems that other people want solved. He acts alone, or in a consultative and/or troubleshooting mode, when asked. His PhD work involved tunable laser systems, in which he discovered "additive pulse modelocking," a technique that debunked all previously held theories on soliton lasers and opened up a new field for ultrashort pulse generation. In addition to his R&D effort, he regularly helped in various outreach efforts to generate interest in secondary school children via science fairs, demonstrations, and telling kids about science. His interest in sports, music, and outdoor activities, and his outgoing friendly manner has earned him many friends among his colleagues and others in the community in which he lives.

Scott Campbell is still working on his PhD, but already he has been selected as an OYEE Finalist because of his leadership in design for both NCR and now AT&T, which merged its computer design group with that of NCR's a few years back. He also volunteers as a carpenter in the summer time as part of the Habitat for Humanity projects, and at other times keeps busy constructing sets, or designing lighting or sound for various Dayton theaters. He teaches Sunday school and is a member of Emmanuel, a group dedicated to the development of Christian leaders. In addition, he holds a professional engineers license, a pilot license, and an Amateur Radio license.

Another OYEE Finalist is Dr. Paul MacGregor, who possesses outstanding technical abilities and breadth, with over thirty publications to his credit. He has strong commitment to the business goals of his company, and he received customer satisfaction awards for such diverse projects as a comprehensive market forecast of the potential of nuclear energy in the United States; a crucial equipment evaluation which indicated the superiority of an aero-derivative gas turbine project over competitive offerings; an electricity generation planning evaluation of the entire United States turbine equipment market; and a new market evaluation and system planning techniques for the municipal and cooperative electric utility market. Off the job, he works with high school students in both a junior achievement and a mentoring program. He serves as an officer of the local branch of the IEEE Power Engineering Society and is involved as a member of the Working Groups in Long Range System Planning, and in Engineering and Planning Economics.

The third OYEE Finalist, Dr. Steve Watkins, is also an educator, and is an Assistant Professor of Electrical Engineering. He received a teaching rating of 3.4 (out of 4.0) by graduate students (where the university and department averages are at 2.7). He developed a graduate course on fiber and integrated optics, and revised a second one, entitled "Fourier Optics." In addition to his technical talks and published papers, he supervises
four undergraduate projects and directs two technical projects in fiber optics. Also, he serves as adviser for the very active local chapter of Eta Kappa Nu and for the Toastmasters Club, which doubled its membership under his guidance. He founded the Applied Optics Laboratory in 1991 at the University, and possesses a basic knowledge of spoken and written Japanese. In addition to being an officer of Toastmasters International, he was the 1992 Toastmaster of the Year of District 8, consisting of 96 clubs.

You will notice that the award winners are honored for their contributions to electrical, computer, and communications engineering, as well as to society at large. Selection of the OYEIE, the honorable mention, and the finalis is based on individual accomplishments. It is not influenced by newsworthiness or the commercial value of a contribution. In the same way, contributions to local neighborhoods and schools, religious organizations and the arts are measured only in personal contributions, and not for newsworthiness or sensationalism. It is Eta Kappa Nu’s emphasis on the well-rounded individual that leads it to recognize people who, in addition to striving for excellence in their profession, also give of themselves to the betterment of society, community, and family. We hold that an education based upon the acquisition of technical knowledge and the development of analytical and logical thinking is a prerequisite to achievement in many lines of endeavor. This year’s awardees join a long list of individuals who have brought distinction to themselves, their community, and to our profession.

These awardees were brought to the attention of the Jury of Award after the top dozen were selected from a ranking provided by the Awards Organization Committee (AOC) as a whole. The Jury of Award is constituted once a year from highly respected leaders of the profession for the final selection of the winner and honorable mention(s). Of course, we depend on the persons who had the foresight to nominate the outstanding young electrical engineers in their organizations. Without nominations, we would have no one to recognize. Nominations are solicited by the AOC in the spring of every year, and usually close around the first week in August. Nominations remain active as long as the nominees remain eligible and update their resumes at least every second year. At times, the AOC which solicits and maintains the nominations, may request additional information from the nominees, so it is important that nominees maintain contact with the AOC by sending them any changes of their addresses. Beginning in 1994, the AOC will not require a picture of the nominee with the nominee’s resume.

