BRIDGE

springtime '84

eta kappa nu

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OUR COVER
We selected lovely little Sarah Meyer, in the glorious Springtime of her life, as our symbol for Springtime in this May issue. The photographic art is by the Don Byrne Studios of Kankakee, Illinois.

The BRIDGE is published by the Eta Kappa Nu Association, an electrical engineering honor society. Eta Kappa Nu was founded at the University of Illinois, Urbana, October 28, 1904, that those in the profession of electrical engineering, who, by their attainments in college or in practice, have manifested a deep interest and marked ability in their chosen life work, may be brought into closer union so as to foster a spirit of liberal culture in the engineering colleges and to mark in an outstanding manner those who, as students in electrical engineering, have conferred honor on their Alma Maters by distinguished scholarship activities, leadership and exemplary character and to help these students progress by association with alumni who have attained prominence

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THE
ALTON B. ZERBY
OUTSTANDING ELECTRICAL ENGINEERING
STUDENT AWARD
1983

THE ETA KAPPA NU ASSOCIATION

Student Award Winners

Steve Eugene Watkins
WINNER 1983

Wins expense-paid trip to Disneyland and an Award Dinner in his honor, from the Alton B. Zerby Perpetual Memorial Trust established by the Eta Kappa Nu Official Family, and a gift of $500 from the Carl T. Koerner Perpetual Memorial Trust established by Edith Ann Koerner.

THE
ALTON B. ZERBY
OUTSTANDING ELECTRICAL
ENGINEERING STUDENT
AWARD

Text by
Colleen and Larry Hamilton

STEVE EUGENE WATKINS with a G.P.A. of 4.0 was nominated by Gamma Theta Chapter at the University of Missouri at Rolla. He was honored with membership in Eta Kappa Nu, Tau Beta Pi, Phi Kappa Phi, Kappa Mu Epsilon, Phi Eta Sigma, Toastmasters International, Speaking and Leadership Development Organization, Future Farmers of America, and is a member of the IEEE. He has served as Bridge Correspondent for Eta Kappa Nu and as President of the IEEE and as President of the Future Farmers of America.

He was in charge of planning a question and answer meeting between student body and members of the state legislature and the UMR Board of Curators which helped inform students about issues concerning the university and to make the student concerns known.

Mr. Watkins wrote a paper entitled "A Fiber Optic Magnetic Field Sensor Using Intensity Modulation" and was first place winner in the IEEE Student Paper Contest and he won first place in the Missouri Academy of Science Paper Contest. He helped pay for his education by working for Amax Lead Company as an assistant planner in the Maintenance Department and for The Dent County, Missouri Cattle Farm, in charge of maintenance and improvement of building and grounds (150 acres). He also worked at Arkansas Power and Light Company in their "Arkansas Nuclear One", a power plant.

He has helped his community by serving on The Salem Vocational Agriculture Advisory Committee, The Salem High School Curriculum Review Committee, The UMR Undergraduate Bulletin Review Committee and is the Electronics Chairman of UMR Boy Scout Merit Badge Day.

Mr. Watkins and a partner planned, executed and presented a 20 minute video tape on a human theory that focused on communication in campus job interviews.

THE ALTON B. ZERBY OUTSTANDING ELECTRICAL ENGINEERING STUDENT AWARD

HONORABLE MENTION 1983

Stephen Andrew Brobst

Charles Nathaniel Flemmings

John Frederick Hiehle, Jr.

Anuj Kumar

Steven David Robinson

FINALISTS 1983

Carolyn Louise Beck	Cal. State Poly. U., Pomona
Raffi Codiloglu	Iowa State University
Kevin Michael Nicholas Passino	Tri-State University
Richard Bruce Wallace	Northeastern University

STEPHEN ANDREW BROBST with a G.P.A. of 3.94 was nominated by Mu Chapter at the University of California at Berkeley. He was honored with membership in Eta Kappa Nu, Tau Beta Pi, UCB Honors Student Society and is a member of the IEEE. He served as President of Eta Kappa Nu.

He organized a new student orientation for incoming students and worked on a data base system to computerize the Eta Kappa Nu files. He has worked as computer science course tutor and has had experience tutoring for the blind in programming languages. He has won the Hewlett Packard Competition in Introductory Electronic Design, the Bank of America Achievement Award and Scholarship, the National Honor Society Scholarship. Mr. Borbst completed the requirements for his B.S. in EECS in only three years by taking extra classes. He has written "Fundamentals of Design" to be published in California Engineer.

He served his community through the East Bay Hunger Project and as a Youth Soccer coach.

He enjoys frisbee, soccer and chess.

CHARLES NATHANIEL FLEMMINGS with a G.P.A. of 3.76 was nominated by Eta Chapter at the North Carolina Agriculutral and Technical State University. He has been honored with membership in Eta Kappa Nu, Alpha Lambda Delta Honor Society and is a member of the IEEE. He served as President of Alpha Lambda Delta and as a tutor for the IEEE.

Mr. Flemmings is the inventor of an automated crystal growth system for a Space Shuttle experiment. The goal of this program is to place a payload on board the Space Shuttle flight in 1985. He won the Naval Material Command Co-op Program Scholarship and the Babcock and Wilcox Scholarship. He wrote two technical manuals, NEC/VAX and Buoyant Cable Antenna for the Naval Underwater System Center. He developed a computer program designed to produce a resume book.

He served his community by participating in a fund raising campaign for the Red Cross.

For relaxation he enjoys inventing and reading.

JOHN FREDERICK HIEHLE, JR. was number one out of a class of 186 and was nominated by Kappa Chapter at Cornell University. He has been honored with membership in Eta Kappa Nu, Tau Beta Pi, Quill and Dagger Honor Society and is a member of the IEEE and The Joint Engineering Student Advisory Council. He has served as President of Eta Kappa Nu and expanded the tutoring program.

Mr. Hiehle has served his community by directing all the advertising for "Phi Psi 500", an annual Fraternity event, which raises about $12,000 for a needy local charity.

Mr. Hiehle has helped pay for his education by working at Gilbert Associates and he participated in the design and analysis of pipe supports of nuclear power plants. He has completed all the requirements for entrance to medical school. He won the Scott Paper Company Award for Leadership at Cornell University.

For relaxation he enjoys sailing and studying cricket behavior for research in neurobiology.

ANUJ KUMAR with a G.P.A. of 3.86 was nominated by Psi Chapter at the University of Texas at Austin and has been honored with membership in Eta Kappa Nu, Tau Beta Pi and is a member of the IEEE.

Mr. Kumar has worked as a research assistant, Department of Biomedical Engineering at the University of Texas, designing a chemical sensor for measurement of serum electrolytes, hydrogen ion, and CO_2 tension (Patent Pending). He developed computer programs to assist the Dept. of Physiology and Biophysics in collecting and maintaining scientific information. He has won the Senior Science Talent Scholarship and was awarded Research Assistantship for Outstanding Academic Status by the University of Texas. He has authored publications and reports on biomedical engineering.

He helped coordinate tutoring sessions sponsored by Eta Kappa Nu. He also launched an "Earn While You Learn" scheme for the students.

