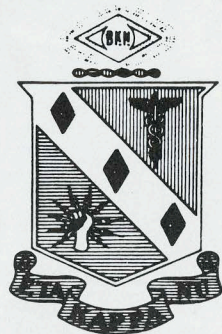




The Bridge of Eta Kappa Nu



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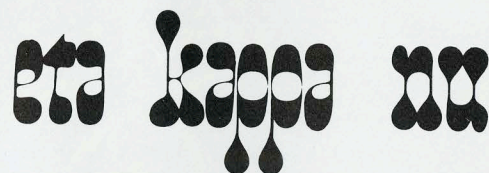
Editor and Business Manager
Paul K. Hudson

Contributing Editors

Larry Dwon
Winston Kock
Marcia Peterman
Bert Sheffield
Jack Pullen
Leon Zelby

Photography Editor

Howard Sheppard



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

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Your Choice.....

CAREERISM OR ACHIEVISM

"Most people pursue careers in engineering because they are intrigued with engineering problems and methods. But much more is involved in an engineering career than being a good engineer — a fact that many engineers discover too late". (1)

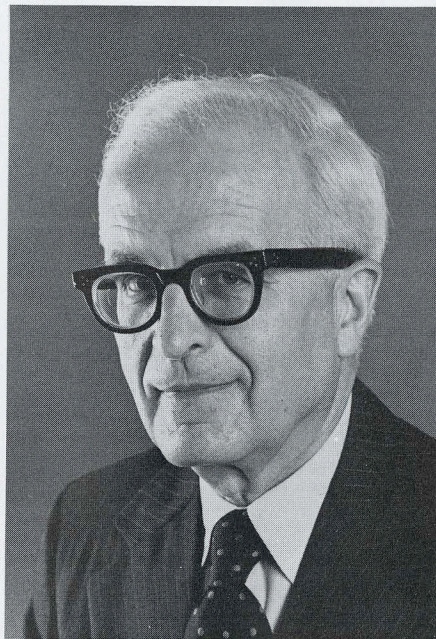
The above quotation and the writer's introductory article suggest several paths in which succeeding articles might branch. Among the implied topics are the following:

1. Careerism or achievism.
2. Understanding the career ball game.
3. Planning, deciding and working towards realistic goals.
4. Success requires diligent application either to achieve or to politic.

While other subjects are also in the idea spawning stage, number one above seems to deserve a higher priority with which to launch this effort in a serious vein.

Recently, an engineering educator asked the writer how a person acquires the value system whereby he/she would be motivated to speak out for what is right rather than remaining silent on sensitive issues primarily to protect his/her career advancement potential. Can it be taught to students? Well, if a value system

Larry Dwon was President of HKN in 1959. He is our official Historian and is Assistant Editor of Bridge.



Larry Dwon, P.E.

can be acquired, one must have been able to learn it. Consequently, in some manner it should be teachable. But whether it can be taught in the classroom itself, better than through life's many painful experiences — one of which may be the classroom — is a subject ripe for conjecture. A more curious question seems to be, "Considering the price one has to pay in being an achiever, why should anyone want to be such a maverick?" Obviously the personal rewards must be adequate to overbalance the demerits one is surely bound to attract. I for one totally discount the often expressed opinion of such mavericks as being stupid persons for

jeopardizing their advancement potential.

The more usual sources for such learning seems to me to be lifelong experiences which are either personally sought, forced on one, or accidentally encountered through various associations. These forces and constraints may or may not be consistent with previously acquired values which in turn would require a person to re-evaluate them in light of new goals he/she may wish to establish. So much for the awkward he/she exercise.

In short, we are alluding to whether a person would rather gain recognition and make the sacrifices necessary to be an achiever or a careerist. These two paths are not congruent and they do have different probabilities of success to the top elected positions which command power and authority in industry, government and education. Power, authority and recognition seem to be the principal identifiers of successful careers by many people. There is also a direct correlation between them and the salary one may get; but not always earn.

Mr. Rok Peters suggests that: (2) "There are basically two ways for a person to gain the recognition of others. He can outperform those around him on the basis of clear objective standards (i.e. achievement) or he can gain the favor and support of those doing the evaluation (i.e. politics)"

Webster defines careerism as follows: (3)

"The policy or practice of advancing one's career often at the cost of one's integrity"

Thus in the process of working as an engineer or manager, one will be faced constantly with value judgment decisions relative to which is a better match for one's personal constitution — careful protection of career potential or maintenance of integrity as a professional and ethical achiever. The two paths have different consequences. The former has a higher probability of success to the top elected levels of authority although not 100% assurance.

The achiever course alone is very unlikely to get one to the top elected officer level position in government, education or industry except in one's own created entity. Nevertheless, it still can lead to substantially satisfying careers and appreciable responsibility and recognition. These opinions are based not on statistically sampled research specimens; but on considerable reading, numerous discussions with associates and peers in a variety of employment situations, as well as, first hand personal observations during more than 40 years of diversified working and voluntary experiences in industry, education and technical/professional/industrial associations.

No one ever has accused me of careerism; but several well meaning persons suggested to me in the course of my practice of engineering and management, as well as, in my voluntary activities that my principles may be too lofty and my constant adherence to them would not enhance my career.