The members of the 1993 Award Organization Committee were:

- Mark G. Adamiska, General Electric Co., Protection & Control, Malvern, PA
- Clarence Baldwin, ABB Power T&D Company, Muncie, Indiana
- Robert Bartolini, David Sarnoff Research Center, Princeton, NJ
- Donald Christiansen, IEEE (Retired), Huntington, NY
- James D’Arcy, Martin Marietta, Astro Space Division, Princeton, NJ
- Larry Dvon, Consultant (Retired), Columbus, Ohio
- Irving Engelsohn, Institute of Electrical and Electronics Engineers, Piscataway, NJ
- Guayme Genuaro, Design by Hilton, Inc., Vienna, VA
- Willard Groth, Consultant, Boca Raton, FL
- Michael Hajny, Metering Engineering, Inc., Charleston, SC
- James Hebson, Jr, PSEG, Newark, NJ
- Cecilia Janowski, Grumman Aircraft Systems, Bethpage, NY
- William Murray, Douglas Aircraft Company, Long Beach, CA
- Ralph Preiss, IBM (Retired), Poughkeepsie, NY
- Berthold Sheffield, RCA (Retired), Belle Mead, NJ
- Joseph Strano, New Jersey Institute of Technology, Holmdel, NJ
- Kurt Trampel, IBM Corporation, Purchase, NY
- Lawrence Wechsler, General Electric (Retired), Dewitt, NY
- Christopher Paul Yakymshyn

The 1993 Jury of Award: Standing, from left to right, Dr. Peter Schneider, Mr. Bruce A. Benz, P.E., Dr. David G. Meyer, Mr. Ralph J. Preiss, 1993 Awards Committee Chair. Seated from left to right: Mr. Charles F. Fuehsehl, Dr. Saleem A. Kassam, Dr. Gregory H. Olsen

TheEta Kappa Nu Outstanding Young Electrical Engineer Award is presented annually to young (under thirty-five) electrical and computer engineering graduates (within ten years from their BS degree) for meritorious service in the interest of their fellow man as well as for outstanding achievements in their chosen profession. Those honored with this prestigious award are selected each year through a well-defined process which has remained virtually unchanged since its inception in 1936. The nomination process involves the initiative of the nominator and the participation of at least three references in support of the candidate. The dossiers of all nominees are carefully screened by the Awards Organization Committee, a standing committee of Eta Kappa Nu, which is responsible for soliciting and updating the nominations every year, and which then selects up to a dozen finalists for submission to the Jury of Award.

To review the nomination process again:

Nominations may be made by any member or group of members of Eta Kappa Nu; by leaders from industry; by any section or society of the Institute of Electrical and Electronics Engineers, Inc.; by the heads of electrical and computer engineering departments of any U.S. college or university; or by any other individuals or groups, who, in the opinion of the Awards Organization Committee, are properly qualified to make nominations.

Nomination forms for 1994 may be obtained from the Executive Secretary of Eta Kappa Nu, P.O. Box 2107, Rolla, MO 65401, and should be returned to him by August 1, 1994 for forwarding to the AOC.

An eligible candidate for OYEIE is one who:
- has an electrical engineering degree (BS, MS, or PhD) from a recognized U.S. engineering school,
- will have been graduated not more than ten years as of May 1, 1994 from a specified baccalaureate program,
- will not have reached his or her thirty-fifth birthday as of May 1, 1994.

Awards are based upon (1) the candidate’s achievements of note in his or her chosen work, including invention of devices, circuits, or processes, improvements in analyses, discovery of important facts or relationships, developments of new methods, exceptional results in teaching, outstanding industrial management, or direction of research and development; (2) the candidate’s service to community, state, or nation, such as activity in philanthropic, religious, charitable, or social enterprises, leadership in youth organizations, or engagement in civic or political affairs; and (3) the candidate’s cultural and aesthetic development, such as work done in fine arts, architecture or the performing arts. Studies in history, economics, or politics are also highly valued, as well as any other noteworthy accomplishments, including leadership participation in professional societies and other organizations.
KENTON L. EPARD
WINS
NORMAN R. CARSON AWARD
AS
OUTSTANDING EE JUNIOR

by Michael Schoenfelder
and Richard R. Gallagher

INTRODUCTION

Annual Program. Each year Eta Kappa Nu honors a junior in electrical engineering for his or her leadership abilities, scholastic and technical achievements, and service contributions. This award, the Norman R. Carson Outstanding Electrical Engineering Junior Award, was established by Mr. and Mrs. Carson to recognize the student's ability to lead, persuade, and influence the actions of others, as well as to recognize his or her diligence, intelligence and technical competence. The HKN Lone Star Alumni Chapter of Austin, Texas, which administers this award, received many outstanding and diverse applications. The diversity of the applicants made judging this year's award exceedingly difficult. After careful consideration, one winner, three runners-up and four honorable mentions were selected.