For relaxation he enjoys playing cricket, swimming, tennis and photography.

STEVEN DAVID ROBINSON with a G.P.A. of 3.97 was nominated by Beta Alpha Chapter at Drexel University. He has been honored with membership in Eta Kappa Nu, Tau Beta Pi, Phi Kappa Phi and is a member of the IEEE. He has served as a volunteer instructor for the Eta Kappa Nu Engineering in Training Review Session.

He received the Eagle Scout Award and received acclaim from former Presidents Gerald Ford and James Carter. He has won the Kodak Scholar's Program, Herman Schaevitz Memorial Scholarship and the Phi Eta Sigma Founder's Scholarship. He worked with Dr. Yeheskel Bar-Nes of the ECE Department on a device called Frequency Estimation Loop and they plan to publish a paper.

Mr. Robinson served his community through the Muscular Dystrophy Association and the Boy Scouts.

For relaxation he enjoys racquetball, skiing, tennis and auto repair.

Creativity And The VIDEODISC

DR. JAY J. BRANDINGER
Division Vice President and
General Manager RCA VideoDisc Operations

INNOVATION AND ITS CHARACTERISTICS

Machiavelli, in the book, *"The Prince and Discourses,"* noted "There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things, because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new."

What, then, is this thing called innovation that is both cherished and despised at the same time? The dictionary defines innovation as something new or different. The act of innovating is to introduce new things or methods.

There are really two types of innovation—that which is *radical*, as represented, for example, by a major change in technology, material and/or construction, and that which is *incremental*, often overlooked as not being innovative. In the first category, our culture has provided an abundance of incentives and recognition to individual inventors like Edison, creators like Einstein, innovators like Whitney, like Bessemer for the steel furnace, like Bell for the telephone, like Townes for the laser, and many others that you could also list. We are a society that recognizes personal achievement. This is not surprising since we were trained that way from our earliest days in school. Weren't we all rewarded for high marks and given negative rewards for low ones? Remember all the individual player-of-the-year awards, valedictorians, inventor recognitions, decorations for military valor—all aimed at giving positive strokes for individual achievement. I challenge you to remember the names of specific *teams* of people, who have made it possible for the innovations which have taken place in transportation, medicine, engineering and science that have so greatly impacted the way in which we live. Perhaps the best known teams were the Wright brothers who gave us the airplane, the Curies for the discovery of radium, and Shockley, Bardeen and Brattain for the transistor.

But which team should we recognize for the development of jet flight, the measles vaccine, the television system through which we receive information, the development of the power distribution network that so many of us take for granted. We in the United States really have not built into our reward system team performance.

That does not mean we should stop recognizing those who make individual contributions to advance the technologies of today and tomorrow, for that is in fact the key reason why we are here today—to recognize such individuals. I would hope that by the conclusion of this talk you will have added a new perspective and perhaps have some new challenges to consider relative to the recognition of team innovation.

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If we measured innovation based on yearly research and development growth rates using five-year averages, the percentage would show a decreasing trend from about 14.6% in 1956 to 3.6% in the 1976-80 period. Today's managers were schooled in the '50s during a period of many radical innovations. Radical new products meant for the consumer that they could buy their first car, their first TV, their first refrigerator, even if it was not first quality and not cost effective. This, in part, was a result of an expanding economy after World War II. In a sense, everybody could make money regardless of their effectiveness in business.

Japan, during the same period, took on as a national goal the creation of industries that could provide goods to world markets with incremental innovation. I do not exclude or overlook quality which, in fact, was an important face-saving national goal as well. I needn't tell you how effective the sustained performance of Japanese manufacturing has been compared to us and how devastating it has been to other world manufacturing organizations. The fact is, the Japanese did their job very well, and the rest of us invented.

Another indication of decreasing effectiveness in innovation is in the relatively small growth of patents from 1956-1983. In the period 1956-1961 there were some 385,000 patents issued in the United States. In the 1971-1975 period there were 510,000 patents issued, and in the 1976-1983 period, a drop to 506,000. Another statistic you may find interesting is the number of graduating Ph.D.s. In 1965, according to the National Science Foundation, we graduated 2,000; in 1970, 3,400; in 1975, 3,000; and in 1979, only 2,500.

The U.S. economy, along with the rest of the industrial world, is in trouble because of the slow pace of technological innovation; this in spite of the exploding personal computer market, according to the systems dynamics group at MIT. They contend that innovations occur in clusters and the economic growth that they trigger follows a long wave-like pattern of 40 to 60 years. In their view, we are entering the downside of the wave. Technology-based industries including autos, airplanes, steel, chemicals and machinery that fueled the boom of the '50s and '60s are now on the decline. The next boom will be generated by today's infant technologies of solar energy, biogenetics, as well as computers and electronics. Computers and electronics are classified in their infancy since they have not yet substantially impacted employment and economic growth.

Cost reduction is the major focus in the old line industries, preventing them from closing down completely. What is needed is a host of breakthroughs that will generate new industries and cause major changes in life styles, just as trains, cars, airplanes, electricity and telephones did in the past. The downward trend will continue in the United States until we reduce our dependence on smokestack industries and generate major new ones.

The truth of these statements comes from industry statements like "a productivity renaissance is emerging...as more and more manufacturers turn to innovative manufacturing technology and computer-controlled systems" to cut costs!

From computer aided design, computer assisted manufacturing to robotics, industries are trying to salvage their current businesses.

The videodisc is one of the infant electronics industries. Its new technology of highly cost effective information storage, i.e., less than 10 milli-microcents/bit will spawn many new hardware and software businesses. This in turn will lead to important employment and economic growth. For this reason it is worthwhile to examine the videodisc story. It is a story which shows one company's commitment to innovative technology.

For those of you who are not aware of RCA's portfolio of businesses, you should understand that RCA's commitment to videodisc comes from a company that broadly participates in video products and services.

RCA is the parent company for NBC, a major commercial U.S. broadcaster.

RCA Americom distributes the majority of pay TV programs in the U.S. via RCA-built satellites.

RCA Cablevision builds and installs hardware for U.S. cable TV operations.

RCA has joint ventures in international home video programming distribution.

RCA is the No. 1 consumer electronics distributor of television and video cassette recorder products. These products have been built on innovation and sold with highly-creative marketing.

POTENTIAL OF THE VIDEODISC

RCA's commitment to the Videodisc comes from our deeply-held conviction that the videodisc offers the consumer a truly new medium for having program material available when and how they want it. It is a product that should have worldwide appeal along with video cassette recorders, direct broadcast satellite, cable TV and pay TV. Videodisc is, in our opinion, the next mass market consumer product.

The basic characteristics of videodiscs which led to this conviction are as follows:

The videodisc can and will lead to significantly lower costs than other selective programming delivery systems. No system which has yet been conceived can match the low cost potential of the videodisc without sacrificing quality or time while still giving the consumer total control over what, when and where they can view the program.

The playback mechanism for the RCA CED system meets our criteria for the consumer market by being low in cost, simple to understand and operate, reliable and readily serviceable.

