

BRIDGE of Eta Kappa Nu

SPECIAL ISSUE

Four College Chapters Win Awards In Eta Kappa Nu's Outstanding Chapter Activities Program For The 1997-98 Year

by Alan Lefkow

The Top Eta Kappa Nu College Chapter Winners for the 1997-98 School Year were recently announced by Eta Kappa Nu's Outstanding Chapter Activities Award Committee. Beta Chapter at Purdue won top honors as the National Winner. Three other chapters, each of which typified the spirit of Eta Kappa Nu, received the HKN Certificate of Merit Award for their meritorious programs.

The three Certificate Winners are Alpha at the University of Illinois, Champaign-Urbana; Beta Epsilon, at the University of Michigan; and Kappa Delta at the Florida International University.

The National Winner, Beta, will soon receive its Winner's Plaque which is a metal plaque engraved in color and mounted on a field of red velvet framed in walnut; and the other three winners will correspondingly be receiving their time honored Certificates, each laminated in walnut with gold trim.

All the awards are intended to serve as noteworthy symbols which point to the chapter's distinction as an outstanding chapter.

As in the past, representative reports of the currently selected winners will appear in the HKN BRIDGE. In the past, selected winning reports of such fine chapters have appeared in various

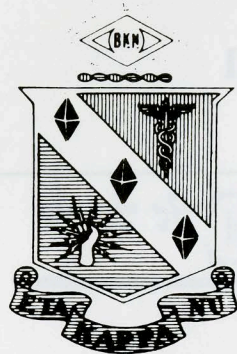
issues of Bridge to serve as encouraging examples to all chapters.

For certain, their activities cover a wide range. Popular activities include helping the poor of their community, service to local high schools and other needy entities, support to many events at their own school, providing scholarships and awards to outstanding students, and conducting tutoring programs. Providing Resume books for graduating seniors, providing food at their student lounge, services to alumni (newsletters, record keeping, etc.), evaluating courses and providing course guides, serving as key supporters for Engineering Day, and promoting interaction between students and faculty; these are but a few of the activities and services performed by winning chapters.

In this issue, the Winning Certificate of Merit Reports of Beta Epsilon Chapter and Kappa Delta Chapter are featured. They may be seen on page 12 and page 20 respectively.

NOTE: To all chapters! Chapter contributions of individual self effort, and service to school or community is the name of the game.

Congratulations to all winners, including, of course, Beta chapter at Purdue, which has, by far, the most wins nationally, over all the decades of the HKN Chapter Award Program.



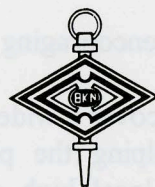
Editor and Business Manager
J. Robert Betten

February 1999
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Contributing Editors

A. Elizabeth Kidd

Alan Lefkow



Correction!

In the concluding paragraph on page 18 of the Nov. '98 Bridge, the word *voltmeter* should have read *interpreter*. (Big Difference!)

The Bridge is published by Eta Kappa Nu Association, an electrical and computer engineering honor society. Eta Kappa Nu was founded at the University of Illinois, Urbana, October 28, 1904, that those in the profession of electrical (now electrical and computer) 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 and computer 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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Higgins

Become a Paul K. Hudson Fellow

Do it Today!

See Details on Page 3.

ALSO VIST HKN's WWW HOME PAGE
<http://www.umr.edu/~hknhdqrs>

PAUL K. HUDSON HKN DEVELOPMENT FUND ANNUAL CAMPAIGN

Paul K. Hudson
1916-1988



Eta Kappa Nu Executive Secretary
and BRIDGE Editor,
1958-1988

Established by the Board of Directors in April 1992, this important fund will honor the memory of Paul Hudson, a devoted servant of HKN and a man who truly exemplified the qualities that "balance the bridge."

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

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

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

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

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Rolla, Missouri 65401

EE's

Follow Your Inner Voice!

(Even If It Says Management Or Marketing)

by
A. Elizabeth Kidd

I have worked in the technology field long enough to know a few things about our kind: Computer and Engineering professionals. We are a lucky group, one foot in a new millennium opening doors our ancestors only dared to dream of. We are savvy, funny, witty characters in this "play" of life. Some of us can even dance.

In general, we share some basic personality traits. We know the web address for ESPN without having to go to our "favorites list." We are more likely to communicate with our friends via "@friend.com" than the "archaic communications" of the fiber-optic network. We view AOL users as "less technical." We religiously watch (or record) *The X files* and are continually searching for "THE TRUTH." (After all, if Mulder says, "It's out there" then statistically speaking "It's out there.")

Engineers today order plane tickets over "expdia.com", not even comprehending why our parents would consider using a real life travel agent. "Techys" of today, quote Homer Simpson in normal conversation; and document, via Internet Newsgroups, all the clever minutia from each show to ensure that they "got it." "It" being the true meaning in each episode. They can tell you, without even looking up from their 3-dimensional derivative, whether that Star Trek "guy" is Klingon or Vulcan. Hours can be spent discussing how the movies don't compare to the series, and heated debates can ensue while convincing opponents about the merits of "the Original" versus the "next generation."

All of these pop culture references bond the "technogeeks" of the 90's.

The ultimate bond however, *the bond* that has lasted generations, *the bond* father shares with child, *the bond* that management shares with subordinate, the **TRUE BOND**; existing since the days of the slide rule and up to the present day.... **THE BOND** that is stronger than the tensile strength of steel.... **THE BOND** that goes above and beyond all others, is the hatred and loathing felt by technical people toward, dare I even use the word? SALESPEOPLE.

Now I considered not disclosing to you, from which

side of the fence I view this little debate. However, I have been asked to share with you, my background and experience.

I grew up in an engineering-college town and in a home where it was believed that you would only be successful if you chose engineering as a profession. My first toy was a "Little Professor" math calculator. Flash cards were a normal weekend pass-time. I took algebra one year early so I could squeeze calculus in before I graduated from high-school. Words like "fma" were jokes around the high school lunch table because it supposedly helped us to remember that force equaled mass times acceleration.

Acting/Performing was my true love, and in high school I always got the choice parts that I wanted. It was what I did well and yearned to do, but thoughts to pursue a career in speech or drama were entirely too far fetched for a logical young lady like me.

So, I thought of a degree in business as a reasonable compromise. I was quickly re-directed by my engineering minded parents, indicating that you could either be an engineer or live life where the words "would you like fries with that" were part of one's normal vocabulary. They had been correct up to that point in my life, so who was I to question? They wanted what was best for me and as my engineer father taught me, WHO would be able to STAND the life of a sales rep?

I started my Electrical Engineering degree and took all the math and science classes required of me. Before my first summer I interviewed for one of the esteemed "co-op" positions and was given the chance of a lifetime to work for General Motors for a rotation period. The thought in my head was "lucky and why me?" Why did I get this opportunity when my 3.5 gpa definitely wasn't the highest grade point. I hadn't started in the highest-level math courses. I wasn't in a sorority or even an honor society or organization. I worked, but only on Friday and Saturday nights at a restaurant. I didn't have AP classes that transferred to college, and I KNEW that I was interviewing against people who had all those things. **WHY DID I**

GET THE JOB? Let me just put that thought on the shelf and continue with my story.

Next came the job, which basically consisted of copying things, being whistled at as I walked across the plantroom floor and getting asked to go boating, ALONE with a person in management. It may have been a completely innocent invitation, but Thanks Anyway and Buh Bye! Needless to say, I didn't choose to continue my internship beyond that summer. My next two semesters went well and I interviewed again for a co-op position. AGAIN, out of the very few openings, from all the schools they were interviewing, from the numerous qualified candidates they talked with, I got offered two different positions. One with Monsanto and one with Union Pacific. **My thoughts again, "why me." Certainly not the most qualified candidate.**

After drawing electrical circuits with a graphics program for 9 months, **I decided engineering wasn't for me.** The days were close to unbearable. I didn't speak with anyone -- just drew circuits day in and day out. I could barely stay awake after lunch; if I hadn't been able to take an hour a day to work out, I am not sure I could have sat through an 8 hour day. **It was as close to torture being pinned in that cubicle as anything I had ever experienced;** yet those around me were enjoying themselves and finding it "cool." I would have rather continued to wait tables then do this for the rest of my life.

I didn't want to disappoint my parents, so I compromised again and instead of a business degree, I focused my efforts on obtaining an Engineering Management degree.

This changed my life in two ways. First, I understood that even as students, the prejudice existed toward "less technical" careers. Engineering Management was "looked down upon" by "real" engineers. Anyone in engineering management just "couldn't make it" as a "REAL" engineer. This was truly the belief, and seemingly fostered by even the faculty in the other departments. YET, Engineering Management had the highest percentage of students with actual JOBS when they graduated. Suddenly, there was a pattern starting to emerge. **Students who possessed outstanding communication skills got offered jobs.**

The second thing I learned was that **I LOVED my class curriculum** for the first time in my college career. All of a sudden, I was the superstar student. I was the one to whom the teacher asked questions as the default when no one else could answer. My grades remained around A's and B's but the effort I had to exert to obtain those grades decreased. **I saw that there was a career I could choose that would not be unbearable to wake up to each day.** I started to look forward to graduation and I did the bravest thing in my life: **I left engineering all together, and transferred schools to enter a very strong business program.**

The classes were actually harder for me, as I was accustomed to finding the exception to the rule versus just the rule. **Multiple Choice tests were difficult for me, and my grade point was lower, because I was trained from an early age to think more like an engineer than a nontechnical person; and the objective questions were designed for a more normal group of people.** (But, Oh Well!)

The world as I knew it had flipped. All of a sudden, I was the most mathematical and technical person in the class **and one of the least "business" minded.** I ended up completing a Bachelor of SCIENCE degree in Business Administration with an emphasis in Marketing.

I am thankful for my degree and my choices. I have been very fortunate in my career and will not bore you with the details. Let me just say that I went from a lowly sales rep being paid \$24,000 a year in 1994 to a Director of sales being paid \$60,000 + commission by 1996, and I won't even discuss my salary today in 1999. I'll just say I am still doing fine! I am highly skilled at what I do, and still, that prejudice about "non-technical" in a technical world is something I encounter every day.

I currently am a Director for a consulting firm on the East Coast. I have technical consultants who report to me, a "non-technical" leader. My duties are varied and it would be difficult for me to explain a typical day. I handle operations, sales, and recruiting. Let me just say that I bridge the gap, between technology and people. I do for our customers what SQL does for a database and front-end.

I fight for respect both from my customers and my internal technical staff because I do not have a technical degree. I don't mind this fight because, 9 times out of 10, I win it. Unfortunately, the converse isn't always true. My point is this: I EXPECT our technical candidates to have technical abilities. That is a skill they should have honed by the time that I encounter them. I expect each to be a technical guru. **That is their job.** The skill that is so desperately lacking in the technical world is the ability to effectively manage and communicate both verbally and via the written word. You may be the most talented, highest honors, most co-op positioned engineer around; but if you can't look me in the eye and speak during the interview, I am unable to hire you. And here is why:

A company is a team. Many people say this, and very few people "get it." --- Without you, **the computer programmer or engineer, I cannot complete my job!** Everyone is in agreement about that. But, here is the flip side: Without someone like me (the salesperson, business manager, client user), **you don't have a job to complete.** We simply need each other! That's a fact.

Let's both let that sink in for a minute.

If you have the opportunity to take a management, marketing, sales course, I don't think you will be

disappointed. It will benefit you. Time and time again, I meet with people who have the corner office. Rarely are they the engineer with only an engineering degree. Instead, they're an engineer with an MBA, or, a marketing person, who took every communications class offered them by their company. Generally, they are the ones who possess both technical and nontechnical skills. In today's world, if you have both, you are in demand.

As an interviewer of technical people, I have learned to look for the following (believe it or not):

Strong Hand Shake

Posture, and, how/if you walk with purpose
Your answer to NON TECHNICAL QUESTIONS
Your ability to answer a technical question in "layman's" terms

EYE CONTACT

Ability to chit chat, and talk small talk
Confidence

**Humor
No Bull**

There was a time when I held back a smile on all of that, but (Guess What?) the experts who first mentioned it to me have proven to be right, time after time, in my job!

You are so gifted and so blessed if you have a mind that allows you to be a member of this society, Eta Kappa Nu.

All we have to do is use our mind and be humble enough to accept the fact that just as all "technogeeks" don't fit the stereotype described above, neither do all sales/recruiting/marketing people. We are not all lying, cheating, smooth talkers; and I know that I am not so rare.

Many sales people and managers have technical backgrounds. Many have taught themselves and worked their way through the industry to acquire as much knowledge as possible/necessary.

They may not be able to tell us what Ohms law is, but, they might just be able to give us the taped copy of the X Files, or a favorite that you and I both forgot to record!

Good Luck **being yourself**. It's a Win/Win & a MUST!