Winner
Kenton L. Epard, Beta Kappa Chapter, University of Washington

Runners-up
Robert Duhlgren, Iota Upsilon Chapter, University of Washington
Zachary S. Sachs, Gamma Delta Chapter, Worcester Polytechnic Institute, Massachusetts

Honorable Mentions
Jeffrey J. Bain, Theta Kappa Chapter, California State University, Fresno
Duane Allen Spence, Delta Pi Chapter, Colorado State University
Bret Buckley Colby, Theta Xi Chapter, University of Arizona

Kenton L. Epard, Kansas State University, is a person who leads, persuades and influences the actions of a wide variety of people. His plethora of leadership positions is by far the most extensive list that this committee has seen in many years. Kenton is or has been President of his fraternity, a Vice-President of the Inter-Fraternity Council, State Vice-President of the Kansas Federation of College Republicans, and Vice-President of the Kansas State University College Republicans. He has also held officer's positions inEta Kappa Nu, Engineering Student Council, and Phi Beta Lambda. Furthermore, he has been active in student government, Engineering Student Council, US/Soviet Youth Exchange, Student Alumni Board, Colby Chamber of Commerce, and the Kansas State University Telefund.

In the summer of 1992, Kenton spent a considerable amount of time in Washington, D.C. researching science and technology policy for the Society of Automotive Engineers. The research was part of the Washington Internships for Students of Engineering program. Based on his findings, Kenton published a paper entitled "Changing U.S. Government Science and Technology Structure to Enhance Industrial Competitiveness."

At right, Kenton L. Epard, accompanied by HKN Faculty Advisor, Richard Gallagher, receives award from past HKN BOARD Member, James R. Rowland

In photo at the left, Winner Kenton Epard is accompanied from left to right by Donald E. Rathbone, Dean of Engineering; Richard R. Gallagher; Professor Rowland; and David L. Soldan, EECE Department Head

In photo at the right, Kenton Epard responds with an expression of thanks for having been selected as Winner of the Carson Award.
In addition to his work as a student leader, Kenton has found the time to be a volunteer worker in the Kansas Senate President's Office, 4-H Club Pageant. He is also an accomplished guitar and piano player, forming a "top-fifty" band in his freshman year of college.

Maintaining a high GPA, Kenton is a member of several honor societies and has received numerous honors, awards, and scholarships, including All-American Scholar. Donald E. Rathbone, Dean of Engineering at KSU, wrote, "There is little doubt about Kenton's intellectual breadth. Kenton is outward looking and has a diverse and well-rounded background of experience and interests, I feel we have truly an outstanding individual that is certainly worthy of the Norman R. Carson Award."

The Lone Star Alumni Chapter wholeheartedly agrees. Congratulations, Kenton Eppard!

RUNNERS-UP
Jeffrey J. Bain, California State University, Fresno. Jeffrey J. Bain has clearly demonstrated his leadership abilities to the Central California bagpiping and Scottish heritage community. He founded the Piping Society of Central California and has served as its Secretary and Pipe Major. He has also initiated a scholarship program and beginners' lessons. In 1990, Jeffrey joined the Scottish Society of Central California and in 1993 was the youngest member ever elected to Life membership status. In 1991, he reinstated the inactive Scottish Heritage Society and served as its President. He is also a member of the Clan MacKay Society and the Clan Campbell Pipe Band.

Jeffrey has been active in HKN and EEE. He was named President of Technical Design for the Micromouse Project and has written several papers concerning micromouse development. Jeffrey plays tenor saxophone in a CSI jazz band and has participated in many piping and drum majoring competitions.

Duane Allen Spence, Colorado State University. As a sophomore in 1981-82, Duane Allen Spence served as Secretary of the IEEE Student Branch. For that year's accomplishments, the CSU branch was awarded the Region V Outstanding Student Branch Award. Serving as IEEE President for 1992-93, Duane was responsible for many activities, including the Annual Thanksgiving Food Drive, which served more than 100 needy families in Fort Collins. He is active in HKN, where he has been elected Vice-President for 1993-94. Duane is also active in Tau Beta Pi, the CSU RAM Marching Band, the CSU Basketball Pep Band, and the CSU Campus Club.