RCA's first SelectaVision VideoDisc Player Model SFT100

RCA believed in these fundamentals all the way back in the 1950s when the first work began on videodiscs and we still believe in them today. While there have been a number of systems developed in this same time period, including satellite distribution, video-cassette recorders and two-way cables, I would classify these changes as incremental rather than radical breakthroughs. They have not caused us to modify our view of the videodisc system.

Why the CED system? The CED system was created for the mass consumer market by basically aiming for a low cost, high performance and simple videodisc system. The system decisions gave form to the CED system as follows:

Disc specifications were generated so that high manufacturing yields and low costs could be achieved. This involved the choice of a 450 rpm rotational speed, a 12-inch diameter disc, smallest information elements of 0.5 microns, and 10,000 grooves per inch, and that was just the beginning.

The basic criteria for the CED system led us to the use of grooves as a low-cost aid to stylus tracking both in normal serial play and when radially scanning the disc at speeds faster than normal.

The basic criteria for the CED system led us to choose a capacitance readout of the disc as the lowest cost, practical approach to both the stylus and the player mechanism.

Many years of study and experimentation were required to make the proper choices for the CED system. Pressure, optical, and capacitance pickups; grooved and ungrooved disc tracking; electron beam, laser and electromechanical mastering; pressing

using injection molding, compression injection molding, and compression molding of discs were all evaluated and the CED system was chosen since it represented the best balance of performance, cost and quality.

MASS MARKET OBJECTIVE

Had our marketing objectives been different, for example, a high performance broadcast playback device, our system choices would have been completely different. With our mass market objective as the main focus, the CED system choices were really not difficult to make. The real challenge was the conversion of these system decisions into practical, manufacturable, low-cost products that could be marketed.

It is not enough to do a laboratory demonstration, nor 50 prototypes for trade shows. It is not enough to make and demonstrate 1,000 or even 10,000 discs. The true test does not even start until you have pressed millions of discs, manufactured hundreds of thousands of players and then actually sold these products to highly critical consumers.

OVER 5 MILLION DISCS

This brings me to the next point in my discussion, a CED status report on the U.S. market. More than 5 million discs have been produced and sold. More than 300,000 players have been produced and sold. We have achieved a high level of initial consumer satisfaction and we have continued our high level of investment to increase consumer awareness of our product. By the end of 1982 the catalog had been expanded to more than 500 titles representing all major studios. In May of 1982, we introduced stereo, and I might add that approximately half of the players sold in the latter part of 1982 were stereo players. The press also treated us more kindly in 1982, recognizing the continued success we were having in the U.S. market.

We have learned a lot from two years in the marketplace. The CED videodisc system can be sold with strong national and local advertising and promotion. We have seen the rate of sales accelerate significantly to the order of $90 million in 1981, and approximately $200 million in 1982. We have experienced disc demand far beyond our expectations with player customers buying discs at between 20 and 30 disc albums per player per year of ownership. This is more than twice the rate we had anticipated.

Finally, we have learned again what we have always known: No really new product is ever an instant success. No product at $500 sells itself. There are no free lunches and no shortcuts. It has taken a lot of sweat, tears and money from many participants including RCA, licensees, licensors, wholesale distributors and thousands of retail dealers to build the momentum for the product in the marketplace. We are moving forward in all areas. In 1983 we expect another 300,000 to 400,000 CED players to be in the hands of consumers, along with 6 to 8 million disc albums. By the end of 1983, the CED catalog is expected to contain over 1,000 titles. In 1983 a new random access player will be introduced and we expect to broaden our product base by entering international markets.

We believe this expansion of the CED system worldwide will pay off handsomely for both the hardware and software contributors to the system. But what does the future hold and what will be required from innovation? In the case of the CED system, the introduction of the consumer entertainment system is but a beginning. The videodisc represents one of the least costly information storage mediums available, i.e., less than 10 milli-microcents per bit. Applications to both analog and digital products is obvious. The videodisc represents one of the largest and least costly ROMs available. Like a magnetic disc, it can provide rapid access to any point on the disc for information recovery. I am sure many of you are already inventing new applications and some of those inventions will appear as products within the next 10 years.

But like the videodisc, much of the main and fundamental technology required to generate new products has already been invented. There are going to be many incremental innovations which will provide distinguished new products for us to work with. The same is true in communications where fiber optics offers cost effective wide bandwidth multi-channel information transfer; the same is true for manufacturing where the combination of data processing using computers and mechanized manufacturing systems can flexibly be changed to produce new products without large additional capital investment and worker retraining; the same is true in medicine where basic technologies of computers and acoustic scanning devices have combined to give us insightful diagnostic tools and where creative biology, which offers new life species with gene splicing, may generate cures for illnesses which so far have not yielded to conventional medicine.

The need for incremental innovation will tax the minds of all of us to create the more complex and unique systems required to make our future lives healthier, more meaningful and more satisfying. It would perhaps be more satisfying to believe that there will be the one or two geniuses of the world who will conceive these innovations and relieve us all of the responsibility of doing other than implementing. I personally believe that is unrealistic and therefore propose that we must, in fact, focus on creating this new world by learning to encourage and develop *group innovation.* And that brings me to my next subject.

The world is basically smaller today and will be smaller in the future in the sense that we can no longer do things independently, for as we have already discovered, things that others do in other parts of the world have major impact on us as we on them. Our basic social structure in business requires that people work together to gain the efficiency of collective efforts focused in the same direction, if we are to successfully achieve the synergism of collective groups. The Japanese understand this principle and have shown us how to build cars, radios, television sets, video cassette recorders, motorcycles, cameras, etc. They are no smarter than we nor more able to generate concepts or to convert these concepts to products. They just follow different principles and do it more effectively. A Japanese worker believes he is part of a group and that group is supporting his economy through his company and therefore personal recognition is not a fundamental issue but rather group recognition is. This permits people to create ideas, have others build on them and create something beyond what any one of them would have done by himself.

This leads me to state the following principles that Eta Kappa Nu should in fact consider for future awards. The program of individual recognition for technical and community contributions should continue. It is, however, inadequate if Eta Kappa Nu is to provide the proper guidance to the technical community for the future. An additional class of awards should be created which recognize technical teams and companies for their innovative contribution to new products and services.

Other engineering societies have already recognized this point and have such awards. For example, chemical engineering has an achievement award which recognizes distinguished group achievement in the chemical process industries. In 1983 they will give their 27th bi-annual award to a company in the worldwide chemical process industry for having successfully developed and commercialized new chemical engineering technology within the preceding two-year period. Their criteria is based on the difficulty of the problems encountered and solved and the award is given for products that have reached commercial status within that period. Some of the recent awards have been given to major chemical companies such as Monsanto, Union-Carbide, Amoco Oil Company, British Petroleum, Proteins Ltd., and E.I. Du Pont De Nemours & Company.

So there is the challenge—a need to change the course of action of our engineering efforts to better our social environment with clear guidance that says we value people and their contributions to the group.

Editor's note: This article is a digest of the keynote address that was delivered at the Eta Kappa Nu Award Dinner in New York City in honor of the Outstanding Young Electrical Engineer in the U.S.

CHAPTERS

If your chapter has sent in news that does not appear here, it will be in the next issue. Bridge is always pleased to publish pictures of chapter members and activities.

