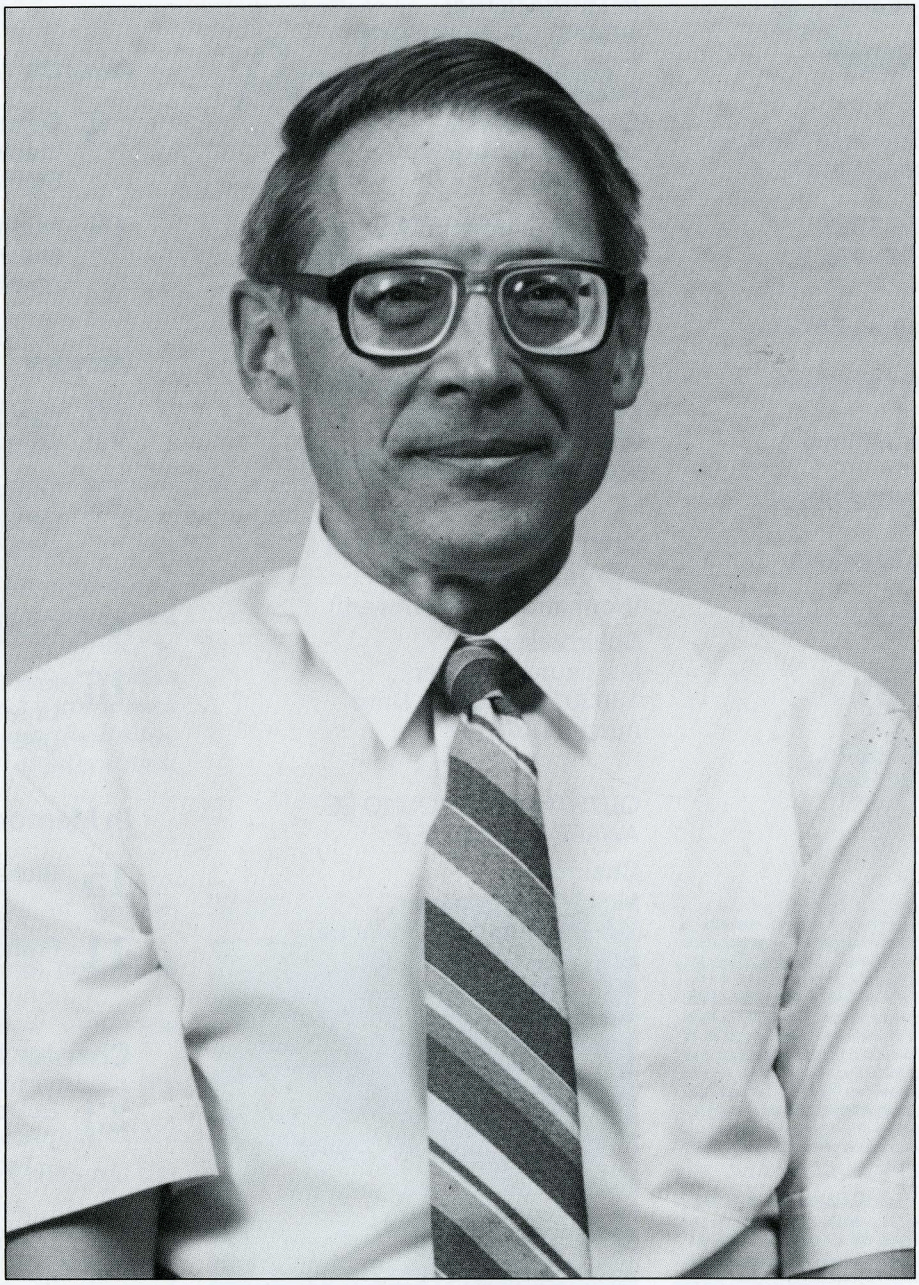
BRIDGE of Eta Kappa Nu



Dr. Harold K. Knudsen
HKN MEDAL OF HONOR Recipient

Volume 86 No. 3 **May 1990**

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J. Robert Betten

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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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Part Three

Haworth

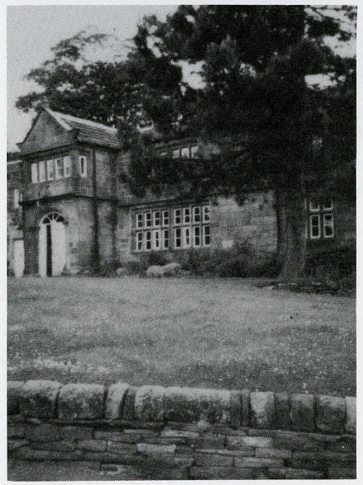
by
Paul K. Hudson

EDITOR'S NOTE: This article was prepared by Paul Hudson just before his death. We felt it appropriate to include it in this issue. Other articles prepared by Paul for future issues of the Bridge are on file in the Bridge Office and will be used at later times.

But, when the days of golden dreams had perished
And even Despair was powerless to destroy;
Then did I learn how existence could be cherished
Strengthened, and fed without the aid of joy.

from *Remembrance*

Many people have considered the *Remembrance* poem of Emily Bronte to be biographical. It could have been, but it was not. Her short life was spent in the small village of Haworth on the bleak moors of Yorkshire, England, but she was happy there most of the time. Her active and creative mind found expression not only in her famous book *Wuthering Heights* but also in personal recreation. The poem *Remembrance* was spoken by an imaginary girl named Rosina to her dead lover Julius in an imaginary world that Emily called Gondal. She made maps of this imaginary country, and composed countless poems and legends of its past. That is the kind of a girl she was. And her sisters Charlotte and Ann were pretty much the same. Charlotte also had an imaginary land and she named it Angria. All in all, the Bronte sisters are not only the most famous but also the most interesting women in all of English literature. It is no surprise then that their little village of Haworth has become an important tourist center.



Old Haworth Town Hall.

At the Viking Hotel in York we rented a car to drive to Haworth, a distance of about 40 miles. We had reservations there for a couple of nights at a hotel with the promising

Charlotte Brontë by Artist G. Richmond. Copyright Photograph: National Portrait Gallery, London. Used with permission.

name of Old White Lion Inn. I asked a porter how to get to the main highway and was told to go up to the next corner, turn left and just follow the road out of town. There was one problem with that. Ancient English cities are not laid out in blocks but are a maze of cow-paths going in all directions. Very likely that is what they were in the misty past. More than that, there are no highway signs in the towns telling one which way to turn to stay on his route. Since I had to try to find my way out of York and then go through two or three other towns before I reached Haworth, I had the wisdom to realize that I was in for a miserable time. I said to a Porter, "Do you have any friends who are not working and who know their way to Haworth, who would be willing to guide us over there and bring us back the same day for a fee?" He said "Let me talk with the Hotel Manager. Maybe he will let me do it." I said, "Are you sure you know the way there?" He replied, "Oh sure, I was just over there a month ago." In a little while he came back and said, "Let's go."

The Porter was a very fine young man named Lee Robinson. He was actually in a training program to become a Hotel Manager in the Viking chain. He was to continue his education at Cambridge in the Fall, but for now he carried suitcases for the "tour people" in the late afternoons and early mornings. He was well able to get us out of York and as far as Leeds, but then the trouble started. He came to the conclusion about the same time that we did, that even when you know your way, you have a hard time of it in England. I did not try to help him any for a long time but then I finally said to him, "Lee, this is the third time we have gone through Shipton, I think we are really lost." He replied, "No, one of those times we were in another town, but it is true we are lost." It was a great comfort to me to have someone along who knew exactly which town it was that we were lost in. It was also a comfort that Great Britain is an island and so there was no way that I could accidentally wander into some other country and have visa troubles.

I stopped the car and he got out to ask people the way. Although we were less than ten miles from Haworth, a very important tourist attraction, no one seemed to know how to get there. Worse yet, several people gave us the wrong directions. Needless to say, we finally found the place but I can say for sure that if I had been alone without a guide, I never would have. More than that, I would never have found my way back to York.

In my entire life I have known only two places that were so fantastic as to be unbelievable. By that I mean that when I left them I felt like there could be no such place, that I had not been there at all and had just dreamed the whole thing. One of those places is Pippa Passes, Kentucky, the location of Alice Lloyd College. The other is Haworth. Haworth (like Pippa Passes) is in a deep valley and all of the houses

and buildings are built of stone that is mined in the area. The residential streets are laid out on the hillside in blocks, but they are very big blocks and there are houses only on one side of the street. The green common area of each block is used by the people to graze cattle. High up on the top of the hill sheep are grazed and each home has a sheep dog to help with that.