While a participant in the Undergraduate Scholars Program with the Optoelectronics Computing Systems Center, Duane wrote an optical system simulator that is now being used in an educational environment to assist students in understanding optics. He wrote and presented a paper entitled "OPSSIM: An Optical System Simulator" at the Western Multiconference on Computer Simulation.

Bret Buckley Colby, Norwich University, Northfield, Vermont. Bret Buckley Colby has been very active in Tau Beta Pi. In 1991-92 he organized a campus recycling program, in 1992-93 he served as Secretary and also organized the tutoring program, and in March 1993, he was elected President. He has also been active inEta Kappa Nu, Drum Major of the Regimental Band, Administration Officer of the Norwich University Christian Fellowship, Cadet Master Sergeant of the Corps of Cadets, and Midshipman Lieutenant in the NROTC Midshipman Battalion. Since 1988, Bret has served in the United States Navy, currently as Electrician's Mate Second Class (E-5). Bret is also currently working as a student tutor in the Learning Support Center.

The Lone Star Alumni Chapter reviewed many, many fine entries. All the applicants are to be congratulated on outstanding qualifications. This year's selection committee consisted of Naser Ulhaq, Greg Y ene, Laureen Parker, Kirk Ferrita, Adrian Holmes, Flip Lockhoff, and Michael Schoenfelder. Special thanks to Laureen Parker for coordinating and supervising the entire award process.

A Life Subscription to the BRIDGE is available at a modest cost of $60. Send a check with name and address to:

HKN BRIDGE
P.O. Box 2107
Rolla, MO 65401

DENICE D. DENTON WINS
C. HOLMES MACDONALD OUTSTANDING TEACHING AWARD
by Robert F. Arehart

At a ceremony held by the Department of Electrical and Computer Engineering (ECE) on Commencement day, December 10, 1993, Professor Denice D. Denton, winner of the 1989Eta Kappa Nu C. Holmes MacDonald Outstanding Teaching Award, was presented with a Certificate and an engraved pewter plate. The ceremony was attended by graduating ECE students, parents, and guests. Professor Bahaa Saleh, the Department Chair, made the presentation.

The above remarks, provided by Professor Saleh, describe the official presentation of this prestigious award, which was made several months after Dr. Denton learned that she had won the 1993 Award. Because she was on leave of absence to participate in a special overseas program, the award presentation was delayed.

Dr. Denice D. Denton is an Associate Professor in the Department of Electrical and Computer Engineering at the University of Wisconsin-Madison. She spent the Fall Semester of 1991 as a visiting scientist and the summer of 1990 as a visiting professor at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland. She received the B.S., M.S. (1982), and Ph.D. (1987) in Electrical Engineering from M.I.T. Her dissertation focused on the characterization of polyimide, a polymeric insulating material used in integrated circuits as an intermetal insulation and passivating film. Particular emphasis was placed on monitoring the effects of moisture on the dielectric properties of this film. In the course of this work, she began to investigate the possibility of the use of polyimide as a capacitive moisture sensor. Her current interests include the design of an integrated "smart" moisture sensor, the investigation of the long term reliability implications of the use of polymers in integrated circuit applications, and the use of micromachining in solid state actuator design.

Dr. Denton heads the Plasma Deposition and Polymerization Thrust Area of the NSF Engineering Research Center (ERC) for Plasma-Aided Manufacturing at UW-Madison. Her work in the ERC focuses on plasma deposition of polymers used in photonic and microelectronic circuits. She is a member of the National Research Council Plasma Processing and Processing Science Panel. She is a recipient of the National...
At the time when she was being considered by the award committee, numerous testimonial statements were provided by both colleagues and students in support of Dr. Denton. Although space does not permit the total collection of these supporting documents to be presented here, the following statements have been selected to indicate the high regard and esteem in which she is held by those who have had the opportunity to work with her from her remarkable approach to engineering education.

Professor J. Leon Shoheit writes, "I have known Denice since her arrival in Madison four years ago both as our Department Chairman as well as being the Director of our NSF Engineering Research Center for Plasma-Aided Manufacturing. Denice has been an essential participant in both the Department and the ERC. I say this because both the Department and the Center require a strong educational component to their activities. Of all of the faculty and staff in the Center, Denice exhibits the strongest commitment to education.