BETA RHO, West Virginia University—During the 1982-83 school year, the Beta Rho Chapter initiated a project of remodeling the Eta Kappa Nu Room of the Engineering Sciences building. Old wooden chairs have been replaced by couches and the floor has been carpeted. These welcome changes are a great improvement to the room.

A resume book was sold to several companies and was, once again, a successful fund raiser. A Three Stooges Film Festival, consisting of three movies, was also a good fund raiser.

Members demonstrated various projects at a recent engineering week, and also served as guides for freshmen engineers to aid them in deciding which discipline to enroll in. A picnic for all of the electrical engineering students was cosponsored with IEEE. Two parties were held for members at the plush Crow's Nest.

Over twenty new members were inducted into the chapter. Friends and family were invited to a banquet held in honor of the pledges. There was an excellent attendance at the very enjoyable banquet.

by Eddie Noel

GAMMA EPSILON CHAPTER, Rutgers University—Our chapter regularly sponsors a tutoring program which offers help to students in sophomore and junior level Electrical Engineering courses. Many of the tutors are candidates for membership and do this work as part of their initiation. We believe this is a very valuable program and enables HKN members to interact with and help non-members. Some other candidates for HKN membership serve as tour guides of our College of Engineering for potential freshmen of our school.

Another activity that we've continued at our chapter this year is the sponsoring of student evaluations of our Electrical Engineering courses. These evaluations have received a very positive response by students and faculty. They enable students to express their views on course content, work load, and instructors and lets the faculty know what they like and don't like. We believe the evaluations are very valuable and hope to continue to use them in the future.

Our student-faculty mixer turned out to be a huge success. A large percentage of the students and many of the faculty members showed up. The mixers allow the faculty and students to get to know one another and we think that we've achieved this with our mixer.

We feel our chapter has accomplished many of our goals this year and will strive to continue to do so in the future.

by Ronald J. Kolczynski

The Saint Marylebone Church where Elizabeth Barrett and Robert Browning were married.

A Stranger at the Court of Saint James

part ten

Love Story

How do I love thee? Let me count the ways
I love thee to the depth and breadth and height
My soul can reach, when feeling out of sight
For the ends of Being and ideal Grace.
I love thee to the level of everyday's
Most quiet need, by sun and candlelight.
I love thee freely, as men strive for Right;
I love thee purely, as they turn from Praise.
I love thee with the passion put to use
In my old griefs, and with my childhood's faith.
I love thee with a love I seemed to lose
With my lost saints,—I love thee with the breath,
Smiles, tears, of all my life!—and, if God choose,
I shall but love thee better after death.

Sonnets from the Portuguese.

Make no mistake about it, Elizabeth Barrett loved Robert Browning and he loved her. Their love was one of the greatest ever. The above sonnet is not a translation from the Portuguese—there was no original in that language. This is entirely Elizabeth, written for her husband Robert, because she loved him so much. In Florence, one morning, shortly after breakfast, while Robert was gazing out of the window, he heard Elizabeth come in again a few moments after she had left. She stood behind him and slid something into the pocket of his coat.

"Do you know I wrote some poems for you?" she said. And then. "There they are if you care to see them."

Then she quickly slipped out, leaving him with the manuscript of her *Sonnets from the Portuguese.*

What Browning thought or felt after reading the forty-four pages of his wife's manuscript will never be known for certain, but he must have felt a deep sense of his unworthiness of such a tribute. What woman ever said sweeter or more loving things, and what man ever deserved them?

Robert encouraged Elizabeth to publish the poems, but she hesitated because they were so personal. Finally she agreed, but on the condition that they have the *Portuguese* title so that there would be the implication that they really were only translations. Why Portuguese instead of some other language? Elizabeth had olive skin and Robert often called her *My little Portuguese.*

Elizabeth Barrett was a sickly, 39-year old shut-in, living in the shadow of a dominating father, at 50 Wimpole Street, when Robert Browning came storming into her life. The year was 1845 and she had just received his first letter that began:

by PAUL K. HUDSON
Editor — Bridge

The present building at 50 Wimpole Street. Just below the first window at the right of the door is a plaque.

The plaque on the building at 50 Wimpole Street.

"I love your verses with all my heart, dear Miss Barrett...and I love you too"

She was a complete invalid confined to the studio-bed in her room 24 hours of every day. The curtains were drawn most of the time and the room was like a living death. But under those conditions she had written some very wonderful poetry and was now world famous. However, her father was impossible and had ordered her not to have any callers, especially men callers. She had already refused Wordsworth and several others when Browning, who was at that time virtually unknown, started begging her to see him. She kept the brash young man cooling his heels for a good part of a year before she agreed to see him. The rest is history. They fell deeply in love. She steadily regained her health and soon could walk across the room, then down stairs, and then take a carriage ride in the park. Next they talked of marriage, but that was not an easy matter. Mr. Barrett had forbidden all of his children to marry, and especially Elizabeth.

What was the matter with Mr. Barrett? There is no way of knowning something like that a century later. He displayed a wide deviation from the norm and there is a name for that. He was even maniacal at times. His children were never able to communicate with him properly. If they took a request to him he allowed them to say all that they wished to say, but he never gave them an answer either then or later. On the other hand he must have been fairly normal in his business activities. Historians have suggested that he may have had an unnatural relationship with Elizabeth. This is not likely because her soul was much too pure and sensitive to survive such a thing and, as stated, it was not just Elizabeth but all of his children that he would not permit to marry. Elizabeth loved her father very dearly, but only as a father.

And while we are on the subject, what was the matter with Elizabeth? Again, there is no way of determining that now. There was the matter of an injury due to a fall from a horse. Also, there was something wrong with her lungs. It was not likely tuberculosis because she made such a dramatic recovery when she fell in love. Before Robert came, the doctors had on several occasions indicated that she was in the last days of her life. She lived 15 years after she got married and delivered a healthy child.

On Saturday September 12th, 1846, Elizabeth slipped out of her home and was married to Robert at the neighboring church of Saint Marylebone. She returned to her house immediately and it was not until the 19th that they were able to make their escape from town and start out for Italy, their new home. They chose Italy because living was cheaper there and it was hoped that the climate would benefit Elizabeth's health. Robert had almost no income but Elizabeth had the income from a Trust in her name.

Although Elizabeth loved her father and implored him, in a final note, to forgive her, his rage was greater than anyone could have imagined. When his wife died he tried to preserve all the things that belonged to her, but when Elizabeth went away he destroyed everything that was hers and from that moment on, took the position that he had no daughter Elizabeth and that she had never lived at all. He would not permit her name to be spoken in his presence. In the movie *The Barretts of Wimpole Street* I can still remember vividly Mr. Barrett standing in the middle of the floor screaming "Kill the dog, kill the dog.". He was not referring to Robert but to Elizabeth's dog Flush. Elizabeth probably realized that he would kill the dog after she was gone, so she took it with her. Mr. Barrett carried this rage over the years and to his grave.