Because Haworth is in a deep valley, there is no place to park in town except in a city parking lot that was dug out of a hill. The main street of town, whose shops are mainly souvenir stores, is very very steep. It would not be recommended to anyone with respiratory or heart problems. But you have to get to the top because that is the location of the Church and Bronte Parsonage. Patrick Bronte, the father, was the pastor there for many years and the children grew up in the parsonage.

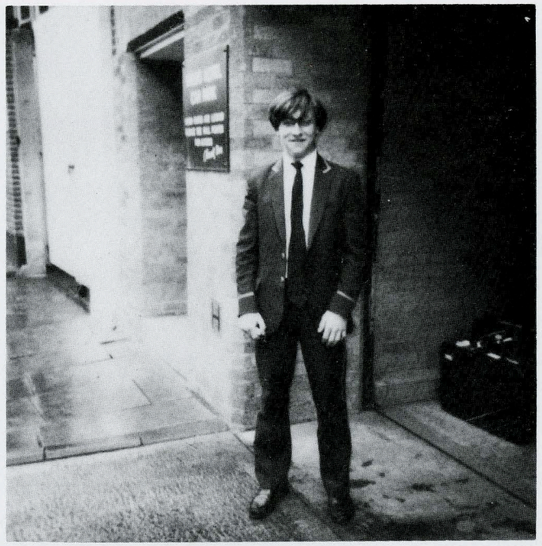
We arrived in town shortly after noon and went into an interesting-looking tavern for lunch. . It was called *Old Haworth Town Hall.* The whole place had recently been restored and redecorated. The dining room was very beautiful and I complimented the lady owner on how lovely it was. She replied, "We have not owned the place for long." I asked, "What was it before that?" She replied, "It was not a very nice place." I couldn't let that one get away so I pressed her for details. She finally told me that it had been a brothel. That was the closest I have ever been to being in one of those.

The Brontë Sisters by Artist P.B. Brontë. Copyright Photograph: National Portrait Gallery, London. Used with permission.

Patrick Bronte was one of a whole yard-full of kids born to a poor Irish family. But he was smart and talented and so was able to rise to the position of Pastor of the Parish church of Haworth. He married a lady named Maria Branwell who delivered six children—Maria, Elizabeth, Charlotte, Branwell, Emily and Ann. She died of cancer while they were all very little. Patrick loved his children but could not stand their distractions and so did not have much to do with them except to have breakfast with them every day. So—the children pretty much entertained each other with their chatter, walks on the moors, compositions, and imaginary kingdoms.

When they were old enough for education, all except Branwell and Ann were sent to a private school for daughters of poor clergy. The discipline was cruel, the program was health-breaking and the food was filthy. Maria and Elizabeth both died as a result, and the other two children were brought home. This school is described in detail as *Lowood* in Charlotte's book *Jane Eyre.* Branwell was a genius of the first magnitude but failed at everything he did and drank himself to death at age 31. Ann died at 29 and Emily at 30. Charlotte, the last of the children died at 38 from the complications of child-birth.

Emily, Charlotte and Ann wrote quite a number of very wonderful books that have become a part of our cultural heritage, but the two



The Porter.

Old White Lion.

Brontë Parsonage Graveyard.

Plaque inside Brontë Crypt.

masterpieces against which any woman author must be measured are Charlotte's *Jane Eyre* and Emily's *Wuthering Heights*. The latter was a bit much for me to handle. It deals with loves and hates so strong that they splash over into the spirit world. But *Jane Eyre* is lovely from beginning to end.

The Bronte Parsonage is now a museum—a very excellent one—with so many items on display that it would take a couple of days to do it justice. It gave me a very pleasant and thoughtful feeling to stand in the room that once belonged to Charlotte Bronte. Also, in the sitting room downstairs they still keep the sofa on which Emily died. She was a "class" girl to the end. When she was dying she got up and dressed herself before she would allow the doctor to come to see her.

The Haworth church is not the same one that the Brontes knew, but is about 100 years old. The Bronte Crypt is still below the floor and there is a plaque over the graves of Charlotte and Emily (see photo). The grave yard outside could well be the one described at the close of *Wuthering Heights*. I found myself looking around for a half-opened grave—the one that Heathcliff dug open so that he could hold

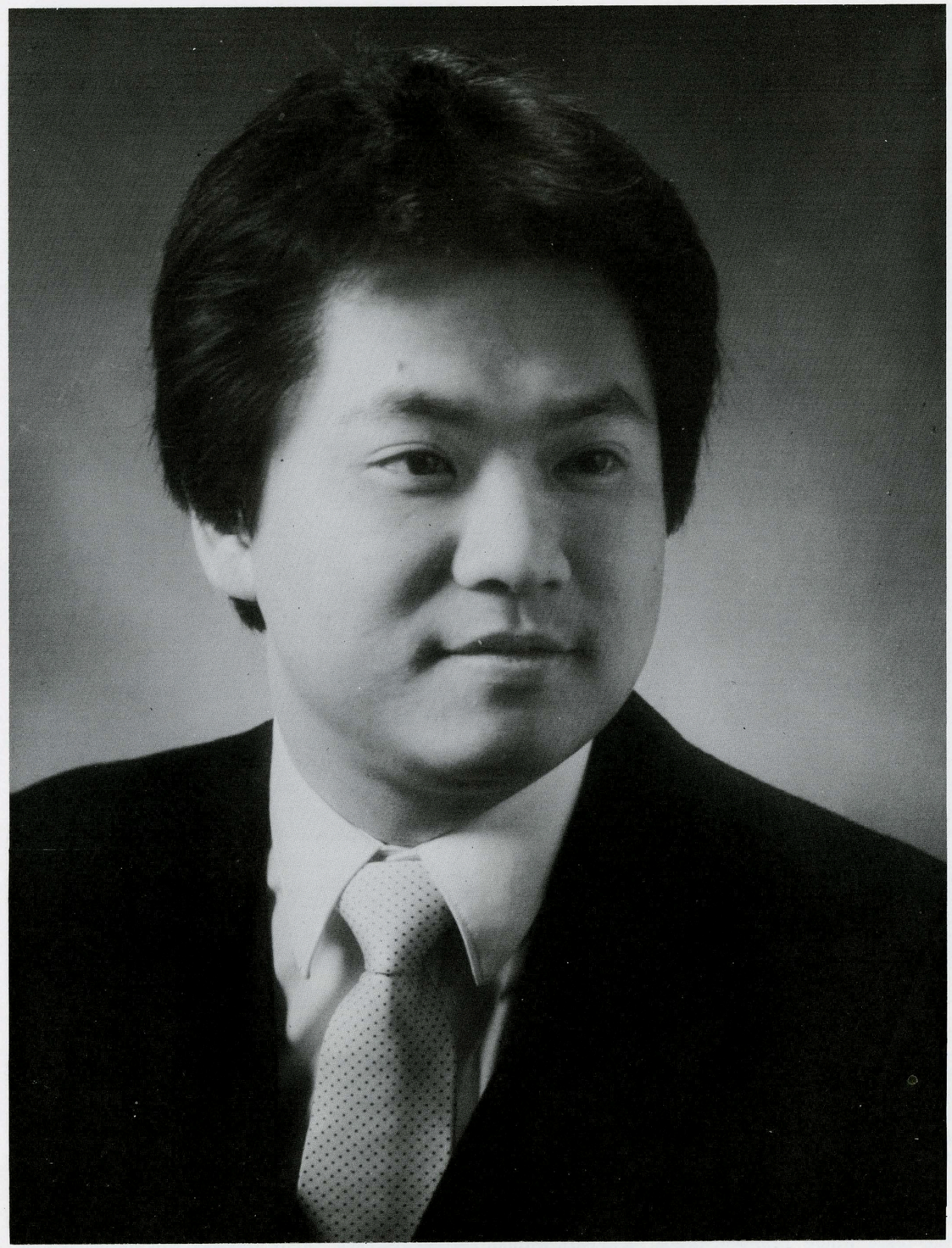
Sitting Room inside Brontë Parsonage, now a museum. Copyright Photograph: National Portrait Gallery, London. Used with permission.

Catherine in his arms just once in his life.

The house called *Top Withens* which is supposed to be the *Wuthering Heights* of Emily's novel is a couple of miles away and must be reached on foot. My feet are not that good these days.