"She has won three teaching awards since her arrival—the outstanding ECE Professor Award, the Polygon Teaching Award, as well as the University of Wisconsin-Madison-Distinguished Teaching Award. The first two of these are awarded on the basis of student votes. It is totally unprecedented that a new faculty member would be awarded such honors. She has taught the introductory solid state electronics course with great spirit and innovation and has sparked a renewed interest in the field by our undergraduate students.

"Denice is also a Presidential Young Investigator, the latter being awarded immediately after her arrival in Madison. I believe that she was able to obtain all of the industrial matching funds within a few months of receiving the award. In the Engineering Research Center, Denice is a member of our Executive Committee and actively participates in all aspects of polymerization experiments—one of which uses modern engineering statistics to optimize the process. We rely on her greatly both for her knowledge of microelectronics as well as for her considerable organizational and interaction skills with all of the ARC program—industry, faculty, administration, staff and students. She has given several presentations to various review groups and all have commented on her abilities to describe her activities and the obvious enjoyment she gets from her research work.

"Denice’s teaching ratings are categorically the highest that I have ever seen in my 25 years of teaching here at Wisconsin. It is a pleasure to listen to Denice lecture, converse with students, and make technical presentations."

Julie Morash states, "I am currently a senior majoring in electrical engineering, specializing in microelectronics. I have known Professor Denton for two and a half years. Initially I knew her as a student in ECE 240, Electronic Devices, which she taught, and subsequently as a student hourly in her research group. I am looking forward to the class which I will be taking with her during the spring semester.

"As a teacher she was outstanding. In class she was able to communicate complex ideas in a manner that could be easily understood. She stimulated thinking by use of practical examples and real world problems to complement the theoretical aspects of the subject. Students were motivated by her lectures. She was also readily available and willing to help students at all times. Her afternoons were spent working with her on homework problems. She would repeat things until everyone understood. It is obvious that Professor Denton takes teaching very seriously.

"My decision to specialize in microelectronics was much due to Professor Denton’s influence early in my academic career. I have chosen her as my advisor and have benefited greatly from her knowledge and guidance. She also had the opportunity to gain hands-on experience in microelectronics processing by working with her on research projects. I believe this has significantly contributed to my professional development, acquiring skills and abilities which would otherwise be hard to gain as an undergraduate.

"In summary, I would say that Professor Denton is the best professor I have ever had, a view that I believe most students share."

Professor and Center Director for X-Ray Lithography, Franco Cerrina, remarks, "I have known Professor Denton since she joined our faculty in 1987 and consider her an outstanding educator and colleague. She has taught both undergraduate and graduate courses, mainly in the solid state and electronic devices areas, and her students consistently have ranked her highly (generally in the top fifth of our faculty). Although she has taught many courses, I would like to highlight her efforts to integrate technology into the engineering course on Microelectronics (ECE 240), because it gave me the opportunity to witness firsthand her great skill as an educator as she roused the students and sparked their interest in what is sometimes a dry subject. The experience also left me deeply impressed with her ability to dissect the material and then reassemble it into an organic presentation where the most important topics stood out and those which could be dispensed with were eliminated and scorned.

"Although we haven’t taught a course together since that semester, it is always a pleasure to have students teaching her. I have taken previous courses from Professor Denton. After taking into account the variations intrinsic to any group, on the average these students display a better understanding of the material and a better skill in conveying learning than the others. To me, this is direct evidence of her mastery as a teacher. In addition, by preparing her students in this way, she helps us and our colleagues do a better job. She is truly an asset to all of us.

“From time to time, I have listened to students criticizing our faculty. The consensus seems to be that Professor Denton’s students hold her in high regard. There is ample proof for this in the official teaching awards she has earned, as well as in the unsolicited awards that the students themselves have given to her for the quality of her teaching.

"As a colleague, my praise for her ability to impart knowledge is as strong as that of the students. She is an excellent communicator; her sound preparation is the base onto which her elegant lectures are built. She is always accurate, but never dry. She possesses the talent of first gaining and then holding the listener’s undivided attention. I have seen this in the classroom, as well as with any presentation that she has given to faculty and other groups on campus, where the audiences tend to be a bit more jaded and impatient. These audiences appear to feel her presentations as riveting as the students obviously find her classroom lectures to be.

"Professor Denton demands excellence from her students, while managing to establish great rapport with them, both as individuals and as a group. This goes beyond purely academic subjects. She is a tireless advocate for the students and an advisor in the best sense of the word. She will help her students plan their academic careers and help them, when necessary, cut through the bureaucratic red-tape which is, unfortunately, part, and parcel of a large university. It is a rare faculty member who will take the time to help students in this way, and I believe Professor Denton deserves great credit for her efforts on behalf of students inside and outside of the classroom.