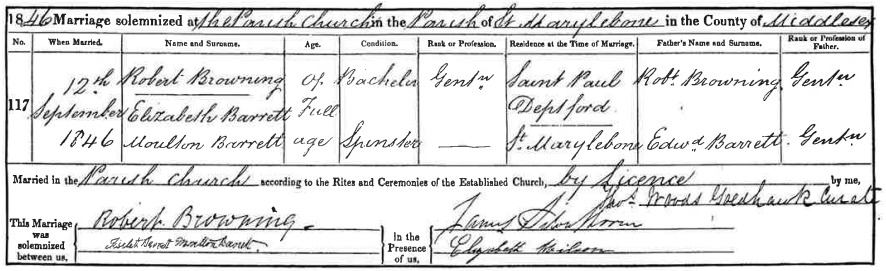
Elizabeth and Robert had a wonderful life together for about 15 years. She could not have a child at first, but not because of her illness. She was addicted to the drugs the doctors had given her and this caused her to miscarry. Later she withdrew from the drugs and gave birth to a son. They named him Robert but always called him Pen, which is short for the Italian name Penini. In due time her health failed again and on the 29th of June, 1861, passed away in Robert's arms. Her last words were, *My Robert, my heaven, my beloved, our lives are held by God.* Keeping her arms around him she kissed him and repeated *God bless you*—till he laid her down gently to sleep for the last time. She was buried in Florence.

Robert lived twenty-eight additional years, mainly in England. Several other women wanted to marry him—one was very beautiful and wealthy—but he chilled them with the statement, *My heart is buried in Florence.* Robert died on December 12, 1889 at age seventy-seven. The cemetery at Florence was now closed and so he could not be buried with Elizabeth. He was buried in the Poet's Corner of Westminster Abbey, just below Chaucer's Tomb and close to Spenser's. Pen was a delightful little boy but a disappointment as an adult.

One pleasant afternoon we were walking down Oxford Street, looking for Wimpole Street. I had misplaced my map but I knew that Wimpole was someplace in the area. I confronted a number of people who looked to be English, and not foreigners like me, but no one knew where the street could be found. I got lucky, I thought, when I found a Bobby. He gave me exact and detailed instructions, which turned out to be completely wrong. We finally found it on our own and was able to locate number 50 where Elizabeth lived. Her house was not there however. In its place was a several-storied apartment-office complex. There was a bronze plaque on the front of the building that announced that this was the location of the Barrett home. I was told later that the house was not bombed out during the war but had been pulled down by thoughtless commercial people.

Wimpole is a narrow street with little traffic so I just stood in the middle of it dreaming and pretending that I could remember everything. I could see Robert half running down the street on his way to the first

A couple being married in the St. Marylebone Church. The apse had not been built when Robert and Elizabeth were married. They stood at the top of the three steps.



18 46 Marriage solemnized at the Parish Church in the Parish of St Marylebone in the County of Middlesex

No.	When Married.	Name and Surname.	Age.	Condition.	Rank or Profession.	Residence at the Time of Marriage.	Father's Name and Surname.	Rank or Profession of Father.
117	12th September 1846	Robert Browning	Of Full age	Bachelor	Gentn	Saint Paul Deptford	Robt Browning	Gentn
		Elizabeth Barrett Moulton Barrett		Spinster	—	St Marylebone	Edwd Barrett	Gentn

Married in the Parish Church according to the Rites and Ceremonies of the Established Church, by Licence by me, Jas Wood Gresham Curate

This Marriage was solemnized between us, Robert Browning, Elizabeth Barrett Moulton Barrett

In the Presence of us, James Silvester Thorn, Elizabeth Wilson

Marriage Certificate of Elizabeth Barrett and Robert Browning.

meeting with Elizabeth, and, after he was in, dashing up the two flights of stairs to her room. And I could see Elizabeth leaving the house with her maid, to go to her marriage, and then, Robert and Elizabeth hurrying away to start their trip to Southampton, Paris and Florence. It made me very sad that I had to imagine the house—sad that it was lost forever to the world. What a treasure it would be if it were still standing.

I did not try to find Robert's home in New Cross, or the places where the two of them lived when they returned to England for short periods—58 Welbeck Street, 13 Dorset street, etc.—because I was reasonably sure there would not even be plaques. I think the streets have different names now—at least I could not find them on the map.

The St. Marylebone church where Elizabeth and Robert were married is very close to her home. Just go north on Wimpole a short way and come to Marylebone Road. Turn left and the church is just a few feet on the left. Elizabeth could have walked it easily if she had wanted to. We arrived on a Sunday too late for morning service, but we got to meet the Rector, Christopher Cooke, and his charming wife. They invited us to come to the evening service which was to be very special. The Church was starting a new program where spiritual healing would be combined with medical healing. The evening service was to inaugurate the program. A television crew from a British network would be there to record the entire service for future showing.

Needless to say we were on time for that service. The Rector asked the congregation to be patient with the intrusion of the television lights and cameras. He likened them to the palsied man who was carried to Jesus (Chapter 2 of Saint Mark). Likewise the television cameras would be carrying sick people to the Church for healing. The service included the ritual of the Laying On Of Hands. I had never before seen that done and it was a very deeply moving experience.

As I sat in my pew waiting for the others to go to the altar and have the hands laid on and the lovely prayer recited, the realization came to me that this was the first time I had ever worshiped in the Church of England. I said over to myself part of a *Morning Prayer* from their *Book of Common Prayer*, that I had learned long ago.

Dearly beloved brethen, the scripture moveth us in sundry places to acknowledge and confess our manifold sins; and that we should not dissemble nor cloak them before the face of Almighty God, our heavenly Father; but confess them with an humble, lowly, pentinent, and obedient heart; to the end that we may obtain forgiveness of the same, by his infinite goodness and mercy.

I learned this exhortation many years ago when I discovered that Cranmer had lifted it bodily from the Spanish *Mozabaric Mass*. The Arabs were chased out of Spain five centuries ago and so the *Mozabaric Mass* is no longer sung there except twice a week in a small Chapel in the Cathedral at Toledo. But this Spanish Missal will now live forever in the English *Book of Common Prayer*.

After the service there were refreshments and a social hour. The members were so friendly and kind to me that I felt like I was a member instead of a foreigner who would be with them only once. All in all, it was one of the most beautiful evenings of my life.

I was presented with a copy of the Marriage Certificate of Elizabeth and Robert. I asked to see the original and was told that it was too valuable to be kept at the Church and was in the Government Archives. I told the Rector that I did not remember Saint Marylebone and did not know any of his work. He replied that there was no Saint Marylebone. The Church was originally called Saint Mary On The Tyburn but had been abbreviated to Saint Marylebone.

When Elizabeth and Robert were married the apse of the Church had not been built and the high altar was

just beyond the three steps leading up to the present Choir from the aisle. They stood at the top of the steps to get married.

In the British Museum I was able to find two rings that belonged to the Brownings. Elizabeth's ring has E.B.B. on it for Elizabeth Barrett Browning. I was not familiar with the type that was used. The British Museum was not familiar with it either because they mounted the ring upside-down. Robert's ring has the letters Ba on it. That was a pet name he used for Elizabeth.

Robert, as we have said, is buried in the Poet's Corner of Westminster Abbey. His stone is brown in color—I think, perhaps the only colored one in the Abbey. He would have loved it.