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Eminent Member Listing

| Eminent Member | Date Inducted | TITLE AND AFFILIATION | Bridge Vol. | Bridge Number | Bridge Page |
|---------------------|---------------|---|-------------|---------------|-------------|
| V. Bush | 01-30-50 | President, Carnegie Inst. of Washington | 46 | 3 | 1 |
| R. W. Sorenson | " | Prof. E.E., California Inst. of Technology | " | " | " |
| V.K. Zworykin | " | VP. RCA Laboratories | " | " | " |
| F.E. Terman | 01-22-51 | Dean, Stanford University | 47 | 3 | 5 |
| J. Slepian | " | Assoc. Dir. Res., W.E. Corp | " | " | " |
| K.B. McEachron | " | Mgr. GE Co. Transformer Division | 48 | 2 | 4 |
| S.H. Mortenson | " | Chief E.E., Allis Chalmers Mfg. Co. | " | " | 5 |
| W.H. Timbe | " | Prof. Retired; M.I.T. | " | " | 5 |
| L. Deforest | 05-02-52 | Inventor | 48 | 3 | 1 |
| C. Molina | 01-19-53 | Bell Telephone Laboratories | 49 | 2 | 9 |
| H. Pender | " | Dean, Moore School U of Pennsylvania | " | " | 10 |
| C.A. Powell | " | Ass't. To V.P., Westinghouse Electric Corp. | " | " | 12 |
| P. Sporn | " | President, American Gas & Electric Company | " | " | 13 |
| W.R.G. Baker | 01-18-54 | V.P. General Electric Company | " | " | " |
| M.J. Kelly | " | President, Bell Telephone Laboratories | " | " | " |
| R. Rudenberg | " | Professor Emeritus, Harvard University | " | " | " |
| J.B. Black | 04-20-54 | President, Pacific Gas & Electric Co. | 50 | 4 | 14 |
| A.A. Potter | 10-16-54 | Dean EM., Purdue University | 51 | 3 | 26 |
| E.B. Paine | " | Prof. EM., University Illinois | " | " | " |
| E.S. Lee | " | Director Engr'g.; G.E. Co. | " | " | " |
| E.F.W. Alexanderson | 01-31-55 | Retired, General Electric Co. | 51 | 3 | 14 |
| A.N. Goldsmith | " | Consultant | " | " | 16 |
| H.S. Osborne | " | Bell Telephone Laboratories | " | " | 18 |
| H.S. Winne | " | V.P. Retired General Electric Co. | " | " | 20 |
| J.B. Whitehead | " | Johns Hopkins University | " | " | 19 |
| H.H. Beverage | 10-05-55 | Director Radio Res., RCA Laboratories | 52 | 1 | 19 |
| L.N. McClellan | " | Chief Engr., Bureau of Reclamation | " | " | 19 |
| W.D. Coolidge | 01-30-56 | Ass't. Dir. Research Labs., G.E. Co. | 52 | 3 | 12 |
| H. Niquist | " | Ass't. Dir. Systems, AT&T | " | " | 14 |
| L.N. Brilouin | " | Dir. Electronics, IBM | " | " | 12 |
| J.G.H. Dellinger | 10-03-56 | Ch. Radio Technical Commission of Aeronautics | 53 | 2 | 14 |
| W.B. Kouwenhoven | " | Prof. EM., Johns Hopkins | " | " | 15 |
| D.A. Quarles | 10-14-58 | U.S. Deputy Secretary of Defense | 55 | 2 | 29 |
| C.F. Hood | 10-30-58 | President, United States Steel Corp. | " | " | 33 |
| P.L. Alger | 04-02-60 | Retired, General Electric Co. | 56 | 4 | 10 |
| G. Starr | 10-29-60 | President, Atomics International | 57 | 2 | 17 |
| A.D. Moore | 09-10-61 | Professor, University of Michigan | 58 | 2 | 18 |
| J.L. Burns | 11-14-61 | President, RCA | 58 | 2 | 15 |
| J. Hillier | 11-17-61 | V.P. RCA Laboratories | 58 | 1 | 23 |
| C.F. Wagner | 11-20-61 | Consulting Engr. Westinghouse Elect. Corp. | 58 | 2 | 17 |
| J. Bardeen | 03-29-62 | Professor, University of Illinois | 58 | 4 | 10 |
| I.V. Berkner | " | President, Graduate Research Center, S.W., Dallas | " | " | 10 |
| E.M. Percall | " | Gerhard Gade Professor, Harvard University | " | " | 10 |
| J.B. Wiesner | 10-10-62 | Director Research Lab. for Electronics, M.I.T. | " | " | 10 |
| E. Webber | 11-05-62 | President, Polytechnic Institute of Brooklyn | 59 | 2 | 17 |
| G.S. Brown | 03-25-63 | Dean, M.I.T. | 59 | 4 | 6 |
| W.L. Everitt | 10-30-63 | Dean, University of Illinois | " | " | " |
| L.A. DuBridge | 08-25-64 | President, California Institute of Technology | 61 | 2 | 15 |
| J.A. Stratton | 11-05-64 | President, Massachusetts Institute of Technology | " | " | 21 |
| D.G. Fink | 11-04-65 | General Mgr., I.E.E.E. | 62 | 3 | 14 |
| S. Ramo | 08-25-66 | Vice Chairman of Board, TRW Inc. | 63 | 2 | 8 |
| W.E. Kock | 11-03-66 | Vice President & Chief Scientist, Bender Corp. | 63 | 3 | 7 |
| G.H. Brown | 11-02-67 | Exec. V.P., RCA | 64 | 3 | 8 |
| W.H. Pickering | 08-22-68 | Director, Jet Propulsion Laboratory | 65 | 2 | 3 |
| H.E. Edgerton | 11-07-68 | Prof. Emer., M.I.T. | 65 | 3 | 8 |
| E.R. Piore | 11-06-69 | V.P. & CH. Scientist, IBM Corp. | 66 | 3 | 8 |
| P.E. Hagerty | 08-20-69 | Chairman of Board, Texas Instruments, Inc. | 67 | 1 | 6 |
| W. Cisler | 03-19-69 | Chairman of Board, The Detroit Edison Co. | 69 | 1 | 14 |
| E.L. Kanouse | 08-17-70 | Chief Engineer, L.A. Department of Water & River | 70 | 3 | 11 |
| E.C. Jordan | 04-24-74 | Head of E.E. Dept., University of Illinois | 71 | 2 | 5 |
| E.T.B. Gross | 04-06-76 | Philip Sporn Professor of Power Engineering, RPI | 72 | 1 | 12 |
| Edward A. Erdelyi | 1978 | Professor, E.E., University of Colorado | 76 | 2 | 15 |
| Larry Dwon | 1984 | Director, Eng'g. Manpower American Electric Power | 81 | 3 | 19 |
| Howard Sheppard | 1984 | Vice President, Rumsey Electric Co. | 81 | 3 | 19 |
| S. Reid Warren | 1984 | Vice President for Eng'g. University of Pennsylvania | 81 | 3 | 19 |
| Donald Christiansen | 1985 | Editor and Publisher, IEEE Spectrum | 82 | 3 | 19 |
| Marcus Dodson | 09-13-86 | Engineer, Los Angeles Water & Power Co. | 83 | 3 | 24 |
| William E. Murray | 09-19-87 | Principal Staff Engr. Douglas Aircraft Co. | 84 | 4 | 8 |
| Berthold Sheffield | 04-18-93 | Consultant, Senior Engineer, Retired, RCA | 89 | 3 | 6 |
| Rohert W. Lucky | 04-18-93 | Vice President, Bellcore | 89 | 4 | 5 |
| Nick Holonyak, Jr. | 12-04-98 | John Bardeen, Chr. Prof. EE&CompE & Physics, Cntr. for Adv. Study, Prof. EE & CompE | 95 | 2 | 8 |

**Dr. Nick Holonyak
Becomes Eminent Member
of Eta Kappa Nu**

**This Highest Eta Kappa Nu Honor
Was Conferred Upon Dr. Holonyak
At A Special Ceremony
December 4, 1998**

This distinguished event was held at the University of Illinois in conjunction with their new-member induction ceremony. It was attended by faculty, staff and students of the EE Department, as well as by many guests. Dr. Holonyak was honored royally by the entire group. He responded humbly and graciously, in his normal style, by his warm statements of gratitude and encouragement to all.

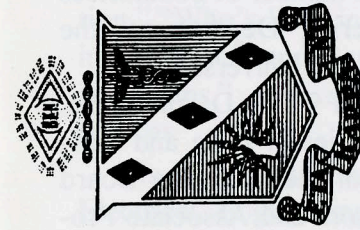
To further indicate in this report, the kind and quality of the world benefit which has arisen due to Dr. Holonyak's working efforts, the following list of accomplishments which was cited on the occasion of his receipt of the Japan Prize is included below.

**NICK HOLONYAK, JR.
(awards, honors, etc.)**

- 1962 Cordiner Award, GE (first visible spectrum semiconductor laser)
- 1973 Morris N. Liebmann Award (IEEE) - for outstanding contribution to the field of visible light emitting diodes and diode lasers
- 1973 Member US National Academy of Engineering
- 1967 and 1974 Invited guest of the Soviet Academy of Science
- 1975 John Scott Award (City of Philadelphia) - "for his inventions leading to the First Practical Light Emitting Diode"
- 1976 GaAs Symposium Award with Welker Medal
- 1977 University of Illinois Center for Advanced Study
- 1981 Jack A. Morton Award (IEEE)
- 1983 Electrochemical Society's Solid State Science and Technology Award
- 1984 Member US National Academy of Sciences
- 1984 Fellow American Academy of Arts and Sciences
- 1988 Monie Ferst Award of Sigma Xi (the Research Society)
- 1989 Edison Medal (IEEE)
- 1990 National Medal of Science (U.S.)
- 1992 Charles Hard Townes Award (Optical Society of America)
- 1992 Doctor of Science (Honorary Degree, Northwestern University)
- 1992 Honorary Member of the Ioffe Physical-Technical Institute (St. Petersburg)
- 1993 John Bardeen Chair Professor of Electrical and Computer Engineering and Physics
- 1993 National Academy of Sciences Award for the Industrial Application of Science
- 1993 ASEE Centennial Medal
- 1993 American Electronics Association 50th Anniversary Award ("Inventing America's Future")
- 1994 Vladimir Karapetoff Eminent Members' Award of Eta Kappa Nu
- 1994 Doctor of Engineering (Honorary Degree, Notre Dame University)
- 1995 John Bardeen Award (The Minerals, Metals, and Materials Society, TMS)
- 1995 Fellow International Engineering Consortium (IEC)
- 1995 Japan Prize - "for outstanding contributions to research and practical applications of light emitting diodes and lasers through pioneering achievements in the understanding of physical principles and in the process technology of intermetallic compound semiconductors"
- 1997 Optical Society of America Nick Holonyak, Jr. Award established

"WHEREAS, you, sir, have made a signal contribution to the progress of science and technology and to the prosperity and peace of mankind through science and technology, in recognition of your distinguished contributions, the Science and Technology Foundation of Japan has the privilege and honour to bestow upon you the Japan Prize".

Tokyo, April 27, 1995
The S & T F of Japan
Prof. Jiro Kondo, Chairman



NICK HOLONYAK, JR.

has this day been admitted into Eminent Membership in

Eta Kappa Nu Association

in recognition of his technical attainments and contributions to society by which he has shown himself to be an outstanding leader in the field of electrical engineering and a great benefactor of his fellow men.



Richard J. Gaudin
International President

Richard J. Gaudin
President of Chapter
Ch. Holonyak, Jr.
Secretary of Chapter

December 4, 1998
Date

IN MEMORIAM

PROFESSOR THOMAS JAMES HIGGINS

Professor Thomas James Higgins, a distinguished national and international figure in electrical engineering for over 50 years, died September 11, 1998. He worked in industry and as a consultant, but his principle achievements came in the university setting. Thomas J. Higgins was born in July 4, 1911 in Charlottesville, Virginia. In 1932, he received the Electrical Engineering degree from Cornell University, and in 1937 the Masters degree in Mathematics. In 1941, he received the Ph.D. Degree (in Electrical Engineering) from Purdue University. His teaching experience comprised: Instructor (in Mathematics) for one year at Auburn Intercollegiate Center (1933-34); two years at Wyomissing Polytechnic Institute (1935-37); four years at Purdue University (1937-41); Assistant Professor at Tulane University (1941-42); Associate Professor at the Illinois Institute of Technology (1942-47); Professor in 1947-48. He was appointed Professor of Electrical Engineering at the University of Wisconsin in September, 1948; and retired from active teaching, as Professor Emeritus, in June 1982.

Dr. Higgins was experienced also in industry: spending five summers in construction work and field engineering in Ithaca, New York; and having periods of employment with Agfa-Ansco Corporation at Binghamton, New York as field engineer (1934-35); with Ebasco Services, Inc., New York, as a power-systems electrical engineer in the summer of 1941; and doing consulting work for various firms since.