"Professor Denton’s reputation as a compassionate person, a top-notch researcher, and an outstanding teacher has not gone unnoticed. This is evident by the great number of students who seek her as an advisor and as a mentor. She reaches beyond the boundaries of academia and into the social networks that weigh heavily on our society. She is, for example, extremely active in minority programs, both socially and professionally. Since I share with her the belief that it is necessary to expand the roles of minorities in engineering, groups vastly underrepresented in the discipline, I truly believe she should be honored for her commitment and hard work in this area. Teaching is not done in a vacuum, so it could hardly be done by professors and scholars who do not reach out to those who are at a disadvantage. Professor Denton certainly goes the “extra mile” to help minority students succeed, which I find more than worthy of commendation.

"In summary, Professor Denton’s students revere her because of her exceedingly high standards and her serious approach to teaching and, more simply, because she truly cares about her profession and about the success of her students. I am familiar with the teaching records of all faculty in our department, and Professor Denton is one of our best undergraduate teachers, and excels,
as well as a teacher and advisor to graduate students." Regina Ghodssi writes, "Professor Denton has consistently provided me challenging and exhilarating instruction over the last three years of my undergraduate career and beginning of advanced graduate study. I am a first-year graduate student at UW Madison and have earlier been very gratified by the academic rigor of my course load. Professor Denton has been instrumental in developing my research skills and has encouraged me to undertake challenging projects.

"Beyond her knowledge and command of the subject material, Professor Denton was easily approached and provided clear and concise advice. Her demeanor in class was always professional and her lectures were well organized. She also encouraged creative discussions and if necessary offered further explanation of concepts. Professor Denton's exceptional teaching skills, challenging work opportunities, and professional conduct with students has become a person that is a great attribute to the University of Wisconsin's engineering school."

Professor Leon McLaughlin comments, "Denise Denton and I co-taught an undergraduate course, ECE 240, for two semesters. This course, Electronic Devices, is an important course for students interested in the concepts of semiconductor devices. It is, in my opinion, the most difficult of the introductory courses because it requires the instructor to present a relatively sophisticated synthesis of modern physics (in particular, solid state physics and quantum mechanics) and device modeling to students with no previous exposure to either methodology.

"Three years ago Professor Denton reorganized and modernized the material for this course. Students who successfully complete this course now have (a) mastered the fundamentals of the three principal semiconductor devices, (b) can analyze their devices in an electrical circuit, and (c) are familiar with the modern tools for design, fabrication and testing of these devices. Because no one book covers the material, it was necessary for Professor Denton to produce sets of class notes on selected topics. These are now used to augment the text. I am very happy with the organization as well as the content of this course. It is my feeling that our students are now getting a modern introduction to semiconductor devices, thanks to Denise."
Chapter Activities

Zeta Beta's Monument Project 1990–1992
A Story in Pictures

Zeta Beta Chapter
Texas A & I University

Monument
The Zeta Beta chapter decided to erect a monument to symbolize the perseverance and dedication the professors and students have instilled in the department. The first step we took in starting this project was to contact the Zeta Pi Chapter, State University of New York at Buffalo, to obtain literature pertaining to their monument design.

The Zeta Beta Chapter decided to go with the monument design of Zeta Pi and began the process of getting the idea approved by the university. The monument dealer assisted us in the dimensions, the foundation layout, and the price of the stone.

The monument is a podium shaped column with the Wheatstone Bridge set in the front. There is an inscription on the top and front of the column.

The inscriptions were developed and a contractor was obtained. Funding was provided through IKKN alumni, faculty, and fajita sales. The stone was then purchased, and the place to locate the monument was then established and approved. The actual setting and dedication of the monument was set for April 1992.

The funding for the monument continued and the student committee board continued organizing the endowment.

The monument was erected in late March. Bushes and other plants will be added later to beautify the area. The monument and foundation were cleaned during initiation week.

At Right, Monument being installed

Below, Monument Foundation being cleaned
At Left, Monument being cleaned

Below, Monument Foundation being waterproofed

At Right, Zeta Beta Officers Surround Monument

Below, Zeta Beta Chapter Members at Monument Site

(Photos continue on page 24.)
Zeta Beta Initiates Preparing for Fajita Sale, Spring 1992

Zeta Beta Fajita Sale Helps Pay for Monument

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