The two best hotels in town are beside the Church and Parsonage. One is called *The Black Bull* and is the place where Branwell drank himself to death. His chair where he held court is still kept in the saloon. The other is the *Old White Lion* and is the place where I had reservations for two nights. When I saw it, it broke my heart that I did not get to stay there. I am sure I would have had lots to tell my friends about when I got home. (see photo)

On the ride back to York we got lost again. Unless you have done it every day for a year, there is no way you can drive from York to Haworth and back without getting lost each way. Lee was supposed to be back by five o'clock so that he could carry the suitcases of the tour people into the hotel. When I saw that we were going to be much later than that and that he would be in big trouble, I said to him, "I will go to see the hotel manager and explain to him how difficult it is to drive to Haworth and that we got lost on the way." He said, "No, no, don't do that." I said, "Why not?" and he replied, "I will get called on the carpet and he will yell at me and say, 'If you didn't know the way, why in the Hell did you go?' "



Stanley M. Yuen

STANLEY M. YUEN RECEIVES OUTSTANDING YOUNG EE AWARD

by Dr. Irving Engelson, Chairman, OYEE Award Committee

The Eta Kappa Nu Outstanding Young Electrical Engineer Award is given annually to young electrical engineering graduates for meritorious service in the interest of their fellow man as well as for outstanding achievements in their chosen profession.

Selection of the winner and honorable mention(s) is based on accomplishments; it is not influenced by the newsworthiness or commercial value of a contribution. As we all know, it sometimes takes many years for technical discoveries to be included in commercial product development. A well known example is the commercial applications of technology promoted by NASA in the 1960's and 70's, which gave the world such diverse products as Teflon and miniature components. The process of facsimile was invented in 1842, yet only recently have FAX machines become a large commercial success. Another example—and the area this year's winner works in—is radar systems. Developed during World War II as a military system, today radar technology is used in air traffic control, weather prediction and biomedical engineering.

In the same way, contributions to local neighborhoods and schools, religious organizations and the arts can take years to reach fruition. The Eta Kappa Nu recognition is awarded to electrical engineers to emphasize that their service to mankind is manifested not only by achievements in purely technical areas but in a variety of other ways as well. Eta Kappa Nu holds 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 winners joins a long list of individuals who have brought distinction to themselves, their community and the profession.

Stanley M. Yuen is the Outstanding Young Electrical Engineer of 1989. His award was presented at the 54th Anniversary Eta Kappa Nu Banquet in New Brunswick, New Jersey on April 23, 1990. At the same ceremony, Carl N. Nett was awarded Honorable Mention for 1989.

Dr. Yuen is a Senior Member of the Engineering Staff at General Electric Company, Moorestown, New Jersey. He was named Outstanding Young Electrical Engineer for his "outstanding contributions to radar signal processing, and his leadership in community activities."

Dr. Nett is an Associate Professor at the Georgia Institute of Technology, Atlanta, Georgia. He received his Honorable Mention for his "significant contributions to control systems research and applications, and his support of cultural and community activities." When nominated, Dr. Nett was employed at the General Electric Company, Schenectady, New York.

Six other engineers were recognized as first time Finalists:

- Gagan L. Choudhury, AT&T Bell Laboratories, Holmdel, New Jersey;
- Mark J. Rich, SRI International, Manlo Park, California;
- William P. Risk, IBM Corporation, San Jose, California;
- Bradley S. Rubin, IBM Corporation, Rochester, Minnesota;
- Sally Jo Thoman, TRW, Inc., Redondo Beach, California;
- David L. Tuomenoksa, AT&T Bell Laboratories, Freehold, New Jersey.

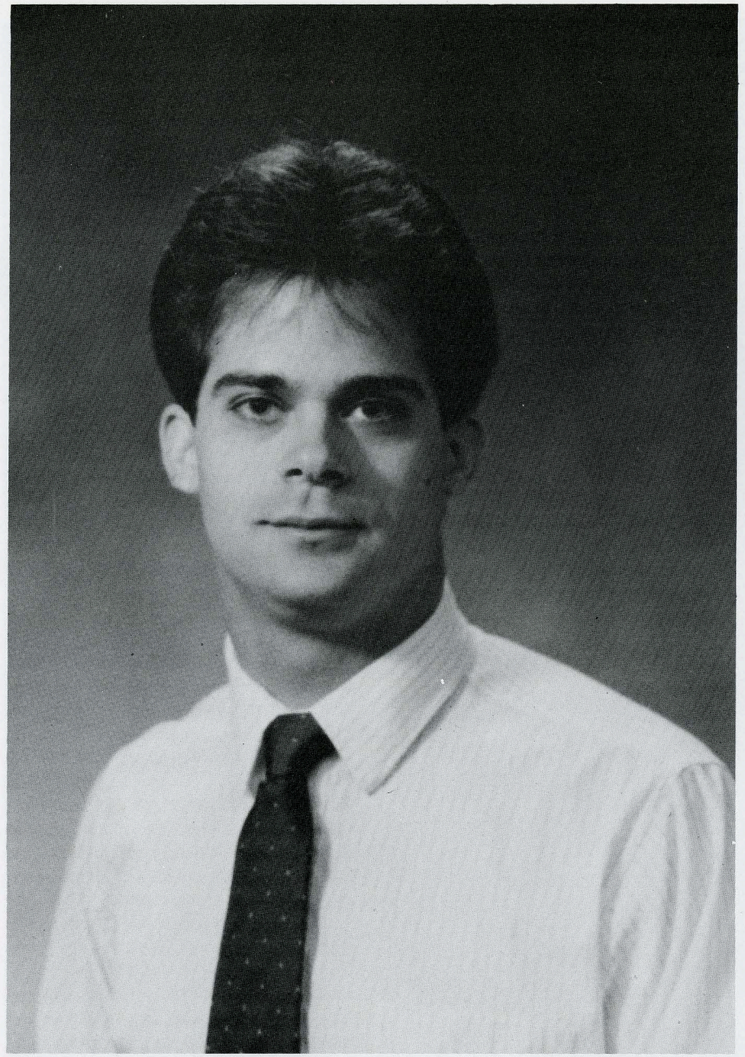
The award winners were honored for their contributions to electrical engineering and to society at large. Dr. Yuen was nominated by Mr. R. A. Baugh, Director, Engineering, General Electric Company, Moorestown, New Jersey. Dr. Nett was nominated by Dr. John F. Cassidy, Jr., Corporate Director-Technology Management, United Technologies Corporation, Hartford, Connecticut. At the time of the nomintion, he was Manager-Control Systems Laboratory, General Electric Company, Schenectady, New York.

Those honored with this prestigious award are selected each year through a well-defined process which has remained virtually unchanged since its inception. The nomination process involves the initiative of the nominator and the participation of a number of references in support of the candidate. The dossiers of all nominees are carefully screened by the Award Organization Committee which selects up to ten finalists. These finalists are judged by a Jury of highly prestigious leaders of the profession for final selection of the winner and honorable mention(s).

In 1989, the Jury consisted of the following individuals:

Dr. Donald M. Bolle, Senior Vice President, Academic Affairs, Polytechnic University;

Mr. Michael R. Hajny, Vice President, Engineering, Scientific, Columbus, Inc.;



Dr. Carl N. Nett

Mr. Robert J. Kennerknecht, President, Eta Kappa Nu, General Dynamics;

Dr. Karl H. Zaininger, President and Chief Executive Officer, Siemens Corporate Research, Inc.

Nominations for the award are solicited each year through the Eta Kappa Nu Award Organization Committee. 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 head of the EE Department of any U.S. college or university; or by other individuals or groups, who in the opinion of the Award Organization Committee, are properly qualified to make nominations.

The nominations for the 1990 awards should be submitted to the Chairman of the Award Organization Committee, or to the Executive Secretary of Eta Kappa Nu, by August 1, 1990. An eligible candidate 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 10 years as of May 1, 1990 from a specified baccalaureate program; and,
- will not have reached his/her 35th birthday as of May 1, 1990.

Awards are based upon (1) the candidate's achievements of note in his or her chosen work, including inventions of devices or circuits, improvements in analyses, discovery of important facts or relationships, development 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; (3) the candidate's cultural and aesthetic development, such as work done in the fine arts, architecture or the dramatic arts. Studies in history, economics, or politics are also highly valued as well as any other noteworthy accomplishments including participating in professional societies and other organizations.