If we take a careful look at these immortal lovers, we see some interesting things. Robert had a deep love for Elizabeth that was for all time. Yet it is clear that she loved him even more than that. Her love was complete. She was never jealous of any of his accomplishments but he was sometimes jealous of hers. When they were living in Italy and the word was passed that Elizabeth was being considered for the Poet Laureateship of England, Robert became jealous and pouted. Elizabeth would have been pleased and proud of him if he had been the one considered.

Elizabeth's remains—whatever still remain—deserve to be removed from the cemetery at Florence and buried in Westminster. She was equal or superior to Robert in artistic communication. Much of his poetry—*Sordello* for example— is flawed by being obscure and unclear. Often after reading his poems, Elizabeth would say to him, "But Robert, what does it mean?" Elizabeth's poetry is lyrical, lovely and thoughtful. Her book *Aurora Leigh* ranks with Scott's *Lady of the Lake* as one of the greatest poetic contributions in the English Language. Recent research has shown that a large part of the poetry of Emily Dickinson was inspired by passages from *Aurora Leigh.*

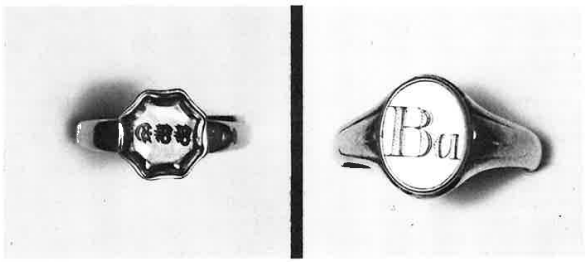
I suppose Elizabeth does not get the recognition she deserves because, for whatever reason, several other

Wimpole Street today, taken from in front of number 50.

famous poets said some unkind things about her poetry. Edward Fitzgerald saw fit to say some things even after she was dead. That caused Robert to be so upset that he got a bit out of hand. He wrote a poem for Edward that was so ugly that he surely must have regretted it later. On second thought, considering how much he loved Elizabeth, I can't hardly blame him. But the good Dean and Chapter of Westminster should read her poetry and not the poison of jealous competitors. And they should consider what price is paid when a god makes an immortal poet out of a mortal man—or woman.

Yet half a beast is the great god Pan
To laugh as he sits by the river,
Making a poet out of a man.
The true gods sigh for the cost and the pain,
For the reed that grows never more again
As a reed with the reeds of the river.

From *Pan* by E.B.B.



The rings of Elizabeth Barrett Browning and Robert Browning on display in the British Museum. Copyright—used with permission.

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For details, please contact Eta Kappa Nu's Executive Secretary:

Prof. Paul K. Hudson
E.E. Department
University of Illinois
Urbana, Illinois 61820

EPSILON BETA CHAPTER, Arizona State University—The Epsilon Beta Chapter of Eta Kappa Nu had an enjoyable and productive 1982-83 school year. We participated in some community projects, helped some people in need, assisted our fellow students and tried to keep the spirit of HKN alive in our student population.

We had split officer terms this year. Most of the fall officers graduated midsemester. The activities of both semesters were enjoyed by many HKN members.

In conjunction with other concerned Engineering clubs, Eta Kappa Nu helped organize a forum. At the forum, students were able to get straight answers to questions concerning the curriculum, requirements for graduation and professors. It was a much needed means of communication between the students and faculty, and was considered a great success.

The members of Eta Kappa Nu remember their responsibility to the community by participating each semester in the Special Olympics and public television donation drive. In the Olympics, we participated as score-keepers, organizers, coaches and huggers. There are approximately 200 special athletes each semester. We volunteer to answer telephones and take down donations to Channel Eight during their semi-annual pledge drives.

Last year, Epsilon Beta started helping with preregistration. We advise undergraduate EE students (and other Engineering majors), and we are authorized by our department to stamp and sign their forms. This service assists the professors, who are usually inundated by students wanting help. It also provides a way for students to talk to other students who have been through the classes and have had the professors before.

Our Spring president, Geoffrey Strongin attempted to sit in on the Undergraduate Curriculum Committee meetings, but they held only one meeting during the Spring semester.

Each semester we initiated an enthusiastic group of initiates. There was an Initiate's Picnic held both semesters. The weather was wonderful for both of them, and people had a lot of fun. In the fall, the Initiates were given a signature sheet to get filled out, and a test. The test was a humorous one. The test was not given during the Spring.

The Fall Induction Ceremony and Banquet were held on campus in the Memorial Union. At the Banquet, Dr. Carol Valentine gave a humorous talk on body language. Awards were given to the Initiate with the most signatures and to the Initiate with the best answer to the question, "What's the biggest problem in the EE Department, and how would you remedy it?"

The Spring Banquet was held just off campus at the Holiday Inn. The speaker was Tom Grimes, who spoke on career management. The Electrical Engineering Student of the Year Award was given to a very deserving Eta Kappa Nu member.

To keep our membership active, we initiated a call-up committee. We also held pizza parties after our meetings to increase attendance. We're starting next year off with experienced and energetic officers and hope to have another fine year.

MERRY MOMENTS WITH MARCIA

A young bride was pressing her husband's trousers and burned a hole in them.
"Forget it," her husband consoled, "Don't you remember, I've got an extra pair of trousers for that suit."
"Yes, it's lucky you have," said his wife, drying her eyes. "I used them to patch the hole."

At the Naval Air Command, the following dialogue took place between tower control and a student pilot who was having radio trouble: "Tower to Navy 119, if you read our transmission, rock your wings."
The student replied, "This is Navy 119, if you read me, rock the tower."

A small boy was balancing himself standing on his head. A woman who knew him came by.
"Aren't you too young to do that? You are only 6," she said.
"It's all right," the boy said, "You see, I'm 9 when I'm upside down!"

Then there was the minister who finished his Sunday sermon when there was thunder, lightning, hail and rain, which poured down in torrents.

"Isn't the Lord wonderful," the minister said to the congregation. "While all of us sit in here dry and comfortable, He's out there washing our cars."

Everyone says you should never put off 'til tomorrow what can be done today. But some things are really best postponed, especially an angry retort!

Work hard and save your money and when you are old you will be able to buy the things only the young can enjoy.

I've heard of the new employee who was habitually late. Finally, the supervisor called him in. "Don't you know what time we go to work here?" he asked. "No, sir," was the reply, "I haven't been able to figure it out, because the rest of you are already here when I arrive."

"It's surely nice to have the highest living standard in the whole world—It's just too bad we can't affort it."

Advice to Millions Who Rush Through Life

Take time to think—thoughts are the source of power.
Take time to play—play is the secret of perpetual youth.
Take time to pray—prayer can be a rock of strength in time of trouble.
Take time to love—loving is what makes living worthwhile.
Take time to be friendly—friendships give life a delicious flavor.
Take time to laugh—laughter is the music of the soul.
Take time to give—any day of the year is too short for selfishness.

A man who was late paying bills was sent a note saying, "Your account is long overdue—It has been on our books over a year. Must remind you, we have now carried you longer than your mother did."