He edited the manuscripts of more than 120 textbooks in electrical engineering and associated areas for various publishing companies; has published over 350 reviews and/or discussions of books and papers having to do with Electrical Engineering, Mathematics and Applied Mechanics; was the author of over 220 research papers published in various scientific and technical journals in

the United States and Europe; and was the Editor or an Advisory Editor for seven journals published in the United States and Europe. He supervised 55 Ph.D. theses and over 147 M.S.E.E. theses over his active teaching years. He wrote *Advanced Basic Automatic Control Theory*, Madison Publications, Madison, WI, 1954, 346 pages.

A member of 33 professional and honorary societies, he took leadership roles in many of these (he was a long time Vice-President of the Tensor Society of Great Britain) and served on committees in a number of them, having been chairman of several. He also served on a number of committees for the Electrical Engineering Department, the College of Engineering, and the University.

He adjudicated more than 94 Ph.D. and D.Sc. theses from various universities in India and Australia; and was a member of the Selection Board for Appointment of Professors and Associate Professors, University of Bangladesh at Dacca, Bangladesh, from 1971 to about 1976.

In 1954, Dr. Higgins received the George Westinghouse Award of ASEE given annually to one under 45 for "Outstanding Teaching of Engineering." In 1963, he received the Benjamin Smith Reynolds Award of the College of Engineering of the University of Wisconsin for "excellence in teaching of future engineers"; in 1964, the Donald P. Eckman Senior Memorial Distinguished Activity in Education Award of the Instrument Society of America for "outstanding contributions in teaching and research in instrumentation and control"; and in 1964, the citation of "Engineer of the Year" of the Wisconsin Society of Professional Engineers in recognition of activities as an "Eminent Educator and Distinguished Engineer." In 1971, he received the "Certificate of Outstanding Service" of the American Automatic Control Council, and the "Annual Appreciation Award" of the IEEE Systems, Man and Cybernetics Society. More recently

he was awarded an IEEE Centennial Medal, in 1982; the Edward P. Mikol Memorial Award for "Best Paper," at the 1986 ASEE Annual North Midwest District Meeting; and has just received the Wisconsin Society of Professional Engineers "1996 Outstanding Professional Engineer in Education Award," presented June 21, 1996 in "Recognition of Your Valuable Contributions to Engineering and to Our Organization"; and was named in September 1996 an "Honored Member of the Wisconsin Retired Educators Association" in recognition of his outstanding service in education and dedication to the support of this association.

He was a Fellow and Life Member of the IEEE, the ISA, the AAUP, the AAAS, and the ASEE; Paul Harris Fellow in Rotary; a Life Member of the NSPE/WSPE; a member of Eta Kappa Nu since 1944; a registered Professional Engineer in Wisconsin and (until recently) Illinois; and is listed in "American Men and Women of Science," "Leaders in American Science," "EJC: Engineers of Distinction," "Who's Who in the Midwest," "Who's Who in Computers and Data Processing," "Who's Who in Atoms," and several other such reference sources.

His major academic activity as Professor of Electrical Engineering enfolded the teaching of graduate courses and the direction of graduate study and research in his particular fields of interest: microwave theory; advanced electric-circuit theory, advanced automatic control theory, large-scale systems engineering, advanced electric-machine theory; nuclear reactor kinetics, dynamics and control theory; cybernetics and homeodynamic systems, and numerical solution of electromagnetic (and other) field problems.

A long-sustained interest in the area of continuing education for engineers in practice entailed the organization and conduction of over 20 Institutes and Short Courses during 1960-76 and two decades of teaching night-time graduate-level upgrading courses at UW-Milwaukee during 1950-1970.

His major professional avocation was the study of the history of electrophysics and electrical engineering and the associated physical sciences, with particular emphasis on the life and work of the major workers in these domains; as manifested in a

half-dozen published exhaustive bibliographies on the book-length biographies and autobiographies published in English of eminent workers in these areas; several exhaustive classified bibliographies of the books and papers published in English on "The History of the Development of Electrical Engineering and Electrophysics"; the "critical" editorship for the published two-volume "Technology in Western Civilization," Oxford University Press, 1966-67; the editing of the December 1970 Special Issue of the *Journal of the Franklin Institute*, "{Gabriel Kron and} Modern Techniques in Large-Scale System Science," and the co-editing of the September 1968 Special Issue of the *Matrix and Tensor Quarterly*, "Life and Work of Gabriel Kron,"--both issued in memoriam of Dr. Gabriel Kron, the deceased (March 1968) great electrical engineer and large-scale system theorist; and the editing of the December 1971 special Issue of the *Journal of the Franklin Institute* on "Modern Aspects of Dimensional Analysis, Similitude, and Similarity." Currently, he was engaged in preparing: updating lengthy Appendices to the half-dozen classified bibliographies; and a bibliography of Major Resources for Use in the Classroom Teaching of the History of Technology.

He co-edited *Electrical Engineering at the University of Wisconsin in Madison: 1891-1991*, Department of Electrical and Computer Engineering, Madison, WI, 1991, 329 pages. and wrote eight of the sections therein.

Recently, he co-edited "Wisconsin Society of Professional Engineers: 1994 Golden Anniversary: 50 Years Dedicated Service to the Engineering Profession of Wisconsin", WSPE, Madison, WI, 1994, 94 pages.

Currently, he was gathering and organizing material for a booklength history of the College of Engineering - U.W.-Madison relative to coming activity in celebration of the U.W.-Madison's 150th Anniversary In 1998. This activity was an extension of the one chapter history "A Resourceful College of Engineering," pp.27-54 (in the book *A Resourceful University: The University of Wisconsin-Madison in Its 125th Year*) that he researched, wrote and published in 1974/1975 as part of the 125th year celebrations.

The Donut Stand

Mmmm...Donuts

Kris Klemett
Thanks to the Beta Epsilon chapter of HKN, Homer Simpson would feel right at home in the Electrical Engineering and Computer Science Building.
Starting in a janitor's closet in the old East Engineering building, we have made great strides in the last fifteen years. Our menu has grown to include, not just the requisite coffee and crullers, but also sandwiches, fruit, juice, yogurt, candy, chips, and pop.



The donut stand is a great service for the students and faculty in the EECS department. Where else can you get coffee and programming advice in the same place?
Our donut stand is manned by electees as they complete the community service requirement for electing. We are open from 8:00 am until 1:30 pm. Of course, as "If the door is open - so are we."

The Sam's Club Experience

Christy Dallas
One might think that the most important and exciting task that the head of the donut stand engages in would involve donuts. Wrong. The most exhilarating experience for the Donut King or Queen is the weekly trip to Sam's Club. Aside from the donuts, pretty much everything that we sell at our donut stand comes from Sam's. Orange juice, apple juice, grapefruit juice, candy, chips, cookies, apples, water, yogurt, coffee, cups, sugar, cream, napkins, and plates all come from this fine establishment of wholesale joy.
The first task involved in the weekly expedition to Sam's is taking a quick jaunt to the office to do an inventory and to grab the

checkbox so that the Vice President doesn't actually have to shoplift all of the goods from Sam's. Once the master of the donut universe gets to Sam's, the next trick is to try to fit all of the merchandise onto one of the flatbed carts. At the beginning, you practically fly down the aisle, flinging snacks and drinks onto the cart with glee. By the time you get to the end of the store, you must use all of your bodily force to shove the ten-ton cart down the pathway. You propel the mammoth flatbed towards the checkout where you see the cashier's face drop as she sees the daunting task that waits before her.
After the cashier is out of the

breath from transferring all of the items from one cart to another, the real fun begins - taking the overflowing cart outside, down the slope and across the bumpy parking lot without any of your precious donut stand stock falling off. You then proceed to load your vehicle like it has never been loaded before. With your undercarriage dragging on the concrete, you hop on US 23 and make the short trip back to the donut stand. Once back, unloading the car is the next huge task. Three trips with a small cart usually does the trick. About 15 minutes worth of stocking the fridge and storage room completes the job. Finally, the most exciting two hours of your week are over. The only thing left to do is to look forward to next week's trip.

The Webpage

Since the inception of the world wide web, HKN Bridge Correspondents have maintained the society website. We post information about our events, activities and most importantly our members.

Members Past and Present

Mark Reed

During this past winter semester, HKN Beta Epsilon members began work on "Members of HKN" - our chapter's latest and most ambitious web project to date. The main goal of this project is to reestablish a connection to members from the past, as well as to provide contact information for active members here at the University of Michigan. Maintaining correspondence with past members will no doubt bring forth many promising benefits for our society. By keeping up our relationship with all members, long after they have left the University, we enable our chapter to strengthen its ties to outside industry. In the future, this could produce many more opportunities for jobs and summer internships and provide endless possibilities for inviting

speakers to our chapter's meetings. In return, we can build email aliases through which our active members can periodically inform the alumni of happenings here at the University. If successful, we may be able to organize semi-annual events to which the alumni will be encouraged to attend. "Members of HKN" is still in its early stages. The Bridge Correspondent implemented the initial version of the project into the chapter's web site in March 1998. Beginning with the electees of winter semester 1991, each following semester has its own dedicated HTML page. Each page contains a listing of that semester's officers and an alphabetically ordered contact list of the corresponding class of initiates. Beside each member's

name, space is provided for the name of their employer (or school), city of residence, and their current position (or field of study). Each member can also post their email address, web page URL, and their phone number. An index of all names will soon be implemented to provide quick access to contact information. During the following semesters, the growth of this exciting project will be enormous. The amount and variety of information posted for each individual will likely expand. In addition, our active members will attempt to delve even deeper into the past to locate alumni members from the 1980s as well as maintain and update information for members from the 1990s. When you elect into HKN, you stay connected for life!



An Electing Story

Amity Heckemeyer

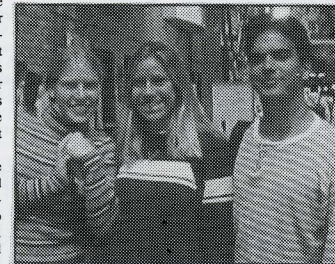
At the beginning of my second year at UoM, I decided I wanted to go into Computer Engineering. Soon after I declared, I got invited to join Eta Kappa Nu.

At the first meeting, there were several familiar faces from my classes, but many others were unfamiliar and strange. The officers at the front seemed like cool people, but they seemed so old and aware of the world, comfortable in it. The first meeting we had a professor speak about graduate school. I kept thinking that this has to be way far off, and dang, was I hungry. We didn't get to eat until almost 9:00.

Then the President started listing all of the requirements to elect: attend all meetings, attend three social activities, earn 2.50 points on the electee exam, and the killer, do thirty hours of service. When I had started college, I tried to get involved with service groups, but my classes and time got away from me. I was happy when HKN gave me an excuse to pause from studying and give back to the world.

Later that week was my scheduled donut stand hours. The first week one of the officers was working with another electee and myself. He helped relieve a lot of my donut stand anxiety and answered questions I had about the electee process. I had only been in HKN for a few days and already I was meeting upper classmen who could tell me about what classes to take, which profes-

sors to watch out for and which ones to try to get. Besides the donut stand hours I constantly checked my e-mail to find out what other service projects HKN participated in. The corresponding secretary was looking for students to deliver invitations to the Student Faculty Mixer. I thought it would be a great way to familiarize myself with some of my current and future professors, so I volunteered. The project chair sent out an e-mail about



Jen, Amity, and Steve are new HKN buddies.

K-12 Mentoring. I had tutored a lot in high school so I contacted a student at nearby Ann Arbor Pioneer High School to help with chemistry. I scraped together a few more hours volunteering at the math lab, helping students with their C and Matlab programs. At first I was nervous about my knowledge about the subjects and how helpful I would be to my high school student and underclassmen: however, once I started working with them, my confidence grew and I actually began to feel competent and proud of what I'd learned at U of M. HKN had helped me boost my confidence by helping others.

The other requirement, attending three social events, was at first the most daunting. I am always uncomfortable around new people, so I didn't attend many of the earlier events. When I finally got up the courage to go to one of the TG's, I was surprised at how many of my friends were there. I enjoyed talking with them and decided I should



HKN electee Jack Levy clowning around...again...

participate more frequently. Then the HKN activities chair made the best move of his life; he signed up a team for IM broomball. You couldn't keep me away. Even though we lost most of our games, running around on ice with a stick and trying to hit an orange rubber ball into a hockey net was a wonderful break from studying. I think I came to almost every game and the HKN turnout was good every time.
When I finished my last HKN service hour and turned it in to the Project Chair, all I could think about was the banquet. The officers and actives talked about all the fun they had at it. The day of initiation, each electee had to wear a resistor somewhere on his/her body, just like the earlier electees. I took two and made earrings out of them. Others had them as pins or rings. We all laughed at each other in



Hey c'mon guys, are we selling donuts or eating donuts?