The Award Organization Committee members are: Irving Engelson, Technical Activities, The Institute of Electrical and Electronics Engineers, Inc. (Chairman); Ralph J. Preiss, IBM Corporation (Vice Chairman/Secretary); Clarence A. Baldwin, Westinghouse Electric Corporation; Robert A. Bartolini, David Sarnoff Research Center; Donald Christiansen, IEEE Spectrum; James A. D'Arcy, General Electric Company; Larry Dwon, Consultant (formerly of American Electric Power Service Corporation); Anthony F. Gabrielle, Gulf State Utilities; Quayne G. Gennaro, Bell Atlantic; Willard B. Groth, IBM Corporation; Michael R. Hajny, Scientific Columbus, Inc.; James D. Hebson, Jr., Public Service Electric and Gas Company; William E. Murray, Douglas Aircraft Company; Berthold Sheffield, RCA Corporation (retired); Joseph J. Strano, New Jersey Institute of Technology; and Lawrence D. Wechsler, General Electric Company.

The 1989 Jury of Award: From left to right, Karl H. Zaininger, Donald M. Bolle, Irving Engelson, Michael R. Hajny, Robert J. Kennerknecht.

In Memoriam

Francis M. Lunney

Francis M. Lunney, Commander, United States Navy, died of cancer on January 11, 1990.

Commander Frank Lunney was a native of Fairview Village, Pennsylvania and graduated from St. Joseph's College, Philadelphia in 1968 with a Bachelor of Science Degree in Engineering Physics. After studying Nuclear Engineering as an Atomic Energy Commission graduate fellow at New York University, he entered the Navy and was commissioned in August 1969. His first assignment was as the Collection Division Officer at the U.S. Naval Security Group Department at Naval Communications Station, Guam. His follow-on assignment in July 1971 was to the U.S. Naval Security Group Activity, Keflavik, Iceland where he served as Operations Officer and Facilities Officer. In 1974, he began graduate education at the Naval Postgraduate School in Monterey, California where he studied electronics engineering. He was awarded a Master's Degree in E.E. with distinction in 1977 and a Doctor of Engineering Degree in E.E. in 1980. From 1977 through 1980, he also served as a Staff Engineer at the National Security Agency in the Office of Transmission Security and also in the Navy Mobile Systems Division of the Directorate for Research.

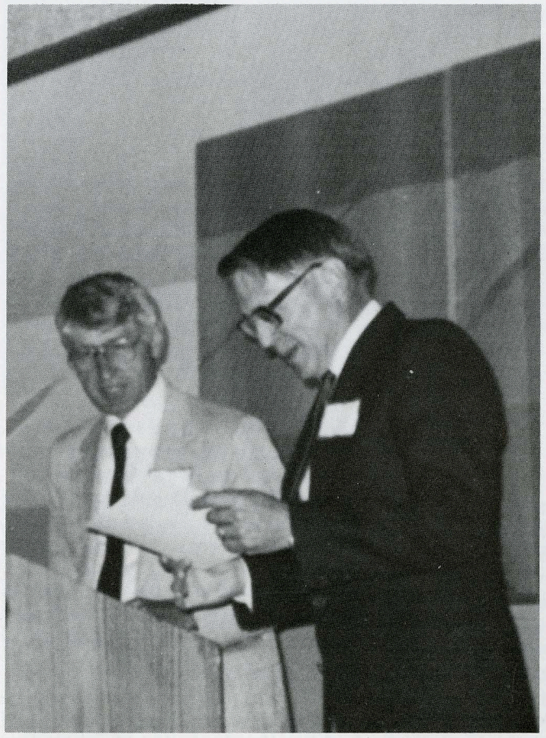
Upon completion of his NSA tour, he served as the Commanding Officer of the U.S. Naval Field Station, Sinop, Turkey. In 1981 he reported to the staff of CINCUSNAVEUR London, UK where he served as the Operations Security Officer and saw duty as the Assistant Officer in Charge of the Staff Cryptologic Support Group (CSG). Upon assignment to the Technical Development Department of the Commander, Naval Security Group Command Headquarters, Washington, D.C., he assumed duties jointly as the Director of Shore Systems Development and Director of Ocean Surveillance and ASW Systems Development. In July 1987, he reported to U.S. Naval Security Group Activity Misawa, Japan as the Operations Officer and in June 1988 he fleeted up to Executive Officer.

Commander Lunney's awards and honors include the Navy Achievement Medal, the Navy Commendation Medal and the Meritorious Service Medal with gold star in lieu of second award. He is a member of Sigma Pi Sigma, the National Physics Honor Society; Alpha Sigma Nu, the National Jesuit Honor Society; Eta Kappa Nu, the National Electrical Engineering Honor Society; and Sigma Xi the National Research Honor Society.

Commander Lunney is survived by his wife, the former June Rigby of East Hampton, New York, and two children, Elizabeth Ann and Kevin Michael.

HAROLD K. KNUDSEN Awarded MEDAL OF HONOR by HKN BOARD OF DIRECTORS

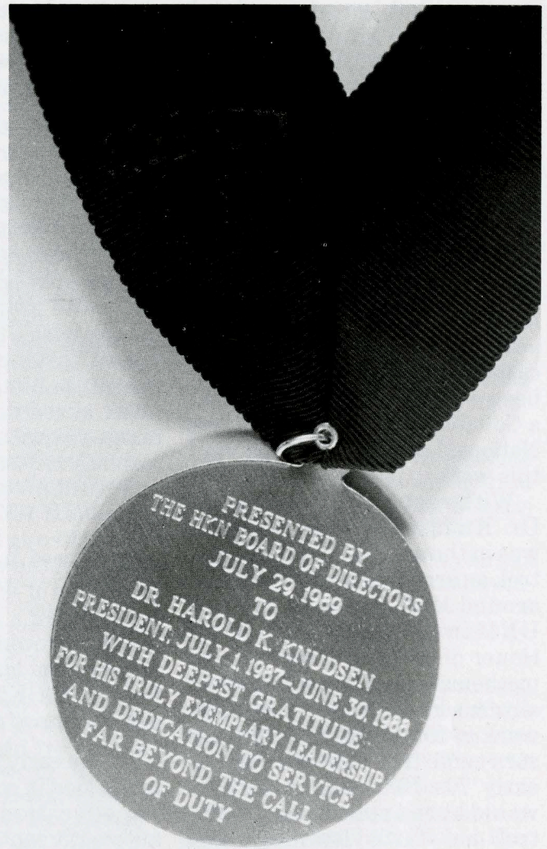
by Virgil G. Ellerbruch, Past President HKN



Dr. Harold Knudsen is presented Medal of Honor by 1989 HKN President, Dr. Virgil G. Ellerbruch at Award Ceremony.

Dr. Harold Knudsen and wife Karen.

Dr. Knudsen's Medal



Inscription

Harold K. Knudsen is Professor of Computer Science at the University of New Mexico.

He has been very active in Eta Kappa Nu. For many years he served as Faculty Advisor to Delta Omicron Chapter. He served a two year term as a Director on Eta Kappa Nu's National Board of Directors beginning in 1980, and then in 1986 he became National Vice-President of Eta Kappa Nu.

During his Presidential year, July 1987-June 1988, Professor Knudsen had the difficult task of leading HKN in their search for a successor to Executive Secretary, Paul K. Hudson, who was terminally ill.

Dr. Knudsen was on sabbatical leave during that year and made an unusually great sacrifice by attending to everything that needed to be done for HKN as it progressed through the death of Professor Hudson, and the movement of the Headquarters Office from Champaign, Illinois to Rolla, Missouri. His efforts and his dedication to the task were extraordinary; and it is for this exemplary service far beyond the normal call of duty that he has been awarded the HKN MEDAL OF HONOR by the Board of Directors.

Congratulations, Harold Knudsen!

A native of San Francisco, he received his undergraduate education at San Francisco City College and at the University of California at Berkeley, receiving his B.S.E.E. degree in 1958. He continued his studies at the University of California, receiving his M.S. and Ph.D. degrees in 1960 and 1962, respectively.

He joined the staff of the M.I.T. Lincoln Laboratory where he

studied problems in optimal control and digital differential analyzers in 1962. In 1966 he left Lincoln Laboratories to become Associate Professor of Electrical Engineering at the University of New Mexico. His main areas of interest are in applications of system theory and in digital system design. In the last several years his work has been primarily in the development of new methods for the description, analysis, and design of communicating digital processes. He has been a Visiting Staff Member and a Collaborator with Los Alamos National Laboratory in support of this work.