One thing for sure—

You can't expect a man to see eye to eye with you when you're looking down on him.

My neighbor tells me the difference between a potential juvenile delinquent and a cute little rascal is whether he is your child or somebody else's child.

by MARCIA PETERMAN

EPSILON PHI CHAPTER, California Polytechnic State University—For fund raising so far this year, we have held a car wash and have just completed a resume book project, headed by Larry Banghart. The book included approximately thirty Eta Kappa Nu member's resumes and sales were quite successful. We have several events planned for the rest of the year including a possible $50 or $100 scholarship for an outstanding EL/EE student and several social functions including, of course, the year-end banquet. *by James E. Gharib*

OMEGA CHAPTER, Oklahoma State University—The fall has been an active season for the Omega Chapter at Oklahoma State. The semester began with the annual Student-Faculty Picnic at the home of Dr. David Soldan, Chapter advisor. Volleyball, softball, and plenty of food made for an exciting day.

New officers elected for the fall semester are: Randy James—President, Lee Sutterfield—President-Elect, Tom Robb—Vice-Chairman, Barry Coles—Recording Secretary, Kyle Robison—Corresponding Secretary, Craig Roberts—Treasurer, Daivd Keathly—*Bridge* Correspondent, and Bill Jones—Student Council Representative. Membership grew to 53 with the induction of 12 new members at a November 14 Formal Initiation. These new initiates are: Lawrence Beshear, Randy Donahoo, Brett Dodd, Sian-ee Goh, Greg Huffman, Mike Hamison, Samer Habiby, David Marks, Tom Maggio, Khuong-Haw Hguyen, James Peters, and James Rhoa.

Other activities during the semester included the continuation of tutoring services in cooperation with the College of Engineering, the awarding of the Naeter-HKN Scholarship to Omega Chapter member Martin Heimann, and the Top Ten Sophomores Dinner in conjunction with the School of Electrical and Computer engineering.

Spring semester plans, aside from the usual pledging activities, include participation in both the display and games portions of OSU Engineering Week. The Omega Chapter will attempt to retain the sweepstakes trophy won last year. The conversion of a storage room to be used as an office and meeting area for HKN and IEEE is also planned for the Spring. The Omega Chapter is well on its way toward another interesting and fulfilling year! *by David Keathly*

GAMMA IOTA, Kansas University—The Fall 1982 semester was very successful for the Gamma Iota Chapter. Our activities included four "TGIF's" at the student union, a presentation by a representative of IBM, Rochester, entitled "Engineering Considerations in a Modern Computer Plant," planning and procurement of funds for our projects in next April's Engineering Exposition, and a pre-initiation mixer.

We used "Wordstar," a word processing program available on our department's microcomputers, to build a data base of the names, addresses, phone numbers, etc., of all our current members as well as potential initiates. With the program, we send out personalized invitations and newsletters regarding activities rather than just posting signs in the E.E. building. The increased awareness and participation on the part of our members and the largest pledge class in K.U. history have made the extra initial effort worthwhile, and it has actually become quite a time saver, too.

Our fall initiation ceremony was held on November 19th, and a very enjoyable banquet followed. Dr. J. Robert Ashley, of the Sperry Corporation and the secretary of the Gamma Iota Chapter in its installation year, 1952, gave an excellent presentation entitled "Good and Bad Electrical Engineering."

We are looking forward to an equally successful spring semester. *by Mark Barsamian*

DELTA GAMMA CHAPTER, Louisiana Tech University—The Delta Gamma Chapter of Eta Kappa Nu at Louisiana Tech University has undertaken an ambitious new tutoring program aimed at all levels of students. Through the efforts of the chapter officers, faculty advisor, and the EE department head, a permanent office has been obtained in the electrical engineering building with facilities for individual and group tutoring sessions. The office is staffed by HKN members throughout the school day, Monday through Friday, on a rotating basis. So far the program has proved to be quite popular with students and faculty alike since not only are the students helped through their problems, but the faculty conference hours are thus reduced. The Delta Gamma Chapter plans to continue and expand the present program, as well as assist other campus honor societies to establish similar programs of their own.

The fall candidate program was a real success this year with eleven new members being initiated: Mark Cardinal, Dennis Fitzgerald, Timothy Jones, Jamal El-Saadi, John Gautier, Jerry Sharp, Tommy Smith, Steven Stewart, Michael Taylor, Mark Varisco, and Sara Waldon. Congratulations are due these fine students.

More projects are in the works, and we all look forward to another great candidate program in the spring. *by Cameron H.G. Wright*

GAMMA BETA CHAPTER, Northeastern University—For the '82-83 school year, the Gamma Beta Chapter of Eta Kappa Nu has been quite active. In the first meeting of the year, the members who were present nominated Prof. Elizabeth Ames to fill the post of Faculty Advisor held for many years by the late Prof. Lowenthal. At the same meeting, an amendment was passed so that Juniors, as well as Seniors, can hold offices. This amendment passed with flying colors. Later on in the Quarter, we sponsored a very successful work day at The Orchard Home in Watertown, Mass. Then toward the end of the quarter, we greeted 32 new members into our chapter.

In the Winter Quarter, a few small projects are done, first was the Creation of a committee to look at the new curriculum proposed by the Electrical Engineering Department for the future years at Northeastern University. Our comments about the curriculum were heeded well by the faculty, and will hopefully be useful for the Future Electrical Engineering students at our school.

For the Spring Quarter, we have planned several meetings, a work day, and of course the election of new officers. And, with the advent of the new Amendment to our constitution, we will (hopefully) have Juniors as well as Seniors for officers.

by Dave Doucette

BETA ETA CHAPTER, North Carolina State University—The school year has been successful for the North Carolina State University Chapter of Eta Kappa Nu. The following summarizes the Chapter's activities.

—Two members gave a presentation to a class of college-bound students at Clayton High School. They discussed both the engineering school and the electrical engineering curriculum at N.C. State University. The presentation included demonstrations of electronic equipment and electrical principles.

—Several members and pledges held tutorials for the introductory electric circuits course.

—As a pledge project, several pledges built a sign board which displays chapter meeting notices outside of Daniels Hall, the electrical engineering building. This increased attendance at meetings and sparked an outside interest in the organization.

—The chapter helped the student chapter of the IEEE to tabulate a questionnaire concerning needed improvements of the student lounge.

—The officers and members organized a very successful induction banquet during the fall semester. Dr. N.A. Masnari, head of the electrical engineering department, spoke on the educational system. Both students and faculty attended.

—New members were inducted in the fall and spring semesters. A banquet followed the fall induction ceremony, and an informal dinner followed the spring induction ceremony.

—The chapter held an end-of-the-year party.

by David S. Trotter

ZETA OMEGA CHAPTER, University of California, Irvine—From the confusion of orientation week, to the finale of graduation, this has been a productive year. It has been a busy year too. Busy for the students as at any other university. But there is also a different kind of busyness at UC Irvine. It gives one the feeling of opportunity behind every door and impresses an urgency to grasp each opportunity as if it were the key to the future. This is the busyness associated with a young, dynamic university and is seen in the new construction, rumors of new buildings, new departments, additional faculty, revised courses, increased community and industry interaction, and the installation of honor societies like Eta Kappa Nu. These are the signs that UCI is striving to reach the peak of academia. I have confidence that UCI will reach it soon.