When we finished with our meal, the new officers were introduced and awards were given out to the Most-Active Active, Highest Score on the Electee Exam, Most Outstanding Active and Most Outstanding Electee. Then the DJ began to bust out the music and we danced away the night to YMCA wearing cowboy hats and Indian plumes and playing fake musical instruments. I had so much fun celebrating all of the hard work and learning we had done throughout the semester with my new society friends.



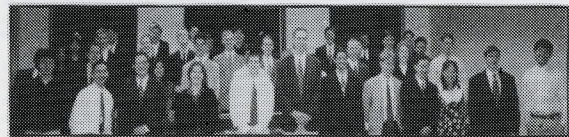
Mike, Kaians, and Albert show off a Tech Day poster and The Michigan Daily.

The officers were waiting for us when we arrived for the initiation. They told us to line up alphabetically and then they led us into a dark room. At the front sat the officers

Our New Actives

Fall 1997 Initiates

| | | | |
|-------------------|--------------------|--------------------|-------------------|
| Maksim Adelman | Kaiani Fu | Kristofer Klemett | Henry Rahardja |
| Mohamad Alias | Brian Grekowitz | Eric Kozlowski | Mark Reed |
| Jonathan Arnold | Amit Gupta | Yee-Wah Lee | Michael Scheirey |
| Sarah Baker | Brian Hartman | Boon Hwang Lim | Steven Seeger |
| Axel Berny | Gregory Heath | Matthew Little | Johan Suleman |
| David Billings | Benjamin Hennig | Ann Lockwood | David Telechowski |
| Nathan Binkert | Albert Hou | Thye-Wei Loy | Christopher Unkel |
| Patrick Cassleman | Forbes Husted, Jr. | Trolan Ma | Gregory Weiner |
| Pin-Hung Chen | Jyothisna Iyengar | Marcus Mahrus | Zev Winkelman |
| Yi-Ching Chen | Jake Johnson | Jeffrey McWilliams | |
| Todd Coleman | Hugh Kennedy | Jason Miao | |
| Paul Dersey | Christopher King | Stephen Molloy | |



Winter 1998 Initiates

| | | | |
|------------------|---------------------|------------------|---------------------|
| Vibhav Agarwalla | Mathew Innes | Jennifer Munfakh | Christopher Scherba |
| Amar Basu | Mark Johnson | Michael Nye | Sangram Singh |
| Joseph Brunett | Jason Kachorek | Swee Pan | Edwin Suryabusada |
| Steven Chang | Jennifer Kiesel | Hyun-Mog Park | Jason Townsend |
| Nigel Choi | Rajanna Konanahalli | Vinay Patel | Michael Vartanian |
| Kaisong Chui | Scott Lenker | Theresa Paulo | Yang Wang |
| Sudip Das | Jack Levy | Ryan Peterson | Cheryl Williams |
| Donald Davis | Kenneth Mehi | Anne Poglits | Melinda Woods |
| Amity Heckemeyer | Daniel Miin | Jeffrey Rash | |
| Yat-Ho Hui | Bradley Muir | Daniel Rector | |



How do I elect into Beta Epsilon?

Our Requirements

- Perform 30 hours of community service.
- Attend all 5 meetings and the banquet.
- Pay your lifetime membership dues.
- Participate in 3 social activities.
- Complete the electee exam.



Mentors—Friends for Life

Jennifer Kiesel

I don't admit this to many people, but I was a little worried when I was electing into HKN. There were so many requirements to get in! Besides the always-challenging effort of keeping your GPA up, there were community service hours to complete, meetings and activities to attend, and a long electee exam to fill out. Plus, at first glance, the other members were so intimidating! I mean, these are the people who dream in binary every night, right?

Wrong. Okay, maybe some of us do, but still, HKN is one of the greatest groups of people I have ever met. Not only are we absolutely brilliant, but

we know how to party too (as I learned at the end of the year banquet!)

But during those first weeks, I know that I would have liked to have someone to reassure me that the process of electing is not as stressful as it appears! Thus for this term's electees, the mentoring program was born.

Each electee is assigned a mentor. The mentor sits with their electee at some meetings, does a community service hour with them, and attends one social activity with them. It is a great way to get to know people!

Mentoring is a wonderful service. Now for a fresh group of electees, HKN has begun to feel like home.

HKN Award Recipients

| | Fall 97 | Winter 98 |
|--------------------------|--------------|-----------------|
| HKN Scholarship | Paul Hong | Matt Guthaus |
| Most Outstanding Active | Matt Gerlach | Russ Tedrake |
| Most Active Active | Matt Smart | Anthony Wen |
| Most Outstanding Electee | Ben Hennig | Cheryl Williams |
| Best Electee Exam Score | Steve Seeger | Don Davis |

Sample Questions from the Electee Exam

1. How would you return 55 cents in change without nickels?
2. Attach a MOS level schematic of a 64-bit RISC processor.
3. How many staples are to be found in the HKN office?
4. How many lbs of jello are needed to make a 6'2" figure?

Publications

Course Evaluation Guide

Ken Barr

In an effort to serve the EECS community, Eta Kappa Nu presents its EECS Course Evaluation Guide (CEG). As you select classes for the upcoming terms, we encourage you to look over these course evaluations. Caveat emptor, however! The evaluations printed below represent a very small sampling of the student community. One individual may detest his peer's favorite class. A professor may have made drastic changes since he was evaluated. In short, these are what you may have to look forward to. Eta Kappa Nu provides the CEG as an editorial service to the community, but does not endorse its contents.

EECS 270, Introduction to Digital Logic Design

Professor Lomax (and Getty), Fall 1997

General: Professor Lomax clearly knows the material, but didn't ever seem excited about it. Lectures followed the Hayes book (with some random embellishments regarding jump sequencers and the like). The two midterms were 20 questions multiple choice. After so much design work in the labs and homeworks, this format seemed inconsistent with the goals of the class.

Discussion: I liked Lab. Write-ups were pretty short. You do have to essentially learn Mentor Graphics on your own, which is a pain.

Workload: Homework is a valuable but agonizing way to learn the material. It's not a large part of your grade, but it should be given the amount of time it takes to complete.

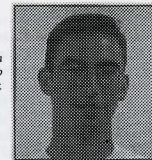
Past: EECS100 reappears at many points in the class. Obviously, gates are reviewed. You also finally begin to actually understand what a MUX is really for and how to interpret that cryptic LC-2 schematic. Encouraging!

EECS 280, Programming & Data Structures

Professor Kieras (and Flanigan), Fall 1997

General: Professor Kieras likes to keep the flow

HKN active Ken Barr headed up CEG this year. Great job Ken!



of the lectures in a fast pace, but everything presented was very clear and "visualized" on the board - as contrasted with those who seldom write on the board. As reflected by many students, it is a very well-organized class in which everyone learns a lot about C/C++. Also, he looked willing to answer questions in the class regardless of how dummy the questions were!

Discussion: The discussion was very good and my GSI (Venkat) explains everything very clearly. Also, he seems to be the most experienced programmer amongst all of the GSIs.

Workload: The programming projects were extremely well planned and had very interesting themes. However, except the first one, others are pretty long ones and people may want to start working on them as early as possible!

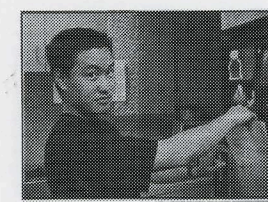
Past: I did not take the prerequisite - EECS 100. However, there was still not too much for me to catch up with those who had taken that class and basically everything critical to completion of projects were well presented in the classes.

EECS 574, Theory of Real Time Computing

Professor Compton, Fall 1997

General: Unless you are really into theory, you really don't want to take this class. The professor was a really nice guy, though. You could tell that he cared, and tried hard to make learning the material fun and interesting. Unfortunately for him (and us), the material is inherently dry...

Workload: The homework is of the type where you either get it or you don't. No amount of time usually changes that. Either work in groups and go to office hours, or die a miserable death trying to do it the impossible.



Albert Hou submits his resume.

Resume Book

Jack Levy

Each semester, our chapter puts together a Resume Book. This book typically holds 100-120 resumes belonging to our members, sorted by Computer Engineering, Electrical Engineering, Internship, and Permanent categories.

This semester, distribution of Resume Book order forms was accomplished with the cooperation of Tau Beta Pi. An explanatory letter and order form was included with the registration packet given to each company attending the TBP/SWE Career Fair in September. Additionally, Eta Kappa Nu members personally visited with several of the companies to discuss the Resume Book in detail.

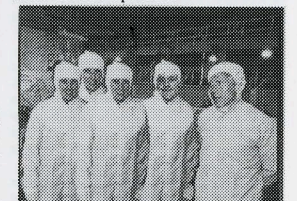
The HKN Resume Book is an excellent way to provide industry recruiters with a quality resource, while simultaneously raising funds for our chapter. Among the past companies to purchase our Resume Book were:

| | |
|-----------------------|-----------------------|
| Adaptec | Keithley Instruments |
| BASF | Lockheed Martin |
| Boeing | Loral West. Dev. Labs |
| Case Corporation | Medtronic |
| CDI Info. Services | Microsoft |
| Digital Semiconductor | Motorola |
| Hewlett Packard | Novell |
| Hughes Electronics | Qualcomm |
| IBM | Tandem |
| Intel | Trilogy |

EECSpeaks

Albert Hou

Here at the Beta Epsilon Chapter of Eta Kappa Nu, we have a unique officer position - the Newsletter Chair. The duty of the Newsletter Chair is to publish a newsletter for the EECS community, which we have fondly named EECSpeaks. With three issues per semester, EECSpeaks fosters a very personal dialogue between all sorts of people within the EECS department.



This cleanroom hoax graced the cover of a Fall 1997 EECSpeaks. It depicts HKN President Russ Tedrake with UoM President Lee Bollinger (right).

Inside the newsletter, one can read about new and exciting classes, research taking place on campus, as well as career opportunities. We have had department heads write articles for EECSpeaks, and most student society editors do as well. On the lighter side, EECSpeaks editorials cover a wide-ranging array of topics from "What to do with a useless lab partner", to "Why the Reflecting Pool should be turned into a hockey rink." Student social/service events such as "Tech Day, Springfest, Engineering Week, and others are also publicized. Finally, the EECSpeaks Crossword Puzzle adds an interesting touch.

EECSpeaks is one of those little things that makes our chapter so special and close. Within this short publication, you can see your own name in print, read about your friend's project, and get to know your professor just a bit better. Working on it has certainly made me feel like an integral part of the EECS family.

Community Service

Detroit Area Pre-College Engineering Program

Melinda Woods
DAPCEP is an excellent program that ushers young Detroit area students into the wonderful world of engineering. I was helping out in a class in the EE area in which my younger brother attends. I helped with the groups who were building various vehicles and talked to the students about what I do in school. This is a very worthwhile project of which I am actually an alumni of. This project happens every Winter semester and is sponsored by the College of Engineering Minority Engineering Programs Office.

Coaching Volleyball Team

Anne Foglia
I coached a 7th grade girls volleyball team for one of their tournaments because their regular coach needed to go out of town to a wedding (their coach is an acquaintance of mine and asked me if I could fill in). I went to a Thursday night practice so I could meet the kids and start learning their names. Then on Saturday, I spent the day coaching with the kids. They think that college people are so cool. Anytime you can coach a team, it is worth it.

Tree Sculptor

Dan Reiter
I carried bundles of large sticks, bundled up some sticks, dug holes, set up scaffolds and basically just did odd jobs for Patrick. He's a really cool guy and his sculpture is really neat; it's affectionally been named "Ewok Village". I'll be going back for more hours and I hope more people help so that he can complete his sculpture on time.

Girl Scout Tour

Sudip Das
During project we described what we did in our classes to the girl scouts, then we showed them

demonstrations in the 211 lab. These included an optical stream CD player, some stuff about artificial intelligence, and a demonstration of the M-Bot. We also had them do a couple demonstrations involving the pipelining concept in computers. Overall, this was a good project because we gave them an opportunity to learn about a possible profession.

Mott's Outing Scavenger Hunt

Swee Ting Pan
On Easter we organized a Scavenger Hunt for the children at Mott's Hospital. We hid easter eggs in the play room, and then the children tried to find them. We gave them prizes at the end. I learned a lot from this project. It was a little depressing to see all the little kids suffer from different diseases though.

Reach Out Mentoring, Pioneer HS

Jason Kachorek
This was my first tutoring session with Tom and I could meet the kids and start learning their names. Then on Saturday, I spent the day coaching with the kids. They think that college people are so cool. Anytime you can coach a team, it is worth it.

Arb Cleanup

Hyun-Mog Park
On Saturday, about 10 UM students cut and trimmed shrubs in the Arboretum near Gallup Park. We will meet in April to finish the work and clean the Arb. The work requires a lot of physical strength - It was not easy for me especially going up and down a snow-covered hill. But if you want to get a feel for nature, to listen to the sound of the wind, then this project is for you.