With regard to his research, Dr. Knudsen's graduate work was in the area of automatic control, an area that was very active around 1960. When he came to UNM in 1966, he was a practitioner of automatic control and mathematical system theory, and all of his Ph.D. students did their work in that area. Microprocessors came into existence in the early '70s. He thought that they would have applications in control, and started learning about them. This learning included designing and building a microprocessor (6800) based computer in '75, '76. As a result of this effort, he was able to start up a senior elective course on microprocessors. This soon turned into a required course for both EE and CompE students.

About this time, the department Chapter of HKN, Delta Omicron, began to work on an improved message board for the basketball arena. The old one had been destroyed in a fire. They happened to talk to Dr. Knudsen about the problems they were having with a digital (non-computer) based prototype. It was evident to him that a microcomputer based design would have many advantages. He became technical advisor to their project, and spent more than 3000 hours in the next ten years in guiding them through two complete designs of the whole system, and the design of several subsystems. He learned a great deal, both about microcomputer design and people from his experience, and found that HKN was an excellent vehicle for real student education.

By the early '80s, he was firmly embedded in computer engineering education. His interest in automatic control had faded, and he had found some exciting research topics in computer engineering, which lead to his study of Linked State Machines. Unfortunately, support for computer engineering education was reduced in the Department of Electrical and Computer Engineering. Partly because of this, and also because he had had significant contact with the Computer Science Department through his research, he decided to join the Department of Computer Science.

He has been a Professor of Computer Science since 1988, and finds the position exciting because he has had the opportunity (and the need) to learn in a new area. Computer Science is a young discipline. This makes for an atmosphere of rapid change, and for one in which educational methodology and curricula are not as well defined as in EE. He is looking forward to taking part in the evolution of Computer Science.

For several years, he has been working on the development of Linked State Machines (LSMs), a finite-state model that can be used to describe the nondeterministic, and possibly concurrent processes that exist in communication protocols, digital hardware, and computer programs. His work has been primarily aimed at the development of the LSM model, and with the development of efficient algorithms for its analysis. He is currently writing a monograph on the subject.

Theodore S. Rappaport Receives Marconi Young Scientist Award

Theodore S. Rappaport, assistant professor at Virginia Polytechnic Institute and State University, has been awarded the 1990 Marconi Young Scientist Award for his achievements in the field of mobile and portable radio communications. The award was presented on April 25 at The Smithsonian Institution in Washington D.C.

The Marconi Young Scientist Award is presented annually to a promising young scientist to recognize an exceptional contribution to communications made when the scientist was no older than age 27. Guglielmo Marconi was 27 when he made his first wireless transmission across the Atlantic in 1901. Professor Rappaport was selected by a search carried out by the Institute of Electrical and Electronics Engineers, the world's largest engineering society, for his pioneering work in indoor radio propagation.

Rappaport joined the faculty of Virginia Tech in March 1988 after serving as an associate researcher at the National Science Foundation (NSF) Engineering Research Center for Intelligent Manufacturing Systems at Purdue University. He earned his doctorate from Purdue University in 1987.

Since joining the faculty of Virginia Tech, he has founded the Mobile and Portable Radio Research group, which conducts basic and applied research in radio wave propagation and communication system design.

The Marconi Young Scientist award is administered by the Marconi Foundation and is underwritten by the Herman Goldman Foundation. The award carries a $10,000 grant and an engraved bronze medallion.

In Memoriam

Richard B. Adler

Professor Richard B. Adler, a major figure in the revolutionary changes that transformed the teaching of electrical engineering and electronics at MIT and elsewhere, died Tuesday, Feb. 6, after he was hit by a car while jogging in Concord, where he lived. He was 67.

MIT President Paul E. Gray, who had a long personal and professional relationship with Professor Adler, praised him for his contributions to engineering education.

"He was my teacher when I was an undergraduate and was on my doctoral thesis committee when I was a graduate student. I have known him well for close to 40 years. I always regarded him as having one of the keenest intellects. He had an ability that few people could match, of being able to ask penetrating questions that got right to the bottom of the issue. I saw this not only in the context of engineering, but also when we served together on the Task Force on Educational Opportunity for minorities, to which he brought thoughtful, deep insights."

Professor Adler, as technical director of the international university-industry Semiconductor Electronics Education Committee (SEEC), which he established, led the effort in the early 1960s that first brought transistor-based solid-state electronics into undergraduate engineering education, which had largely been based on the vacuum tube technology that the transistor replaced.

The SEEC's efforts resulted in seven seminal texts and four educational films on semiconductor electronics. Dr. Adler was coauthor on several of the texts and also coauthored two of the undergraduate core-curriculum texts put into use at MIT in the late 1950s.

In 1986 he was honored for this work by the Institute of Electrical and Electronics Engineers (IEEE) with the Medal in Engineering Education. The citation said:

"His collaboration with (Robert) Fano and (Lan Jen) Chu led to the publication of *Electromagnetic Fields, Energy and Forces*, and *Electrical Energy Transmission and Radiation*, textbooks which revolutionized the teaching of traditional electrical engineering in the late 1950s.

"Material which had been taught only in graduate subjects or research seminars was now for the first time presented at a level appropriate for undergraduate instruction.

"In the 1960s he established the Semiconductor Electronics Education Committee, a group of 30 teachers in the field from both industry and university. He was technical director of this group and as such must be given the primary credit for the texts and films the group produced. Viewed from the perspective of the past 20 years, the work of this committee totally reshaped the teaching of electronics, throughout the country."

Dr. Adler was a member of the Department of Electrical Engineering and Computer Science, where he was the holder of the Distinguished Professorship of Electrical Engineering and Computer Science. He was the first to hold that chair, established in 1985.

A native of New York City, where he was born on May 9, 1922, Professor Adler attended Harvard University (1939-41) and received the SB degree (1943) and the ScD degree (1949) from MIT. He began his teaching career at MIT in 1949 and soon made his mark in semiconductor electronics, electromagnetic theory and circuit theory.

From 1951 until 1953 he led the solid-state and transistor group at MIT's Lincoln Laboratory.

From 1978 to 1989 he was associate head of the Depatment of Electrical Engineering and Computer Science, the largest department at MIT.

Last September, after 11 years as part of the department's administration, he was named codirector of the Microsystems Technology Laboratories.

Among his awards was the Premium Award of the Journal of the Royal Aeronautical Society, presented in 1955, for his work on an air-traffic control system.

Professor Adler was a member of Sigma XI, Tau Beta Pi and Eta Kappa Nu honorary societies, and a fellow of the IEEE and the American Academy of Arts and Sciences.

He is survived by his wife, the former Dorothy Gordon, and three sons, Gordon of Switzerland; Nicholas of Newport Beach, Calif., and Lucas of Burlington, Vt.

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Iota Tau Chapter Installed

University of the District of Columbia

by Alvin J. Darby

Charter Chapter Members

The University of the District of Columbia (UDC) Iota Tau Chapter of the Eta Kappa Nu Association was installed on Thursday, May 4, 1989. The formal ceremony was held in Building 42, 2nd Floor Reception Area, of the College of Physical Science, Engineering and Technology. A reception followed the official ceremony.

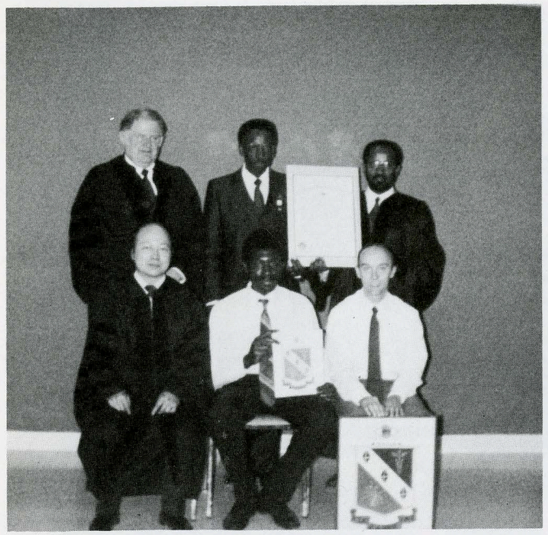
The initiation was performed with the presence of the Executive Secretary of the Association, Dr. J. Robert Betten, of the University of Missouri-Rolla. We joined the initiating team to help conduct the induction ceremony.