In my younger days, I did not believe those well intentioned friends. In my more mature years, I began to understand what people meant by enhancing one's career; but, at the same time, I realized that they did not understand what my values and goals were. They did not realize, for instance, how much my youthful experiences made me abhor the organization "yes" man type and the practice thereof. Soon after my college days — if not actually during that

period — I decided that my inherent combination of personality, skills, knowledge, interests, background, etc., did not equate well with the techniques which are required to become an elected officer (Chairman of the Board) of any organization except my own self established company, which I could never afford. What does intrigue me however, is what combination of circumstances allowed me to become Chairman of the Board of Eta Kappa Nu. There must be something unique about HKN to permit such an occurrence for such a character like me.

Consequently, my decision followed naturally from my background — to persevere to the highest position available to me in which I would not rise to my highest level of incompetence.

Actually the decision was not that easy to make. Youth always hopes that right and truth, hard work, knowledge, dedication, etc., will overcome all obstacles; because youth hasn't yet learned that the practical world is not ideal in nature nor is it ruled by idealists. However, a pragmatic idealist, sooner or later, comes to the conclusion that politics — the practice of which more likely will advance one's career towards the very top — is very often correlative with ulcers, precarious family life and primary (almost exclusive) allegiance to the employer. Quite often it is not congruent with maintaining one's integrity, nor at least equal responsibility to one's own interests, family and profession. Very often, one's self respect is jeopardized. Therefore, personal value judgments are very important in guiding one's career towards intermediate objectives and longer term goals — which should be kept flexible.

But the question raised by the good professor has not been answered. How does a person learn the modus operandi for bucking the system when in one's judgment the system needs correcting? More precisely, how can it be taught? How do you accomplish the corrections and stay reasonably secure in employment? It is a delicate process and it does require loss of one's job in

some instances. It is a sensitive act sometimes necessitating a postponement of immediate recognition, confidence in one's peers if not one's superiors, and judgment as to how far to press an issue at any particular time. If at once you can't succeed try again at a more propitious time. In my own opinion, there are many situations in this learning process, including:

1. Environment in one's background.
2. Parental teaching and example.
3. Peer group influence from childhood onward.
4. A fortunate teacher/philosopher contact like Dr. Vladimir Karapetoff was to me.
5. Work and extra curricular experiences.
6. Family responsibilities and values.
7. Understanding the ball game rules early and making a decision about them.
8. Educative chance occurrences.
9. The correct kind of patrons.

Specific incidents from my background may illustrate the learning process, and the lessons which I experienced and learned therefrom. Being born and raised through high school in the East Side Yorkville section of New York City, provided the writer with unique associations in the practical world of poverty, deprivation and raw street life. The primary lesson learned was an intense desire to rise above that situation and go beyond it as far as innate ability would permit honestly. Perseverance and stick-to-it attitude was developed.

My youthful peer group associations were a miscellaneous assortment of kids many of whom had few scruples, or at least they had their own rudimentary sense of ethics, fairness and values. A necessity in such an environment was to learn how to get along with the toughest kids first, with whose values and ethics your own may clash. Disagreement automatically meant finding ways and means to avoid the inevitable pressures of muscle power persuasion. You simply developed good judgement, when to fight and when to run. Simultaneously, you

learned that the pressure on you was less if you consistently didn't hesitate to support and fight for what you believed — they got tired of fighting or running after you —; and also if you became more proficient in something which the peer group admired. This diverted attention from their low estimate of you as the block's intellectual — often called sissy. No lower could anyone sink in the eyes of the leaders and their followers. This was a lesson in organizational pressure through evaluations of dubious value. Later in industry appraisal techniques seemed no better.

I was taught by my parents that hard work would never hurt me and a good education could not be taken away from me. So far I have found these two concepts true and valuable assets. Since the toughest kids were able to take almost anything they desired from almost anyone, the latter of the two concepts seemed solid advice especially because very few of the kids were inclined towards education. They didn't care to take it from you even if they could.

The skills which helped me establish the needed diversion included high proficiency in single wall handball, stickball and basketball. The first two were played for money against other neighborhood individuals and groups (gangs if you prefer). I played on commission basis since my funds were usually close to zero. My commission was five cents (a stein of beer was a nickle) for each game I won and the silent treatment otherwise. This held me in good stead later in life when I had to absorb the benign silence of some engineering educators during debates on the course of events in that field after 1955. Also, I learned the price of being a professional; you had better practice to stay good or else obsolescence would wreck your state of security. Thus, very early in life came the lesson of how valuable was continuing education.

Basketball provided some special lessons since I played with a team called Nomads. We played

all comers including those in the toughest sections of the city. The team seldom had more than seven members at any one game which automatically meant 60+minutes of running for a majority of the members. The plus allows for the running time which was sometimes needed to get away from the foreign neighborhood after the Nomads won a game from an especially popular local combo. Here the lesson learned was to keep physically fit for unexpected events which require reserve transient energy and especially the hard work of learning.