Dance Marathon

Ryan Peterson
During the Dance Marathon, I was a morale;

I was in charge of keeping three dancers happy and in high spirits. The dance marathon was designed to raise money for two or three families in particular who had children that needed medical attention. The goal of the night was to have all the dancers complete the 30 hour marathon, so I helped 3 dancers do that. The project was fun, and I got to meet some great dancers and the families that I was going to help.

Parents Night Out

Jennifer Manfakh
This project was a lot of fun! On Saturday night, I went along with a group of about 10 students to hold a "Parent's Night Out" for families of Saint Mary's Student Parish. Parents brought their children to the church and we took care of them while the parents took the night off. Each volunteer was in charge of certain children. We played games, made crafts, and watched movies, and we gave the kids a pizza dinner. I really enjoyed helping the families in this way, so the kids could have fun and so could the parents!

Piano Playing

Mike Varsanjan
I volunteered my services to the National Diabetes Association. They were having a "celebrity waiter" charity dinner and needed some dinner music. So for most of the time there, I played the piano. All the money raised went to diabetes research. I volunteered three more hours of piano playing to the person who bid the most money and again that money went to research. This project appealed to me because I like to play the piano.

Habitat for Humanity

Michael Nye
We assembled at the cube behind the Union Saturday morning. We then drove to the west side of Detroit. After receiving our assignments, we walked down the street to one of the project houses. A couple of friends and I excavated an 8-foot trench on the side of the house, and then patched the basement wall. It rained while we were working, and the basement leaked even as we worked. We then filled the hole back in and returned to UM. It was

tough manual work, but I enjoyed it.

Safe House Bucket Drive

Vinay Patel
This is the first bucket drive I've ever done. I see people in the Diag doing it and wonder how it could be gratifying. Well it was! I had a great time and collected a lot of money. I think that Safe House is a very worthy organization, so I had no problem convincing myself to stay even in the rain. I would love to see more projects like this. It's easy to do, easy to get to, and fun.

Theatre Troupe in Dorms

Jen Kiessel
This project involved putting on one act plays in the dorms. The purpose was to educate students about group interactions, learning tolerance, dating, etc. This project was a lot of fun because I got to act in front of a group of people! We got a lot of positive feedback too and critiques for the next time we do this. This was very worthwhile because it shed a lot of light on topics that some people don't like to discuss.

Hands on Planet, Recycling Ann Arbor

Swee Ting Pan
This is a good project; I learned a lot about recycling. We went to Recycling Ann Arbor where people bring in old books, newspapers, light bulbs, old tree logs, bottles, and other things to recycle. We helped sort all this stuff. Especially for book recycling, we needed to separate the hard cover from the paper. I learned how to sort my recyclables now!

Red Ribbon Drive

Michael Innes
During these hours I attended the AIDS and Safe Sex Awareness table in the EECS atrium. There was various literature regarding AIDS, STDs, the prevention of disease, tenets of safe sex, and other useful information. I passed this literature out and I also distributed red ribbons to symbolize a person's identification with AIDS Awareness. Finally, I collected donations that will be used for AIDS research.

Knit + wits = Knitwits

John Wei
At the end of last semester, I stumbled onto one of many, many, really neat and cool community services that are available throughout Ann Arbor. Through Project Serve, I got to be involved as a site-leader for Knitwits. A fellow HKN active, Yanni Kouskoulas, joined me and a bunch of other great people from the community to spend a day making "bedrolls." I was soon to discover that bedrolls are like sleeping bags on steroids.

Knitwits is part of a bigger organization, called Into the Streets, where volunteers do their best to "get into the streets" and help people in need. Knitwits provides bedrolls to homeless people so that they have some kind of warm sleeping unit to use. These bedrolls are often laid out at homeless shelters, and then those that stay there are welcome to take the bedrolls with them after they leave.

The bedrolls consist of a rugged outer layer (we used old curtains), a soft inner layer (donated sheets), and a warm insulating layer between (donated comforters, and blankets), all stitched together like a sleeping bag. They are then rolled up, packed with a warm hat and mittens, and then tied up with a shoulder strap for carrying convenience. Together, a group of about 10 of us, put out some 15 bedrolls in a matter of hours...definitely a WAY cool way to spend a Saturday. Especially since Lisa and the other Knitwits veterans brought us lots of happy homecooked food!

Get Involved with Netday!

Albert How
Last Saturday I joined a group of about 25 volunteers from around Washtenaw County participating in Netday at the Saline Christian School. Netday is a nationwide grassroots campaign to connect all schools K-12 to the internet. Often described as a "high tech barn-raising", Netday combines the knowledge of a few highly skilled professionals with the enthusiasm of local community volunteers, in a cooperative effort to build the

information infrastructure in our school systems.

The design aspects of this operation are surprisingly simple. We started with a central node for our network (in this case a utility room), where we set up a patch panel- the link to the outside world. From this panel, we ran 24 lines of category 5 cable through the attic to different rooms around the school. These included classrooms, the library, the computer lab, etc. At each room, we terminated the cable into an RJ 45 jack, which was mounted onto the wall. Voila! The room is now hardwired!

All of that done on a single Saturday! And you really don't need much technical experience to participate. Plus, it's a whole lot of fun! I spent most of the day crawling around in the attic, pulling Category 5 wire through dark corridors, playing around in insulation, helping to find drop locations (sometimes using the knock-knock method), losing flashlights (finding them again of course), and getting dirty. It was a very fulfilling and worthwhile way to spend a weekend.

Ann Arbor Hands on Museum

Cheryl Williams
The cold Saturday opened with a motivational speaker telling the group of volunteers (most of us Engineering students) about volunteering in general and the role it can play in our lives and our careers. Our site supervisor, a contact from the Museum, asked several of us to break down soggy boxes and tote them across the street where they could be stacked for recycling. This proved to be quite a task, as there were hundreds of boxes to break down! The hardest part involved figuring out how to stack the cardboard in stable, reasonably-sized piles while minimizing our trips across the street. Our engineering ingenuity played an invaluable role in our success!

The most unusual part of our assignment soon followed. Our supervisor from the Museum led the 12 volunteers at our site down flights of stairs to the Boiler Room where there were

stacked hundreds of bricks to recycle. We quickly brainstormed the most efficient solution to our problem. Obviously, just carrying bricks 2 at a time up the stairs and outside would prove to be inefficient-what we needed was a tool to facilitate the task. We found old box-lids, into which we could easily pile several layers of bricks at a time, and divided the team into two segments- the "stackers," who loaded the trays, and the "carriers," who carried the trays up the stairs and stacked the bricks outside.

We had a lot of fun, despite how odd this might sound. It was the best part of the entire volunteering experience! To top it off, the shirts we were given had a big M made of bricks on the back, accompanied by the motto, "Building communities one brick at a time." Our group appreciated the humor in this.

All in all, I had a really great time and enjoyed the chance to get out, meet new people, and make a difference in the community. I especially enjoyed the volunteer opportunity because this was actually the first time since HS that I had participated in such an event and I look forward to such events in the future!

Science Olympiad Pioneer Highschool

Daniel Min
Since last year, I have volunteered at Pioneer HS to lead the Physics Lab event for their Science Olympiad Team. I came to this position because of 2 reasons: I was a former member of the team and the school did not teach electromagnetics and circuit analysis. In preparation for the various competitions, I have scheduled weekly meetings to interested Olympians and introduced basic circuit analysis to them. This project appeals to me for 2 basic reasons: First, it is a way for me to give a little back to the coach who has helped me throughout the latter years of high school. And second, I would like to see the Science Olympiad Team to continue to do well and have fun.
Before each lecture, I created a document with terms and circuit components along with short defini-

tions to be handed out to the students. I also created a problem set and solution. I intended to cover the following topics: node (what it is) equivalent resistance, voltage divider, current divider, KVL, KCL. I knew that it was a bit much, but it was necessary in order to keep pace with the schedule. I think that the students should develop a feel for circuits, but I won't be sure until I see the results from the problem sets.

One man's Trash is another man's Computer

Kate Lockwood
Winter semester, several HKN members took part in computer repair and upgrade workshops provided by the Volunteer Computer Corps. The VCC is an excellent student volunteer group at UoM dedicated to providing computer expertise and experience to those without it.

For this event, the participants were taught all about the hardware components of computers, particularly IBM compatibles equipped with the Intel 386 chip. Topics included basic hardware, trouble shooting, upgrading, and building computers from components. Needless to say, the lessons involved a good deal of hands-on activity. After the classes, the students worked to repair and upgrade old computers which had been donated to the VCC. Many of the computers were old 386 machines that people were just throwing away because they were too slow or couldn't run the newest software.

Most of the upgrades done were to add RAM and/or a larger capacity hard drive. The repairs generally involved replacing some of the hardware with working items. Sometimes tracking down exactly which part of the hardware was broken was a little tricky. Once the computers were upgraded and ready to go, the VCC took them to various non-profit organizations that could not afford to buy their own computers. This was an excellent learning experience for the members, and the non-profit organizations were very happy to get working and upgraded computers.

College of Engineering Events

St. George's Feast and Professor of the Year

Matt Gerlach
Throughout the year, Electrical and Computer Engineering students work very hard to please their professors. Many long nights are spent finishing programs, homework assignments, or putting the final touches on a presentation in hopes that they can make a good impression. But for one glorious afternoon each year the tables are turned. St. George's Feast takes place on the last day of class in the EECS atrium. Professors dress in chef's apparel and make deli sandwiches to each student's liking. The event is sponsored by the EECS department, and volunteers from Eta Kappa Nu help out by serving pop. There are very few Michigan engineers who would pass up a free lunch, let alone one which is catered by their professors. For this reason, St. George's Feast is always very crowded and this year was no exception.

Another tradition which takes place at St.



Professors Jahanian (left) and Gilchrist smile as they prepare more food for the students.

George's Feast is the announcement of the professor of the year. The voting is taken on by Eta Kappa Nu a few weeks prior to the last day of class. This year's winner was Prof. Gabriel Rebeiz. Prof. Rebeiz is known for his strict but fair nature, and his enthusiasm for his subject matter (especially analog, for as he often says, "Analog is Sexy"). One student once called Prof. Rebeiz, "A fun-loving electrical engineering drill sergeant." Prof. Rebeiz was awarded a plaque for his achievements.



HKN President Nathan Mather congratulates Professor Rebeiz on receiving his award.

After a long year of work it is nice at the end of the term to have an event like St. George's Feast. Students and faculty get to interact outside the classroom. And possibly more importantly, they get to interact in a different world, a world where the student gives out the orders. Somehow I know the professors don't mind. In the back of their heads they know finals are just around the corner!

Tech Day

Dan Min
Tech Day is an annual engineering event presented by the University of Michigan College of Engineering students and faculty. It reaches out to high school and community college students from Michigan to provide them with an opportunity to observe first-hand the engineering facilities and programs offered at the University.

Eta Kappa Nu has a long tradition of running the Tech Day event. We organize tours throughout all the engineering departments, set up student project demos and displays, and sit on question and answer panels for parents and students alike. The visiting students have a fun day learning about the different aspects of engineering and are put to test with some hands-on design competitions. We believe Beta Epsilon presented a good view of what electrical and computer engineering are all about, and hope to see some of them back next year as students.

What our members do...

GSIs of the Year



From left to right: Matt Gerlach, Anthony Wen.

This past year saw two HKN actives win Outstanding EECS Graduate Student Instructor (GSI) awards. The two actives were Matt Gerlach and Anthony Wen, both former HKN officers who are now Masters students majoring in VLSI Circuits. Matt taught in the EECS 211 lab, which is a sophomore level course covering basic analog circuit analysis and design. Anthony taught in the EECS 373 lab, a junior/senior level course concerning design of microprocessor based systems. Both of them taught their respective classes both semesters of the 1997-1998 school year. In addition to both of them winning an award, they happened to also be roommates. Could there be something in the water in their apartment? HKN Beta Epsilon congratulates Matt and Anthony on their awards!

HKN and Fun with Dispo

Hugh Kennedy
One of every HKNers favorite pastimes (outside of misusing vizlab resources to get more code real estate) is making their weekly or bi-weekly pilgrimage to that mecca of low-cost, high-geek-factor electronics, that palace of bargains and house of high-technology: University Property

Disposition. Here, for the price of several dozen cups of coffee, you can carry home with you what would be several hundreds of dollars worth of computer hardware in the "real world". In addition to rare finds like the occasional workstation or really nice monitor, there are hundreds of older machines and miscellaneous hardware, all cheaper by the dozen. Truly a hardware collector's heaven, vintage computer and general electronic hardware from University labs are warehoused, just waiting to be liberated for a project or the sheer thrill of it. Keyboards, monitors, racks of modems from dial-in pools, giant hulking mainframe components. Not for the faint of heart or those lacking sufficient hardware mojo, but a satisfying experience for the adventurous spirit.

Come early, come often, go Dispo.

CoOP at Intel

Sarah Baker
I spent Winter semester 1998 and the following summer as a co-op student at Intel Corporation in Folsom, CA. I got the job offer in late November of 1997. I did not speak with any recruiters, and I didn't give Intel my resume at the career fair, so the big question was "Were did they get my resume from?" After thinking for a moment it came to me. Through the HKN resume book, of course!