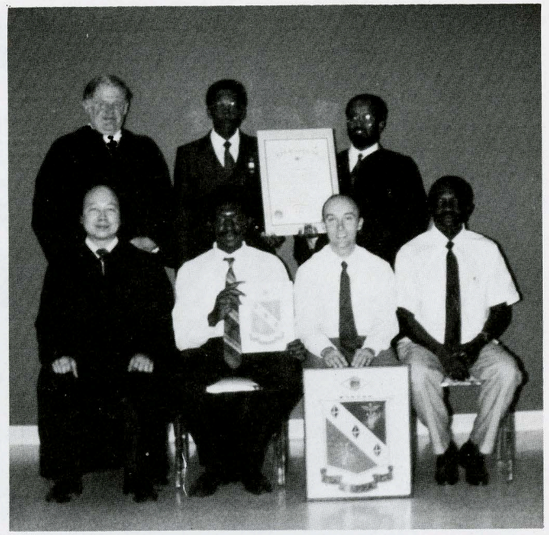
All the charter members, as well as the guests in attendance, were highly inspired by the spirit of Eta Kappa Nu with its challenging high-standard goals to pursue. Special thanks are due to Mr. Vernon D. Fields, Student Council Representative, for his generous and enthusiastic efforts to make this important event a real success.

As the only urban land-grant public postsecondary institution, UDC intends to make Electrical Engineering more meaningful to its students and the community at large.

As of Spring 1989, the Eta Kappa Nu charter members are:

Undergraduate Students:
John L. Chezik (Vice President)
Eric K. Chiang
(Recording Secretary)
Adam B. Chornesky
(President)
Raymond I. Kaddissi
(Bridge Correspondent)
John L. Musi
Martin C. Ningo (Treasurer)
Norman Y. Singer
(Corresponding Secretary)
Faculty Members:
Dr. Alvin J. Darby
Dr. Samuel Lakeou
Dr. Bing H. Liu
(Faculty Advisor)

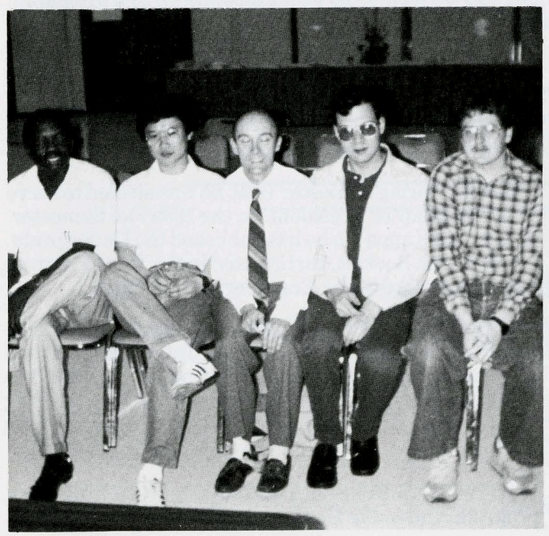




Above: From left to right. Standing, J. Robert Betten, Alvin J. Darby, Samuel Lakeou; Seated, Bing H. Liu, John L. Musi, Adam B. Chornesky, Martin C. Ningo.

At Left: From left to right. Standing, Samuel Lakeou, Alvin J. Darby; Seated, John L. Chezik, Eric K. Chiang, Adam B. Chornesky, Raymond I. Kaddissi, Martin C. Ningo, Norman Y. Singer.

Below: From left to right, Norman Y. Singer, VERNON D. FIELDS, Martin C. Ningo.

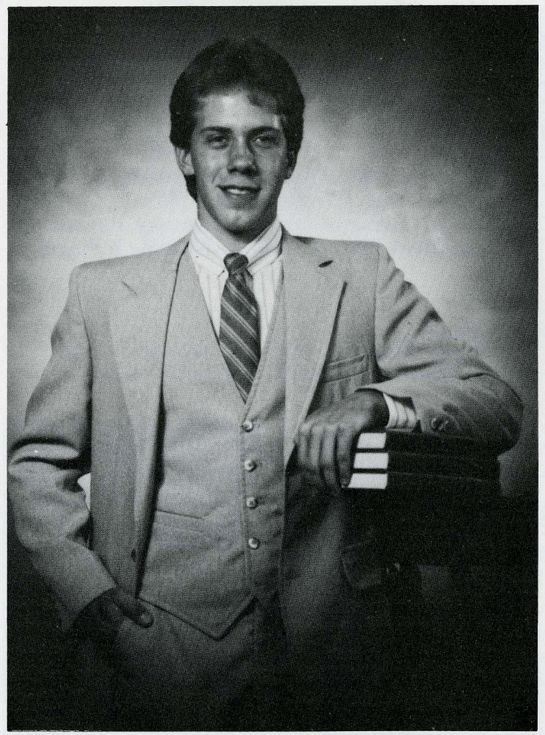


Stephen A. Boppart

WINS
NORMAN R. CARSON AWARD
AS
OUTSTANDING EE JUNIOR

by

Jo Dale Carothers, Chairperson, Award Selection Committee



Stephen A. Boppart

The 1989 Winner of the Norman R. Carson Outstanding Electrical Engineering Junior Award is Stephen A. Boppart who is enrolled at the University of Illinois-Urbana, and is a member of the Eta Kappa Nu Alpha Chapter. Within Electrical Engineering he has chosen the Bioengineering option.

The runner-up in the 1989 competition is Christopher Louis Brooks of Delta Zeta Chapter at Washington University in St. Louis, Missouri. Honorable Mentions are Robert Jay Greenberg of Delta Lambda Chapter at Duke University in Durham, North Carolina; Amit T. Magan of Delta Epsilon Chapter at Ohio University-Athens; and Sharon M. Perlmutter of Iota Gamma Chapter at The University of California, Los Angeles.

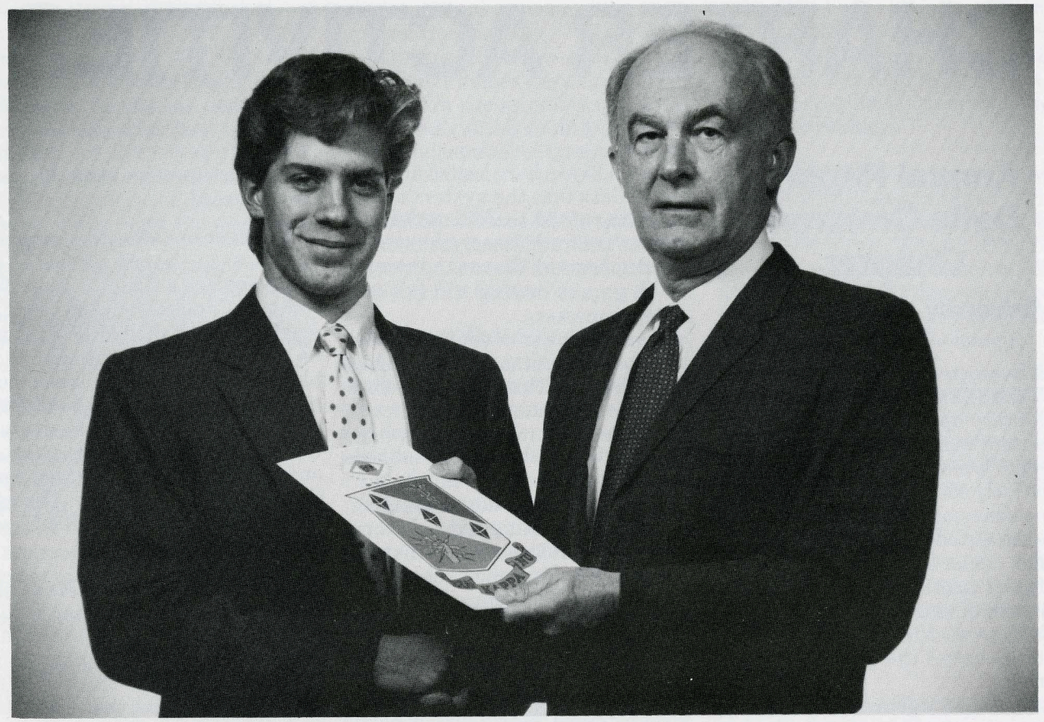
Each year Eta Kappa Nu honors a junior in electrical engineering for his or her scholastic and technical achievements, leadership abilities and service contributions. Funding for the financial component of the award is provided by an award fund which was established by Mr. and Mrs. Norman R. Carson. The purpose of the award program is 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.

Stephen has maintained a 4.8/5.0 cumulative grade point average. He is a National Society of Professional Engineers Scholar, an MCI Telecommunications Scholar, a James Scholar, and an Elks Scholar. He is also active in the Campus Mentor Program.

During Spring Semester 1989, he was elected to serve as Alpha Chapter President for the 1989 Fall Semester. Also in Eta Kappa Nu he has published the Undergraduate Research Booklet, participated in the Tutor Program, and been active in the Engineering Olympics.