The urgency described above lead me to become an officer in Eta Kappa Nu with a goal to help further the academic growth of UCI and its students. Many of our chapter's activities have been planned with this in mind.

Foremost in the realization of this goal is our tutoring program. We provide tutors for all engineering core course, required math, chemistry, and physics, courses, and many upper-division engineering courses. This invaluable service helps many students, strengthens our members' knowledge, and provides healthy publicity for Eta Kappa Nu.

To help our students get an overview of different industries, tours of several companies were arranged. The most memorable was a tour of the Rockwell Space Transportation Division where the Space Shuttle was designed, built, and tested. After sitting in the pilot training simulator, I decided not to become an astronaut! We were provided corporate information which was useful to our members who were job hunting.

Our chapter publishes and distributes a résumé book. This is a new project here and much time was spent collecting the names and addresses of over 60 companies, mostly local. We received excellent results. The benefits garnered from this project include visibility for Eta Kappa Nu, and increased university-industry interaction.

by John Refling

At the Univ. of Nevada Initiation Banquet, l to r- Initiate Ann Elliot, Sec. L. Orcutt, President D. Heppe, V. P. R. Merrill.

THETA PSI CHAPTER, University of Nevada—On Thursday, April 7th, 1983 our annual spring banquet was held at the Sizzler Family Steak House in Sparks, Nevada. Following the dinner, we held our initiation ceremony. Our undergraduate membership was increased from six to twenty-eight.

At a recent meeting, two new officers were selected to serve in the next school year: Vice President—Dennis Mills who succeeds Raha Merrill, and Secretary—Teresa Nauman who succeeds Laurence Orcutt. David Heppe was reelected as President.

by David Heppe

ZETA XI CHAPTER, Southeastern Massachusetts University—The Zeta Xi Chapter at Southeastern Massachusetts University has just completed a very productive year. At our first meeting, we decided we would like to make ourselves more well known on campus. To accomplish this, a logo was designed and printed on tee shirts, which were made available to members. We also recognized the top ten percent of the sophomore Electrical Engineering class. Their names appeared in our school newspaper along with congratulations and encouragement to continue their academic excellence. We hoped that this would encourage other sophomores as well in giving them something to strive for.

We sponsored a computer raffle to raise funds. A Times TS1000 personal computer was raffled off. This project received a great deal of support from the members and we raised enough money to finance our annual banquet.

In March we held our banquet for members, faculty and their guests, to present awards and welcome our new members. At the banquet we presented

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a plaque to the Electrical Engineering faculty in appreciation for their cooperation and support throughout the year.

Our last activity of the year will be a joint effort between HKN and IEEE. We have planned a picnic the weekend after finals end. We've scheduled a softball game in which we hope to get rid of the lingering tension caused by finals. It will be a much needed day of rest and relaxation.

This has been an outstanding year for Zeta Xi. We look forward to continued success in 1983-84.

by Tamara Smith

EPSILON IOTA CHAPTER, San Jose State College—I would like to report the highlights of the activities of the Epsilon Iota Chapter during the spring semester 1983. Under the presidency of William Tom, we had a successful semester. Twenty-three new members were initiated this spring.

The initiation banquet was held on April 29, 1983, and was attended by Electrical Engineering Department Chairman, Dr. Freeman, Prof. Jones, Proof. O'Flynn, and Prof. Wagner.

One other chapter's activity was participation in Engineering Open House/BBQ dinner.

by Jason Choi

GAMMA MU CHAPTER, Texas A&M—The Gammu Mu Chapter of Eta Kappa Nu is concluding another successful year at Texas A&M. Our officers for the fall and spring semesters of the 82-83 school year were as follows: President, Barry Blair; Vice-President, Tina Coles; Corresponding Secretary, Robert Braddock; Treasurer, Patricia Shuff; Recording Secretary, Tim Peters; Bridge Correspondent, Jody McCoy; Faculty Advisor, Dr. Griswold.

Thirty-four initiates were inducted at the conclusion of the fall semester, and nineteen more in the spring. This gives the Gamma Mu Chapter a total of fifty-three new members for the 82-83 school year.

Gamma Mu Chapter sponsored two guest lecturers this year. Dr. A. J. Blanchard of Texas A&M gave a presentation on 'Robotics' and a lecturer from E. F. Hutton spoke on 'Investing with Stocks and Bonds.' Activities for the past year included barbecues, a faculty vs. student softball game, and initiation parties. Our chapter of Eta Kappa Nu also sponsored a tutoring service for individuals during the spring semester. Overall, we felt that the Gammu Mu Chapter had an exciting year and are expecting many more pleasant years with our affiliation with Eta Kappa Nu.

by Jody McCoy

ZETA NU CHAPTER, The University of Tulsa—At our initiation on April 23, 1983 the following students were elected into the Zeta Chapter of Eta Kappa Nu at the University of Tulsa: Erick Contag. Caracas, Venezuela; David J. Hinn. Plymouth, Minnesota; John M. Peterson, Tulsa, Oklahoma; Brett A. Smith, Tulsa, Oklahoma; R. Ross Viguet, Fort Smith, Arkansas.

A picnic at Dr. Chriswell Hutchens's house followed the initiation ceremony.

by Cheryl Breckenridge

EPSILON EPSILON CHAPTER, University of Houston—The academic year was a busy one for the Eta Kappa Nu Epsilon Epsilon Chapter members. The year marked a return of involvement of our members. We first set up a tutor schedule where our members would be available to students throughout the year to assist those who wanted help. A librarian was elected to maintain the small library and acquire new books to enlarge the library that our HKN Chapter along with the IEEE branch jointly maintain. Some of our members helped the Electrical Engineering faculty host an Honors Student luncheon to recognize those students in the honors program.

To give prospective initiates a view of the things our Chapter is involved in, a pre-initiation wine and cheese party was held before the fall and spring initiation banquets. The speaker for the fall banquet was Dorothy Jackson of the University of Houston Career Placement Center. Dorothy's speech was on the career opportunities available to the graduating students. She also spoke on the ways a student should seek out these opportunities. The speaker for the spring banquet was Tony Perez-Falcon of Schlumberger Well Services of Houston. Tony stressed the importance of the Eta Kappa Nu requirements and how they should be applied to the engineer before and after graduation.

In the spring, our Chapter members revised the Epsilon Epsilon Chapter By-Laws. This revision was made to update and to specify the duties of the officers. Our Chapter also nominated Randy Green as our outstanding senior electrical engineer for the National Award nominations. For those Chapter members who were active, current membership cards were issued to recognize their active participation. To bring the faculty closer to the students, our Chapter sponsored a dunking booth during the IEEE branch Chili Cookoff. We appreciated the enthusiasm that the faculty exhibited in participating in the dunking booth. At the end of April, new officers were elected for the next year. These newly elected officers have vowed to bring the students and faculty closer together and to make our Chapter more involved in the community. Our Chapter's final activity for the year was a picnic for all members and faculty to reward the members and faculty for a job well done.

by Randy Green