I thoroughly enjoyed my experience as Co-OP. I worked in a design and upkeep team for an automation environment in platform validation. This consisted of building multiple target systems for use in automated testing, as well as the development of many automated tests. An exciting development of the work experience was the participation in the development of a graphical user interface for a new test manager. I made many contacts in the company that should be very beneficial in the future, and the people I worked with were intelligent, fun people who I plan to stay in contact with. It was an excellent experience.

Student-Faculty Mixer

Dan Min
The Student-Faculty Mixer is an event organized by HKN every semester. Through it, our chapter seeks to provide a relaxed social atmosphere to facilitate student-faculty interaction. We personally invite every faculty member to the event, and as a result, faculty turnout has been steadily increasing. Recognizing the value of the mixer, the University's chapters of ACM and IEEE have been lending a helping hand to HKN by providing funding and student labor.



Sparkling juice anyone?

The event, held in the atrium of the EECS building, is made possible by the hard work of our Corresponding Secretary, who plans every facet of the mixer. To draw attention and encourage attendance, we provide a huge amount of hors-d'oeuvres, punch, soda, and for that extra element of class, sparkling grape juice. The sweet strains of live jazz can also be heard throughout the atrium during the mixer, adding to the comfortable atmosphere. Students and faculty alike praise the event for providing the opportunity to gather in a non-academic setting. The Beta Epsilon chapter is proud to provide the EECS community with this opportunity.

Engineering Week

Matt Guthaus
Engineering Week is a spring event held each year that serves to recognize engineering through several means. Several societies will hold student design competitions to foster the spirit of

engineering creativity and problem solving. Some of the projects included Lego Bridge Building, Boat Building, Egg Drop, and Paper Airplane Contests.

To get involved with Engineering Week, HKN organized a computer game competition. This involved reserving an entire computer lab of Pentium's, installing Quake, and organizing a two round free-for-all competition for about 50 students. The computer lab allowed highlights of the top player to be displayed on a large screen during each round. After the two rounds of combat, the four top players entered into a "Death Match". The 15 minute Death Match determined the winner of the \$50 gift certificate to Border's. The computer games competition served as a break for computer engineers during the final weeks of class.

HKN played valuable part in the overall success of Engineering Week this past spring and will continue to stay involved with this activity in the years to come.

SpringFest

Jason Kachorek
Springfest is an annual event that occurs on the last day of classes every winter semester. Every society that participates in Springfest organizes an event that they think would be fun and that students would enjoy. These events are then scattered about the North Campus lawn for students to enjoy at no charge all day. Some highlights of last year's Springfest were: live rock music, the velcro wall, the dunk tank, free food and ice cream, bagel hockey, mini putt-putt, and the hungee run. In past years, HKN has sponsored the Moon Walk event, but for this past year, HKN members decided instead to be in charge of food. Really, this is the most important part- for who could enjoy all the activities if there wasn't enough free food and drink for it?

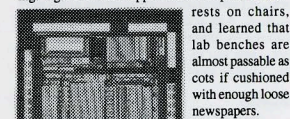
Springfest is sponsored by many companies and societies. All of the people who are running the events and organizing the day are volunteers who simply want to be a part of something that people will enjoy coming to. Whether you are working an event or joining in on the fun, Springfest is a wonderful event to be a part of.

HKN Academics: Design Projects

Chau Doan
In the past 4 years of my life, I've probably pushed myself harder than I ever have before. College life is brutal; you get homework sets, programs, and more reading and theory than the average human could normally tolerate without some type of intestinal disorder. Yet it keeps coming! I thought that after a couple of years at most, my woes of spending late nights in the lab would be relieved when I finally got to stop messing with the tedium of problem sets and work on something "cool" that wouldn't take up so much time.

I couldn't have been more wrong. After all of my moaning throughout childhood about always being told exactly what to do, I was given the task of picking a project I wanted to work on, developing it, and completing it over the course of a single term. I was given the responsibility and freedom of choice I had so long craved. My friends, it is NOT pretty.

During the first term I had a design project, I learned to function on a bare minimum of sleep, nutrition, rest, relaxation, and as gross as it may be, hygiene. Vending machines and non-perishable single serve food products that fit in your coat pocket sustain life in the wee hours of the morning. I gained a new appreciation for padded armrests on chairs, and learned that I could not function on a bare minimum of sleep, nutrition, rest, relaxation, and as gross as it may be, hygiene. Vending machines and non-perishable single serve food products that fit in your coat pocket sustain life in the wee hours of the morning. I gained a new appreciation for padded armrests on chairs,



Suffice to say, my once late nights in the lab became late weekends, then late weekdays, and after a while I considered having my own phone line and mailbox installed at the main entrance of the EECS Atrium. This was worse than it was when I started! I thought things

would've gotten better. And did I complain about it? You're darned right! But I had no one to blame but myself. All the frustration, all the headaches, all the bottles of Pepto Bismol consumed... All my fault. Actually, all my ambition. The need to do something challenging. The desire to do something just a little bit better. Possibly some anal retentiveness, but just the fact that this project...MY project...was something I built. Something I came up with. And, as sometimes was the case, something of mine that was going to send me to an early grave.

Call me crazy, but I love every minute of it. The drive and ambition to succeed has to push you to the limits. It makes you re-evaluate your very basic thoughts, and it makes you run with an idea until you see it working or you end up with a sleeping disorder. You could be making a micro-processor, a game, or making something that just plain old doesn't exist. But you made it. And that's what keeps you going.

Believe it or not, I'm not alone. Few people in this world are going to work that hard. (In truth, I probably don't.) But in these parts, when I'm rubbing my eyes at four o'clock in the morning, I'll look up and see a few other people banging away in the lab. And chances are at least one other member of the local Eta Kappa Nu clan is in the trenches with me, trying just as hard to get something working.

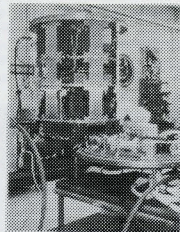
This grim determination is something that characterizes many if not all of the members of Eta Kappa Nu. Resilience under pressure, and sometimes under failure. Adaptability. And just a little bit of optimism.

And don't forget the caffeine. So what are you working on tonight?

HKN Students Help Build NASA Project

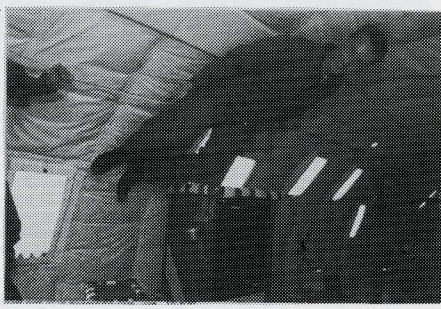
Over the past four years, a group of students at the University of Michigan, including several HKN members, has designed and built a small payload to fly aboard the Space Shuttle. Sponsored by the U of M Students for the Exploration and Development of Space (UMSEDS), the VORTEX Ring Transit Experiment (VORTEX) attempts to answer some basic questions about liquid atomization, the process by which a liquid is converted into small droplets. Without the presence of gravity, the physics of this process can be examined as never before. The data returned will hopefully lead to better methods for atomizing fuel (important in the operation of internal-combustion engines), producing metal powders of desired characteristics (powder metallurgy), and manufacturing microdroplets for drug delivery.

The students have been working in teams to design and build the many different subsystems needed to run the self-contained payload. All power, control, and data handling must be contained within the 5 cu. ft., 200 lbs. Get Away Special (GAS) experiment carrier.



Members Experience 'Vomit Comet'

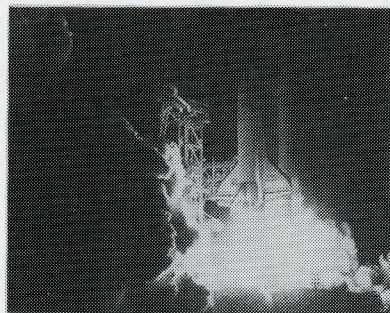
In April of 1997, VORTEX was tested in Houston aboard NASA's KC-135 microgravity aircraft. The plane flies in parabolic arcs, rising up to 35,000 feet and diving down to 25,000 feet at a 45 degree angle, which creates approximately 30 seconds of weightlessness for the experiments and passengers. Because of this roller coaster-like motion, the KC-135 is also affectionately called the "Vomit Comet".



All of the weightless scenes of the movie *Apollo 13* were filmed aboard this plane. HKN member John Korsakas, who wrote the computer software for the experiment's flight, got to fly on the plane with VORTEX twice, floating through 80 parabolas. John was happy to report that he never got sick, unlike many of the others who have flown in the plane.

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University of Michigan, Beta Epsilon Chapter



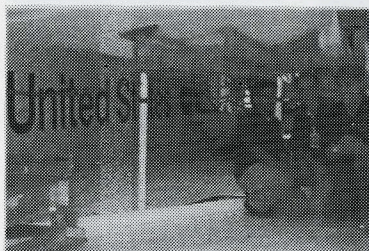
VORTEX Blasts into Space

After the test flight, VORTEX was prepared for its space shuttle mission, with HKN members John Korsakas and Avik Basu developing the flight software. The astronauts on the shuttle only had to turn on the experiment, then turn it

off eight hours later, requiring it to be completely automated. The software was written in C++, running in DOS on a 486, and controls the entire payload, running the experiments, controlling the motors, pumping fluid, collecting volume,

accelerometer, and thermocouple data, and capturing several images per second with a digital camera.

In September of 1997, a team of six, including Avik and John, traveled to Kennedy Space Center in Florida to deliver VORTEX to NASA for integration aboard the space shuttle *Endeavour* for mission STS-89. Then on January 22nd, 1998, John, his parents, and other team members were present to watch VORTEX launch into space. In February of 1998, Avik and John went to Goddard Space Flight Center to pick up the experiment and learn what sort of data that their program had collected during the flight. Much to their dismay, due to some NASA technical difficulties, the computer never booted and the program never had a chance to run. NASA granted the team a reflight aboard STS-88, the mission carrying Node 1 of the International Space Station.



Above: HKN members Avik Basu and John Korsakas pose next to the space shuttle *Endeavour* with advisor Luis Bernal.

Second try for VORTEX

All summer Avik and John have been improving and testing the program, and this past August, they again traveled to Kennedy Space Center to deliver VORTEX to NASA. They were also able to see *Endeavour* in the Orbiter Processing Facility, tour the huge Vehicle Assembly Building, and climb to the top of one of the shuttle launch pads. Currently, VORTEX waits in *Endeavour's* payload bay for the launch of STS-88, scheduled to fly in December 1998.

End of Year Report, 1997-1998 Academic Year

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"the Ale-house is healthy & pleasant & warm."

-William

Steve Seeger

Ahhhh! Friday! Thank God!

Time has brought our weekly respite from class, and now we need to have a little fun. Though we spend countless hours during the week in the same company, we are usually just too busy to engage in any normal interaction. Would it not be pleasant to know a little about the people behind those strange faces we see everyday? Well, HKN has organized just the activity we need... a TG!



A dispute over the true football champion of the world.



Friends and HKN regulars Christy Dellas and Becky Hollenbeck share good times and good brew during a TG.

In the warm and friendly setting of a local pub, you can put a name to those strangers' faces and learn about what they enjoy, if they can get away from the computer lab for a few precious moments.

Between sponsored appetizers and drinks, games of darts and foosball, Redwings and Lions game on the TV, and chats between old as well as new members, new friendships and ideas are born.

Monday morning... back in class... ready to learn! Same routine, but a bit different somehow. The rooms and halls are not quite the same, they feel more congenial and—gasp—welcoming. Today, instead of glaring formidably at that stranger in the third row, you can grin and say hello.



Some of us aren't quite as good at making friends...

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University of Michigan, Beta Epsilon Chapter

The Banquet

Christy Dellas and Kris Klemet

We arrived tired, hungry, yet anxious for the festivities that awaited us at the Heidelberg. Elections, which we hold right before the end of the semester banquet, had run long as usual. As we filed into the top floor of this popular Ann Arbor restaurant, we eyed the "steaming" food hungrily as we made our way to our seats. We went through the buffet line and sat down, anxious to dig into the exquisite German cuisine. Forks and knives sounded noisily as people rushed to shove the hot food into their readily waiting palates. Suddenly, looks of dismay filled the room as people quickly discovered that the food had grown cold while we were completing our elections. Despite the feeling of disgust, and the disappointment felt from the temperature of the food, people still ate to fill the void that had been left in their stomachs from the grueling election process.

"The DJ played a wide variety of music, including classics such as "YMCA" and "It's Raining Men." We even got a surprise visit from Ann Arbor "Jazz Legend" Shakey Jake. He played a tune, danced with us, and even tried to kiss some of the actives, all in good fun.



Ann Arbor's own street performer 'blues-man extraordinaire,' "Shakey Jake" Wood, graces our banquet with a surprise visit sporting his trademark bowtie and scarf.