As a member of Alpha Lambda Delta, he has served as Officer in Charge of the Campus Tutor Program; and as a member of the Engineering Council he served as Chairman of the Student Introduction to Engineering (SITE) Program. He is also active in the Bioengineering Club.

In Tau Beta Pi he served in the Initiate Interview program, and in the Engineering Open House program



Stephen Boppart at left receives Award Certificate from Professor Leslie G. Smith.

he helped display the Biomedical Imaging Systems component. He also served as Program Chairman for Seminar in the Electrical and Computer Engineering Alumni Association and is a member of the Department Student Advisory Committee. He is in Collegiate 4-H and was 4-H Summer Camp Counselor. On the Engineering Freshman Committee he was Project Chairman, Engineering Open House.

In the research sector, during the period May 1986-August 1989, he was involved in prototyping and constructing subatomic particle detectors in the High Energy Physics Research Laboratory. Also, during the Summer of 1989 he served as Research Intern for the Neural and Behavioral Biology Program with a grant from the National Science Foundation. In addition, he has been working as Research Project Manager—Undergraduate thesis work on the fabrication of microelectrode arrays used to stimulate and record impulses from neural networks.

He has participated in Tennis, Racquetball and Volleyball Intramurals. Also, he is active in the RyuKyu Kempo Karate Association. He is a Sailing Club Member and an avid sailor.

CHAPTER ACTIVITIES

Annual Report Delta Omicron Chapter

University of New Mexico

Fall Semester (1988)

We began fall activities with voluntary operation of the football message board. This is a P.C. driven system which uses windows and is relatively easy to run. However, it is time consuming to load the numerous requested messages prior to each game. Under the leadership of John Tafoya, Chapter members rallied to the task of learning and operating this system. Altogether we set up and operated the system for six games.

Max Light organized the tutoring effort. We offer free tutoring to any undergraduate in an Electrical or Computer Engineering course. Eleven members made themselves available for tutoring on a regular, scheduled basis. For the fall and spring semesters we offered about 750 hours of this service.

Our student screening and invitation process culminated in an initiation banquet on November 19 at the Maria Theresa Restaurant where we initiated 17 new members. Another student from Los Alamos, New Mexico, was initiated on December 28. Dr. Virgil Dugan from Sandia National Labs gave us a presentation on fossil fuel energy reserves in the United States. He also entertained us with an account of his HKN pledge project: building and wearing a Bridge emblem that lit up via a hidden control when he lifted his arm. We awarded Department Scholar Certificates to tutors for their efforts to help other students.

Joe Poznecki acted as coordinator for our voluntary operation of the basketball message board. HKN members built the current system at the Pit (basketball arena) in 1977-78. Alumnus Bryan Berg loaded updated player data into the system at the beginning of the season and led the effort to train additional members in board operation. We ran the system for 16 games during the fall and spring semesters.

Frank Salazar coordinated the traditional Christmas time "Hanging of the Greens." This is the time when students decorate Scholes Hall with hundreds of luminarias (paper bags with candles anchored in sand). We worked with the local Tau Beta Pi Chapter in hauling sand and filling, placing and lighting these decorations. And of course the next day, we picked everything up.

For our final activity of the semester, we assisted the Electrical and Computer Engineering (EECE) Department in setting up a fall graduation ceremony. Together with the local IEEE Chapter, we bought and served cookies and punch to graduates and their guests after the ceremony.

Spring Semester (1989)

We continued two major voluntary services, tutoring and operation of the Pit message board during basketball games. Also, led by Dave Modl, we participated in Engineering Open House by designing and supervising a library search contest for local high school students. About 20 students participated in small teams. Gag T-shirts were awarded to the members of the top three teams. We also earned nearly $1500 by running the Pit message board for non-university activities, consisting of the State Boys Basketball Tournament and a national Indian pow-wow. Each of these activities extended over several days.

With the help of Dr. Shlomo Karni several members and pledges took new photos of most of the faculty and staff. We placed these photos with necessary changes in captions in the Department display case which the chapter had previously donated. We also nominated a member, George Chrisikos, for the 1989 Alton B. Zerby Award.

We began updating the computerized message board system at the Pit to replace a Chapter-built 6809 computer and associated terminal equipment installed in 1978. This is an ambitious project because replacement of the 6809-based computer by PC's requires a completely new software system. The new system will offer much simpler start-up and editing capability without sacrificing speed or flexibility. The hard disc drives and 640K RAM will greatly improve memory.

Six members (Dave Modl, Joe Poznecki, Alan Enochs, Woody Woodstra, Scott Chapman and Mike Boccabella) are working on the update project. As of the end of the semester they had made substantial progress on the new system.

Through Mark Scott, another member, Dave Modl obtained a commitment from a local company for new computer equipment. The equipment included two PCs, two color monitors, a printer, two mice and packaged software. Alan Enochs designed and built the prototype interface between the new computers and the board display drives, and the group made significant progress on software development. The new system is scheduled to be up for the 1989-90 basketball season so we will report on it in the next Annual Report.

On April 22, Delta Omicron Chapter initiated 19 new members at a banquet held at the Four Seasons Hotel. Thanks to our fund-raising efforts we were able to subsidize half of the banquet costs for professors and existing members. As a result, a record 53 people attended. Dr. Martin Bradshaw gave us an informative and entertaining talk on problem solving. We awarded Department Scholar Certificates to those who tutored other students during the semester.

We jointly hosted a post-spring semester picnic with the local IEEE Student Branch. We invited all Electrical and Computer Engineering students and faculty and their guests. Everyone enjoyed free food and drink and an afternoon of music, volleyball and camaraderie at a rustic U.S. Forest Service picnic area. From all indications, the picnic was a great success.

We held meetings every two to three weeks during the school year with an average of about 15 members attending. In May, we elected new officers for 1989-90.

Officers for 1988-89 were:

President:	Frank Graves
Vice-President:	John Tafoya
Treasurer:	Frank Salazar
Recording Secretary:	Dianna Sammons/ Duncan Linn
Corresponding Secretary:	Max Light/ Joe Poznecki
Bridge Correspondent:	Ray Garcia

Our Faculty advisor was Dr. Ramiro Jordan.

Frank F. Graves, Jr.
President, Delta Omicron Chapter
1988-89

Annual Report Delta Mu Chapter

Villanova University

The officers for the 1988-1989 school year are as follows: President, Michael Robinson; Vice President, F. Gregory Guerra; Treasurer, Christopher Law; Secretary, Erin McDonald; EJC* Representative, Kevin Conroy; Faculty Advisor, Dr. John Muholland.

The Delta Mu chapter had eleven members and initiated twenty-seven candidates in the fall semester. The activities of the chapter were as follows:

September 1988—Names of those students eligible for membership in Eta Kappa Nu were obtained. A letter was prepared and sent to those students informing them of their eligibility and inviting them to an information meeting.

Tutoring forms were sent to members. Their names were then placed on a list in the engineering office where individuals could look-up the name and number of an appropriate tutor.

October 1988—Officers and current members met eligible students to describe the activities and requirements of Eta Kappa Nu.

Fridays, Fall Semester—Eta Kappa Nu provided coffee and doughnuts. This service allowed both electrical engineering students and faculty time for discussion and socializing.

November 12, 1988—Eta Kappa Nu, in conjunction with the Villanova Institute of Electrical and Electronics Engineers and Villanova Electrical Engineering Alumni, held Professional Day. The event was held in the Connelly Center at Villanova University. Five Villanova alumni who have made outstanding achievements in their chosen fields spoke. A luncheon was also held.

November 16, 1988—Fall Initiation was held. Twenty-seven new members were initiated. A reception followed the initiation.

March 9, 1989—A seminar was held in conjunction with IEEE for the electrical engineering juniors. The students were briefed on the senior electives. Presentations were made by invited faculty members.

March 21, 1989—A freshman mixer was held in conjunction with IEEE. The engineering students were informed of the electrical engineering program. Invited faculty members made curriculum presentations and answered questions.

March 30, 1989—Election of officers for the 1989-1990 academic school year was held. The new officers are as follows: President, Darlene Neary; Vice President, Edward Lin; Treasurer, Robert Daranowsky; Secretary, Alan Moshinsky; EJC* Representative, Eric Gangloff; Faculty Advisor, Dr. John Mulholland.

April 8, 1989—Members of HKN helped give tours and answer questions at Engineering Candidates Day. The event was held by the Dean of Engineering for prospective engineering freshmen.

April 9, 1989—A banquet was held for all students initiated during the fall semester. It was held at the St. David's Inn, Wayne, PA. The speaker was Mr. Alex Baron of IBM, a 1976 graduate of Villanova University and HKN member. Certificates were distributed at the banquet.

April 10, 1989—The officers and faculty advisor attended the HKN Recognition Awards Dinner in New Brunswick, NJ. The Delta Mu chapter guests were sponsored by IBM.

April 18, 1989—HKN co-sponsored a hot-air balloon ride raffle with EJC*. The raffle took place on Balloon Day at Villanova University. The event was held to raise money for the mentally ill.

May 1-5, 1989—HKN offered fruit and juice for the electrical engineering students. The food was provided during finals to aid the students during the most stressful time of the school year.

*The Engineering Joint Council is a society representing the entire engineering college. The council sponsors various events and helps the Dean with any programs he wants initiated throughout the school year.

Erin McDonald

Annual Report Gamma Chapter

Ohio State

Introduction

The following is a summary of the activities of the Gamma chapter this year.

Doughnut Sales

This is our only fund-raiser for our chapter. Two or three times a quarter, sponsored by the engineering student council, HKN has a table set

up in the main engineering building lobby to sell coffee and doughnuts. This event raises forty to fifty dollars per sale.

Doughnuts with the Professors

Outside of special events, this is our chapter's quarterly mixer. This is open to all electrical engineering students and faculty. The mixer was free and sponsored by both HKN and the electrical engineering department. This provided an excellent opportunity for students to discuss any number of topics with the faculty members. The mixer lasts an entire morning and is typically held in the faculty lounge.

Tutor Room

Sponsored by the electrical engineering department, HKN members provide tutoring on a walk-in basis, free to all electrical engineering students. The tutoring takes place in a room set aside by the department for that purpose. Basic electronics and digital theory tutoring are provided to help the new students in the department, although it often becomes a forum for discussions about several different class topics. It also gives the new students an opportunity to ask questions about the department, specialty areas and classes. Participating HKN tutors are reimbursed by the department for their time. This is a very old tradition for HKN and is one of the most worthwhile projects we have to offer the department.

Science Olympiad

This year HKN was not as involved as we have been in the past. The Science Olympiad is an event sponsored by Ohio State that brings high school students from all over the state of Ohio to test their knowledge of engineering related topics. The EE department sets up some laboratory experiments for the students to do. HKN supplies members to monitor the experiments and help the faculty, who judge the event.

Intramural Sports

HKN started last year to enter more sports teams into Ohio State's intramural program. This year HKN entered teams for flag football in the fall, basketball in the winter, and co-rec softball in the spring. Plans for next year include the introduction of volleyball and hockey.

EE Professor of the Year

The Gamma Chapter sponsors a voting each year for the EE students to select the HKN/Humphrey EE Professor of the Year. This event is held in the spring and the award is presented at the spring banquet. The recipient of this award has his or her name placed on a plaque of the previous winners, displayed in the hall of the electronics laboratories, a plaque of his or her own, and a $500.00 check from the department. This year's winner was once again Professor Ri-Chee Chou. He has been teaching two years and has won the award both years. He is in the field of Electromagnetics. He is also the faculty treasurer for the Gamma Chapter of HKN.

"Happy Hours"

HKN sponsored and co-sponsored two happy hours this year. This is a time for members to socialize in an informal setting. All faculty are invited. The event is typically held in a local bar in a room reserved for the group. We co-sponsored one happy hour this year with IEEE, thus giving our groups a chance to interact.

Doughnuts on the Roof

This project was not actually seen through to its end due to bad weather. But the idea is an old one. Our attempt was to bring back a tradition that has not been done for over five years at our school. HKN had, in the past, sponsored a faculty/student mixer on the roof of our eight story laboratories. It was to be held during the morning classes. It was moved to the faculty lounge.

Brown Bag Lunch on the Roof

This became the substitute for the rained out Doughnuts-with-the-Professors. This was a successful mixer held on the roof in which students and faculty brought whatever they wished for lunch and socialized with a great view of the campus.

EE Spring Picnic

This is an annual event for HKN and once again was a great success. Every spring, towards the end of May, HKN and the department sponsor a picnic for all faculty members, staff and students. The picnic was held on the grounds of the Electroscience Laboratories and there was food, volleyball and a good time for all. This has always been HKN's best event for working towards the fraternity of the entire group of students and faculty. It is a tradition we all hope will continue for many years to come.

Annual Report
Rho Chapter
University of Colorado

1988-89 Statistics

Officers

President, Allen Piepho
Vice President, Chris McIntosh
Treasurer, Ian McEwen
Recording Secretary,
Christine Bohn
Correspondence Secretary,
Stephen Mac
Bridge Correspondent, Edwin Yeow
Faculty Advisor,
Prof. William Waite

Membership

	Fall 88	Spring 89
Actives	25	30
Pledges	12	7

Meetings

Fall, 4; Spring, 8

Summary of Activities

New Pledge Meetings. (Fall & Spring, Continued Activity, 10-15 Man-hours) As our first contact with new pledges these meetings served as ice breakers. They were a chance to explain the purpose of HKN, and meet the pledges over pizza.

Informal Initiation. (Fall & Spring, Continued Activity, 10-15 Man-hours) This was a chance for actives to have some fun with the new class of pledges by giving them a "pledge exam." This test consisted of impossible questions and was meant as a practical joke between the actives and the pledges.

Formal Initiation. (Fall & Spring, Continued Activity, 10-15 Man-hours) The Formal Initiation was a time for showing the pledges the serious purpose and goals of HKN.

Banquet. (Fall & Spring, Continued Activity, 10-15 Man-hours) Our semester-end banquets were a semi-formal celebration for the newly inducted pledges. They were held at a local restaurant following the Formal Initiation.

Brown Bag Lunches. (Fall & Spring, Continued Activity, 30 Man-hours) Each semester we sponsored a series of noon-time special topic talks on a variety of subjects. These talks were held in the Maler Student Lounge in the Engineering Center. We also provided free refreshments for those attending.

Some of the topics covered in the Fall series were 'Optical Fibers' and 'Topics in Digital Image Processing.' The Spring talks covered subjects such as 'Radar Systems', 'Questioning Fundamental Limits', and 'The History of Electronic Communications.' These talks were given by members of our local faculty, and were attended by students of many disciplines.

Lab Insurance. (Fall, Continued Activity, 10 Man-hours) As a fund raiser we sold lab insurance for a number of undergraduate electronics lab courses.

Treasure Hunt for AES (Associated Engineering Students) National Convention. (Fall, New Activity, 30 Man-hours) As part of the AES National Convention held in Boulder last Fall, HKN put on a treasure hunt throughout the CU Engineering Center. Teams of students from schools across the country were challenged to follow a trail of clues consisting of engineering questions and 'traps' (lockers rigged with water balloons, etc.). To add to the challenge, these trails snaked through our Engineering Center, which is a maze of hallways, classrooms, and labs. About 25-30 people participated.

Preparation of "The E-Center Challenge" Engineering Treasure Hunt. (Spring, New Activity, 40 Man-hours) With the success of the AES treasure hunt, we began preparations for a larger scale version for CU students. As part of their pledge requirements, the spring class of pledges worked on things such as gathering clue questions and picking interesting locations for the team trails to follow. 'The E-Center Challenge', as we call it, will probably be scheduled for the Fall.

Donation of Equipment for the Digital Electronics Labs. (Spring, New Activity, 10 Man-hours) Two considerable donations were made this Spring. The first was a stereo system for the sophomore-level digital design lab. The second was a learning robot arm. The robot arm will first be used in an upper level microprocessor systems lab where an interface between the robot arm and a computer will be designed and built. With this interface the students in the lower-level digital design lab will be able to work with the robot arm in the future.

The purpose behind these donations was two-fold: To improve the labs, and to provide exposure of younger students to HKN before they become eligible to pledge.

The up coming issue of the 'Colorado Engineer' (a student run magazine) will contain an article about the robot arm. This will be forwarded soon.

Summary from the President of Rho Chapter

As president I am proud to say that in the past year we have provided a stepping stone for our chapter of HKN in the future. Much of this year's work was to get more people involved. Our strength is in the younger members of our chapter. Of the officers for next year, only two are graduating before Spring 1991. This along with increasing the profile of HKN among the younger students is a sign of a promising future for Rho chapter.

Al Piepho
Rho Chapter President (1988-89)

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