Once the emptiness had left everyone's stomach, we prepared for the next item on the night's agenda: the introduction of the new officers. We welcomed four new officers into their positions and said goodbye (and thank you) to the officers who had completed their tenure on the Beta Epsilon executive board. Four actives and electees were distinguished with awards and then the real party was ready to begin. We simply call it, "The

mind, in quite a disastrous situation, to call the Department of Public Safety in hopes that someone had found the checkbook and turned it into them as lost and found. Fortunately, that was the case. A custodian had found it and turned it into them. Our lives were saved!

The banquet commenced with a feeling of serenity. Everyone parted with a new peace of mind that comes with the knowledge that no one would be washing dishes when the evening was over. Adversity presented itself in many forms that night, but at the end of the night, we had overcome all of its challenges, and fun was had by all. Overcoming adversity is what being a part of Beta Epsilon is all about!



Steve Seeger leads the table to some grub.

End of Year Report, 1997-1998 Academic Year

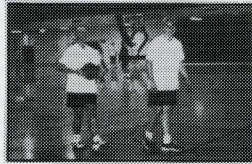
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Intramural Sports

Don Davis

Taking part in Eta Kappa Nu IM sports is a great way for the members of the society to work together toward a common goal—having fun.

I was lucky enough to have time to play on a few of our IM sports teams. I was able to play on the IM volleyball and broomball teams. Both were very exciting and it gave me the opportunity to meet many of my classmates in a more informal setting. The games aren't about winning—they're about having fun and making new friends. It was such an excellent experience playing on the Eta Kappa Nu IM teams, that I'm going to attempt to be a part of as many IM teams as my course load allows this semester.



Basketball Too?

Volleyball

Bump! Set! Oops! Alright, well maybe HKN volleyball didn't dominate the intramural volleyball scene, but we gave it a good go. Volleyball is one of the most popular and widely played IM sport within HKN. It's an extremely team oriented sport where communication between players is vital to success. Being engineers, our teamwork is among the best... However, we discovered that you usually need a little skill to win a well. Did I mention our teamwork?

Inline Hockey

Last year one of the latest trends in the sporting world, inline hockey, came to Michigan. And true to form, the resident HKNer's banded together a team of engineers to take on street-hardened hockey thugs. And play we did. For the most part, we played pretty well; shots were taken, elbows were received, saves were made, and goals were scored. The course of the day-long event had us playing in 4 games. All the way to the end, we remained strong, until we lost in the finals...but there's always next year.



The infamous HKN Broomball Brigade!

Broomball

HKNers love to be outa control. Well we got our wish in the annual Broom Ball Tournament. You play it in the ice rinks and without skates. Say again? That's right, you're on the ice in your sneakers, armed with a rubber paddle and nothing else. As you can imagine, the fine arts of walking, running, and particularly stopping become a little more difficult. Add to that the chase for a little rubber ball and the objective to put it into the opponents net... well you've got a recipe for a lot of engineers falling down, and a lot of fun.

Football

After a hard week of programming and circuits, the HKN football crew is ready to take a load off and let the pig-skin fly. This season marked the beginning of a friendly rivalry against the members of the NERS (Nuclear Engineering and Radiological Sciences) department. With former president Matt "The Rocket" Gerlach at quarterback, "Big-Man" Chau Doan as nose tackle, and a half-dozen loyal HKN receivers, we showed NERS what EECS students can do!

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University of Michigan, Beta Epsilon Chapter

Rock Climbing

Dan Miin

"Ok everyone, grab a harness and step into the leg straps." He paused for a moment, allowing the Hardly Known Natural climbers to shuffle into a small clearing among the vertical slabs of dangerous looking cliffery.

"Now when you want to slow the descent of your partner, always remember to keep your right hand up." His next few words were lost to the shuffling of feet and clinks of metal that betrayed the atmosphere of subdued excitement.

"Finally," he exclaimed, "before you climb, shout to your partner On Belay! Once everything is okay, the belayer shouts back Belay On and then you can begin climbing. Any questions?"

This last gesture proved quite futile as the Hardly Known Natural climbers set off to randomly chosen destinations. Shouts of On Belay and Belay On were heard as handholds, outcroppings, and footholds were sought out. Dan and Jason stood on the side watching Kaiann and Leann work on a wall. Kaiann grabbed an oversized bubble-gum-looking handhold as her foot found purchase in a kneed-in section of the wall. A few minutes later, she reached the top. In the mean time, Don recovered from a small fall and was hanging in midair several feet above the ground; a severe negatively sloped wall was the culprit. His partner held onto the rope as Don grabbed a rounded handhold to continue his ascent. At another corner of the large room, Nate decided to take on an upside down L shaped wall. No problem.

After two hours or so, muscles began to ache and the blue harnesses were shed. Soon after, actives and electees alike began to drift back home. No one would have ever guessed that they were members of the Hardly Known Natural climbers.

Assassination

Tony Wen

HKNers at U of M always eagerly look forward to the beginning of the once per semester Assassination Game. Although the game is often taken quite seriously, its main purpose is to get to know other actives and electees in a unique and interesting way. Usually around thirty members take part in this game of seeking and "destroying" their targets, i.e., other HKN members.

At the beginning of the game, each player receives the name of their initial target. Then the player attempts to track down the target and shoot him or her, thereby making the "kill". Any type of projectile firing weapon (non-lethal, of course) is allowed, such as a Nerf gun. The game may seem easy, but each player also has an assassin tracking them down too. Each player is allowed to defend themselves, however, so it is possible to eliminate your killer in self defense. To maintain order so people aren't indiscriminately shooting others, the rules state that a kill cannot be made during class or during official HKN events. All other places are fair game, including apartments and computer labs. Once a kill is made, a new target is assigned.

What are some of the tricks us wily veterans use to withstand the torrent of Nerf darts that are sure to come our way? First of all, it's useful to turn off your Zephyr login notification. There's been more than one instance of a person getting shot while sitting at a terminal. Some people find it helpful to take different routes to class and work, so as not to have a routine that your assassin can follow.

The Assassination Game can take upwards of three to four weeks to finish if the players are keeping themselves well hidden from their would-be assassins. However, it isn't unusual to see several people get killed in one day, especially at the beginning of the game. The game continues until only one person is left and a prize is awarded to that person at the end of semester banquet. All in all, this game, although somewhat morbid, provides a fun activity for HKNers to participate in.

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End of Year Report, 1997-1998 Academic Year

The Last Word

John Wei

In the late summer of 1994, I moved into a small dorm room in East Quad, and got acquainted with my roommates. This was freshman orientation, a taste of what lay ahead of me for the next four years. I had just committed myself, having left a small school of a few thousand students, to an enormous school of a few tens of thousand students. Now, four full years later, it is summer time again as I write this article. I've finished my Bachelor's degree, and I'm half a year away from finishing my Master's degree. In the easy going atmosphere of the summer, I have time to sit back and reflect on the years that have passed, so quickly, yet sometimes so slowly.

As I sat through the commencement exercises a few weeks ago, each of the graduation speakers spoke of memories that they had while at Michigan over the past four years. They spoke of Backroom pizza at three in the morning, the annual Naked Mile, avoiding the "M" in the diag before the first blue book exam, football Saturdays, winning the 1998 Rose Bowl and the football national championship, winning the 1998 NCAA tournament and the hockey national championship, partying on South University and the front lawn of the President's house, the list goes on and on. The University of Michigan obviously excels both in academics as well as athletics, and the student body is one of the greatest and classiest in the entire world. However, of all my experiences here, the fondest memory that I take with me is my time with Beta Epsilon, the HKN chapter in Ann Arbor.

In a school of almost 40,000 students and in the largest department in the College of Engineering, I found a wonderful home in HKN. I don't know about chapters elsewhere, but HKN at Michigan is hands-down the most active society in the entire College of Engineering, if not the entire University. I've gone skiing with them, rock climbing, all sorts of community service, and made some of my best and closest friends through HKN. I definitely have to say that the close of my academic career brings with it nostalgia for the school, but mostly for my awesome honor society.

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John Wei prepares to watch the Michigan Wolverines win the Rose Bowl and a National Championship.

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University of Michigan, Beta Epsilon Chapter

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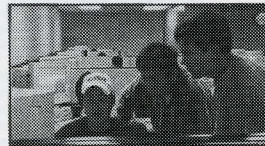
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From the Editors

Steve Seeger

At the University of Michigan, numerous societies seek to confer honor on the "best of the best," and many organizations promote student involvement in the community. Amongst these societies and organizations, Eta Kappa Nu stands out for the enthusiasm of its participants, and the level of impact they have within the community. Some honor societies require only a certain GPA for membership. Involvement in these societies is often limited to attendance at meetings or lectures, and the inductee goes unrecognized in the group. Here at Michigan, membership in Eta Kappa Nu demands much more, and membership means much more to those so honored.

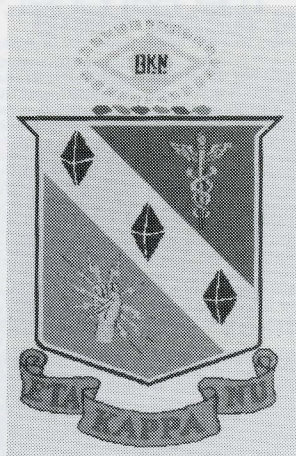
A prospective member's academic standing is only the first key to membership in HKN. To become actives, electees must demonstrate character and vision beyond the engineering realm. We form friendships among ourselves, and seek to extend that congeniality to the greater community. The only benefit of some societies is a certificate on the wall, but HKN opens opportunities for new and strengthened friendships and provides a forum to discuss problems and solutions to engineering problems. HKN members do not see the requirements of membership as a chore to be completed, rather we embrace HKN activities as an opportunity for self-improvement. Through volunteer involvement, we gain a better framework of the human problems of engineering. Community involvement serves to make us better engineers, for true engineering is not solving technical problems, but finding solutions to human problems.



HKN editors Albert Hou, Dan Miin, and Steve Seeger work on the 1997-98 EOY Report.

End of Year Report, 1997-1998 Academic Year

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ETA KAPPA NU
Kappa Delta Chapter

Florida International University

1997-1998 Academic Year Annual Report

Preamble

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 Mater by distinguished scholarship, activities, leadership and exemplary character and to aid these students to progress through association with alumni who have attained prominence, we do hereby ordain and establish the following Constitution.

Introducing Eta Kappa Nu (HKN)

Let us acquaint you with the Eta Kappa Nu Association. It is the International Honor Society for Electrical Engineers. A Chapter or Eta Branch of Eta Kappa Nu has been established at your college, Company, or City and at approximately 200 other locations in the United States, Europe, and Asia. Outstanding persons are elected to Eta Kappa Nu primarily from the junior and senior classes of accredited undergraduate programs. Graduate Students and distinguished professional engineers are also eligible. Eligibility, naturally, must depend on marked ability, as evidenced by scholarship, personal character, useful voluntary services, and distinguished accomplishments, all of which indicate that the candidate will be or is a success in his profession. For undergraduate students, eligibility must depend largely on the records established during the first two or three years in college. Therefore, it is important that you set your goal early and strive steadfastly, first to do well scholastically; and, second, to give some of yourself to carefully selected activities which will help your school and fellow man. In turn, these accomplishments will bring returns to you as well.

Purpose of Eta Kappa Nu

While one of its purposes certainly is the stimulation and reward of scholarship, Eta Kappa Nu has a far broader purpose than merely to award a badge of distinction to scholars. As conceived by its founders and as carried forward by its membership during more than two generations, another aim is to assist its members throughout their lives in becoming better professionals as well as better citizens. In turn, it is still another purpose of the organization, that its members be a constructive force, helping fellow members and non-members alike to improve the standards of the profession, the courses of instruction, and the institutions generally where its chapters are established.

History of Kappa Delta Chapter

Eta Kappa Nu Kappa Delta Chapter held its first induction ceremony April 3, 1992 at Florida International University. We have been one of the most active honor societies since then. Eta Kappa Nu was created in order to recognize outstanding Electrical and Computer Engineering students. The basic philosophy of the society is that only individuals with a good balance of character, academic excellence, and personality can become successful engineers.

Kappa Delta Officers for 1997-1998

OFFICERS:

- President: Danmary Sanchez
- Vice-President: Christopher Mora
- Treasurer: Thomas Gilbar
- Recording Secretary: Richard Lopez
- Corresponding Secretary: Julio Gaitan
- Bridge Correspondent: Julio Gaitan

COMMITTEES:

- Honors Council Representative: Enrique Polo
- Webmaster: Damian Gonzalez

FACULTY ADVISOR:

Dr. Malek Adjouadi

1997-1998 Events

Fall & Spring, 1997

This semester gave HKN a chance to show its commitment to the community by having food and toy drives for the Thanksgiving and Christmas holidays, and by taking Halloween (in the form of a haunted house) to sick children that otherwise would have missed it. The Florida International University (FIU) community was also a beneficiary of the activities as a pre-Thanksgiving luncheon was sponsored and coordinated in conjunction with the Engineering Student Council (ESC). The following is a quick read on the events that occurred and were common to the Fall & Spring semesters:

- Four general meetings were held during each semester. The purpose of these meetings is to keep all the members of HKN informed of all the activities that will be occurring, as well as to get input from the members about activities they would like to see HKN involved in. These meetings generally last about one hour, and food and refreshments are served (the brain thinks better on a full stomach). During one of these meetings, Dr. Malek Adjouadi, our advisor, was in attendance to speak to all the members about the different scholarships and programs available for graduate school.
- Two officer meetings were also held, in addition to the general meetings, to discuss the upcoming responsibilities of each officer and provide a foundation for the direction the club will take during the semester. During these meetings the upcoming events are planned and brainstorming is a must for fundraising ideas.
- One induction ceremony was held each semester to honor the new member-initiates of Eta Kappa Nu. During these induction ceremonies, family and friends of the initiates are welcome to attend and celebrate along with the initiates the pay-off of



Figure 1
Eta Kappa Nu inductees and officers pose for the Spring, 1998 induction ceremony. 21 inductees became members during this semester.



Figure 2
Fall, 1997 induction.

all the hard work. After each induction ceremony, a luncheon was held. During these luncheons the new members were once again commended for their efforts and the honor bestowed upon them of becoming HKN members. In addition, the Spring induction also gave the society a chance to recognize all the officers for the hard work they had done. Certificates were given and thanks and recognition were extended between officers. The Fall induction banquet was held at Bennigan's and 20 people were in attendance. The Spring induction banquet was held at the Olive Garden and 40 people attended it. The objective of the induction ceremony is to honor the student for his/her achievement, and it is required for admittance into Eta Kappa Nu. The luncheon that follows it is a nice way to get the new members to interact with present members and officers of the club, as well as to have a chance to celebrate with friends and family in a setting that revolves around Eta Kappa Nu. Fundraising is extremely important to help maintain club funds at a level that allows coordinating activities without worrying about the funds being available to support

them. For this purpose, and to make engineering student's life easier, Eta Kappa Nu sells electronics kits at competitive prices to students taking Electronics I or II labs. The kits include BJT's, diodes, capacitors, resistors, potentiometers, mosfets, 555 timers, and almost all parts required for completing electronics labs. This allows the students more time to prepare for and complete labs, saving them the time of hunting down parts at various electronics stores, while also supporting the HKN chapter.

Fall Semester:

- As a way of reaching out to the high schools and encouraging bright students to pursue a career in engineering, Eta Kappa Nu sponsors Advance Laboratory Internship. Every year Dade County Public Schools allows high school students to attend an internship in which they learn college level material in the subject of their liking. Those that would like to learn about electrical and computer engineering are given some of the basic knowledge by some of the best students in the university, and labs relate the material to real life situations. From this program, both high school students, as well as college students, benefit greatly. The high school student gathers knowledge about the field rarely taught at a high school level in a college environment. The college student learns to give presentations and while doing so reviews some of the basics of electrical engineering.
- Honors Council Breakfast is held every year to provide all the honor societies with instructions on setting up activities successfully. This activity lasts two hours and was attended by two officers of HKN.
- Haunted House for sick children. HKN participated in setting up the haunted house sponsored by the University of Miami School of Medicine. This was a rewarding experience for three members who spent their Halloween making the day a memorable one for children that were confined to the hospital.
- Pre-Thanksgiving luncheon was held in conjunction with the Engineering Student Council (ESC). This luncheon was free to engineering students, faculty, and staff to celebrate Thanksgiving. This was held the week before Thanksgiving at the Engineering and Applied Sciences (EAS) building. The food was bought with club funds and four helpful HKN members helped to set up the food. This was a new activity for HKN and a wonderful way to bring faculty, staff, and students together to celebrate the holidays.
- In the spirit of Thanksgiving, Kappa Delta Chapter also remembered those that would go without during the holidays if it weren't for the donations of our members and the entire Engineering student body. A Thanksgiving Food Drive was held and canned goods were donated as part of the Honors Council drive for people with low resources. (originated by Honors Council / VAC)
- Toys for Tots drive was held by Kappa Delta Chapter and the Honors Council to donate to children of families with few resources during the Christmas season. About 20 toys were collected to brighten the life of some children during the "Giving" season.

Spring Semester:

- Eta Kappa Nu Kappa Delta Chapter Web page created. In the web page were included pictures from the Fall induction ceremony, information for members and inductees regarding events and activities. The web page is now a valuable source of information containing pictures of chapter activities, links to officer web pages and

PICTURES FROM TRIP TO KENNEDY SPACE CENTER

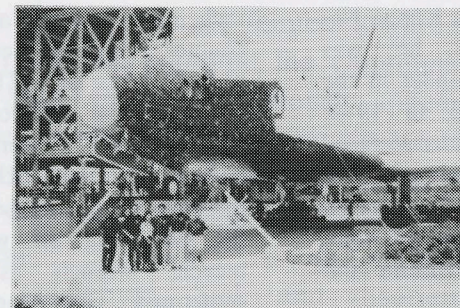


Figure 3
Eta Kappa Nu members dwarfed by a test shuttle during the end-of-year trip to Kennedy Space Center in Florida.



Figure 2
Members enjoying a movie in the gigantic IMAX theatre in Kennedy Space Center visitor center.

E-mail addresses, member names and e-mails (if provided), upcoming meeting and previous meeting minutes, links to HKN headquarters as well as our constitution (HKN's that is). The Webmasters have done a superb job of maintaining the site updated and constantly spice it up with Java-Scripts and various other features. The web site address is <http://www1.eng.fiu.edu/hkn>.

- HKN T-shirts and polo shirts for officers were designed and placed on order. To encourage participation in club activities, T-shirts were given free to members that participated in at least one qualifying HKN activity. The Eta Kappa Nu officers and Advisor were given polo shirts.
- Honors Council club fair gives the honor societies a chance to introduce to prospective members the activities HKN participates in and the requirements for joining. Three members helped set up the display and were present to answer questions to passers-by.
- Habitat for Humanity helped build houses for low-income families. Six Eta Kappa Nu members and inductees participated.
- People With AIDS Coalition (PWAC) is an organization that supports people with AIDS, giving them a place to feel welcome. PWAC sponsors plays that are staged by people infected with this deadly virus. As a fundraiser, PWAC owns a thrift shop, selling books, tapes, clothes, and more. Three of our members helped in maintaining the thrift shop and in coordinating mail-outs for PWAC sponsors and donors.
- JETS/TEAMS competition is a yearly event sponsored by Florida International University in which high schools compete against each other in the fields of mathematics and engineering. Three of our members were facilitators for teams from local high schools, administering the test and answering non-test-related questions.
- Engineering Week Luncheon: This was a fundraiser, which over 10 members participated.
- Engineering Safari (scavenger hunt) with TB. Over 15 engineering students participated. Prices: 1st, \$50 to Outback Steak House, 2nd, \$25 to Outback Steak House and 3rd, 4 movie tickets.
- Brainbowl Competition: 4 people participated and won 3rd place.
- Volleyball Competition: 6 people participated (with TB) and won 3rd place.
- End of year trip to Kennedy Space Center allowed 6 members to kick back and enjoy a day of sightseeing and fun in NASA.

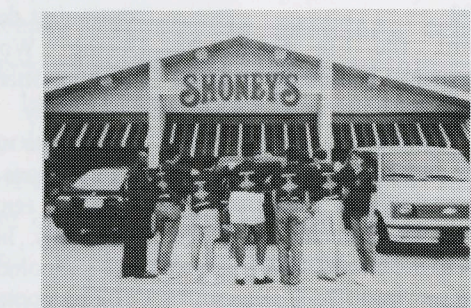


Figure 4
Electrical and Computer engineers need food too. Members stopped by Shoney's on the way back to Miami from Kennedy Space Center and took a moment to pose for this picture showing off our cool Eta Kappa Nu T-shirts.

REPORT APPROVED AND SUBMITTED BY:

Danmary Sanchez
Danmary Sanchez
President
Eta Kappa Nu Kappa Delta Chapter
1997-1998

Dr. Malek Adjouadi
Dr. Malek Adjouadi
Faculty Advisor
Eta Kappa Nu Kappa Delta Chapter
1997-1998

Nominations Invited for The Ninth Vladimir Karapetoff Eminent Members' Award



Dr. Vladimir Karapetoff

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

In 1991, the Eta Kappa Nu Board of Directors announced the establishment of an award in honor of Vladimir Karapetoff, an Eminent Member of HKN and Fellow of IEEE, who died in 1948. The first award was given on April 27, 1992.

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

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

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

Dr. Karapetoff was born in St. Petersburg, Russia, January 8, 1876. His father was an engineer and his mother a

student at a military medical school.

Dr. Karapetoff emigrated to the United States in 1902, and became a naturalized citizen in 1909.

In 1904 he joined the engineering faculty of Cornell University as an assistant professor. In 1908 he was made a full professor and continued in that capacity until he retired from active teaching in 1939.

In an account of Dr. Karapetoff's career, his Cornell University colleagues R. F. Chamberlain, N. A. Hurwitz, and Everett M. Strong, recalled his continuing dedication to Eta Kappa Nu. During World War II he was commissioned a Lt. Commander in the U.S. Navy. But beginning in 1942, Kary, as he was known to his associates, began to lose his sight in both eyes, and despite temporary relief through operations, he ultimately lost his sight and schooled himself in Braille and "talking books."

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

His colleagues remembered him as an accomplished musician on piano, violincello, and double bass. He toured the country giving recitals and lectures on Wagner, Liszt, and other major

composers, and developed a five-string cello on which violin music could be played. He received an honorary Doctor of Music degree from New York College of Music.

Professor Simpson Linke, writing in the Winter 1984-85 *Engineering Cornell Quarterly*, cited the following excerpt from Karapetoff's *Electrical Laboratory Notes*, published in 1906, as reflective of the flavor of EE studies in that era:

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

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

He was a member of AIEE, the Franklin Institute, the AAAS, the American Mathematical Society, the Mathematical Society of America, the American Physical Society, the U.S. Naval Institute, and the U.S. Naval Reserve Officers' Association.

THE COLDEST CHIPMUNK I EVER SAW

by
G. W. Swenson, Jr.

The year was 1965 and we were living in one of a row of government-owned houses on the grounds of the National Radio Astronomy Observatory, in the pastoral beauty of the Deer Creek Valley of West Virginia. One day, at my office in the lab building, the phone rang and an excited voice told me that Julie had been bitten by a wild animal. The story tumbled out: my 13-year-old daughter had been watching a literal cat-and-mouse game in the front yard. A Chipmunk would poke its head out of a hole in the lawn, Julie's cat, Freckles, would dash toward it, and the rodent would withdraw, only to reappear at a different hole.

After a few cycles of this, though, Freckles caught on to the scheme, feinted toward the occupied hole, and captured the chipmunk at the other hole when it incautiously appeared. Julie rushed to rescue the unfortunate creature, which bit her on the thumb as it was freed from its captor's grasp. This time the chipmunk did not reappear.

I was concerned. Sick and disoriented skunks and foxes had been reported in the neighborhood and there was discussion of a possible rabies outbreak. Over the phone the physician at the neighborhood clinic urged me to recapture the animal and have it autopsied. I was unsure of the appropriate strategy, but Julie merely turned the problem over to Freckles, who repeated her earlier performance quickly and efficiently and delivered her prey without argument. I put the chipmunk into a shoe box and weighted the cover with a brick. Now what to do? I telephoned the State Health

Department in far-off Charleston. The pathologist suggested I decapitate the animal and send the head to him. Who, me? The idea did not appeal. The animal was alive and scratching in his box. I called the County Public Health Nurse and asked if she'd do the job. Indignantly I was informed "That's man's work!" Another call to the pathologist revealed that he'd accept the whole animal, that gassing would be a quick, painless, and medically-acceptable mode of execution, and that the remains could be frozen for shipment.

I didn't want the specimen to deteriorate enroute. Cutting a hole in the shoe box, I slipped it over the tailpipe of my car. In about twenty seconds the scratching ceased and a peek revealed the victim peacefully at rest.

In the electronics lab we had facilities for cooling the low-noise amplifiers of radio telescope receivers. I got a large tin can from the cafeteria, lined it with polyurethane foam, and laid the chipmunk to rest therein, surrounded by plastic bags of water to add thermal inertia. Then I poured liquid nitrogen (boiling at -196 degree C) over the ensemble and wrapped the can in more foam and layers of kraft paper. Driving at top speed the fifty miles up the valleys to Elkins, I met the afternoon DC-3 airliner to Charleston and dispatched my precious package.

Two anxious days later the pathologist phoned with the good news that the chipmunk had not been rabid. His parting words were, "That was the coldest chipmunk I've ever seen!"

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