In the eighth grade of elementary school, I was chosen to be the school bell monitor because the Principal decided that I was a responsible child. The decision was probably based on my scholastic work much the same way that some engineering managers are chosen because of their superb engineering achievements — not necessarily a good criterion as future articles will discuss.

This delegation of responsibility required that I ring (long before automation) the school bell system to indicate class hour changes, every 50 and 60 minutes. This assignment taught me how to concentrate on several things at a time — my watch, the teacher and what was being taught. In one word, the lesson was concentration.

In addition, bell ringing for fire drills was my responsibility whenever the Principal arranged for it. This duty often required me to keep to myself the actual time of the drill, a responsibility lesson of considerable value. Needless to say, these activities made me stand out like a sore thumb among my peer group. Again it took some conniving to dissuade the toughest from reacting negatively. Here perhaps was the beginning of my understanding how the system of politics works. Do unto me something which I need and I'll not bust your nose. I was able to help the busters with their homework and woodshop assignments — a practice which wasn't exactly condoned by the school authorities or me for that matter. It was a

practical expedient for peaceful co-existence. Two lessons were learned. Politics may be necessary to survive sometimes. Also, be careful to whom you delegate your responsibilities.

The schoolmate who I recommended screwed up a fire drill during my absence. It was a surprising learning experience when the blame for the incident became mine. I thereby learned the management principle which states that delegation of responsibility does not relieve you of being held accountable for that responsibility.

In high school, politics among the student body began to really show its ugly head in the various struggles for the school council membership and the prestigious officer positions which were heavily based on popularity and mass following. Not as much, if any politics seemed to play a part in elections to the mathematics, engineering, and physics clubs or the editorship of the Math Survey. Probably, one reason for this circumstance was that these positions required considerable work. Another reason may have been that faculty advisors held the trump card in the selection process. In these activities the achiever seemed to have the advantage over the politician. Here the value of having an objective patron seemed to reveal itself, if one could consider the faculty advisor in that light. Years later in other major societies, this same hypothesis was proven often — where there is work to be done few volunteers seek the opportunity to become recognized.

In college, where in my time, the fraternities prevailed supreme on the campus at Cornell, political deals among the fraternity BMOC's divided the choice prestige positions within the campus activities. Since mine was a depression class (1931-1935) some non-conformists began to sprout among the student body not excluding the writer. The independents, as we were called proceeded to infiltrate the established system to the consternation of the fraternity boys. Such positions as Master of lighting of

the Cornell Dramatic Society, Chairman of AIEE Student Branch and Coordinator of the Electrical Engineering Show (open house in some schools) were three responsibilities which I acquired. They all required many hours of dedicated work which is the reason I believe it was possible to infiltrate with the help of faculty advisors who wanted to see the job done well.

From these experiences, and especially the fact that an invitation to become a member of Tau Beta Pi was missed seemingly because of a dialogue with its President over some matters dealing with the all college engineering open house for the public, I began to recognize, but not accept, the advantages of political deals and avoidance of confrontations. It goes without saying, if one does not want to play by the ball game rules, then one must accept the consequences. It seems that from that day on this person preferred to be right than become president, as the well known expression states. Performance became my prime motivation because it was primarily under my control. My choice was to be a doer not a popularity contest participant. Upon reflection I don't believe it required any more effort than politics would have demanded — just different effort. The consequences were different also — and acceptable. There are many more examples of the learning process; but the choice ones from industrial experiences will be weaved into future articles.

The foregoing should illustrate to students that there is much more to be learned besides the prescribed subjects in the college curriculum. This is true only if one actively participates in extra curricula activities with an attitude of performing to accomplish worthwhile goals. In this process one may learn how to set objectives towards those goals in an atmosphere that is less severe and critical than that which will exist in the future industrial environment. Does it not make sense to learn about people among your college peers rather than

postpone the learning experience until you reach the less tolerant practical world of industry? Human nature and the art of directing people (or working with them effectively) is such an important element of career progress, especially in the management segment of the career ladder, that one wonders why engineering students and their professors continue to relegate the subject to the back burner.

In conclusion, I would recommend four articles for additional reading. These articles have been chosen because they provide more depth to the concepts given above in a rather forthright manner. Books by Drucker, McGregor, Schnell and many others are also recommended but knowing the extra curricula reading motivation of most engineering students I tend to prefer shorter articles to recommend first.

In the first article Mr. Rok Peters makes the following pertinent observation: (4)

"The difference between a politician and an achiever is that the politician puts 'success' ahead of the manner in which it is accomplished, whereas an achiever's concept of success depends upon the manner being rational (i.e. proper to man)."

Dr. Robin Beach, a former Eta Kappa Nu stalwart, National President, 1949-1950, educator and consultant wrote: (5)

"Too often the college student ignores the wealth of opportunities for self expression which are available to him through worthy activities in the belief that these activities distract his attention and divide his interests to the detriment of his studies"

He then goes on to show the error in such thinking.

If the reader should like specific examples of achievers, some of whom later also reached high level management positions, the author's articles on the Eta Kappa Nu Outstanding Young Engineers and the many other articles giving their biographies do provide substantial living evidence. (6)

I would beg leave of you now with a bit of advice which Dr. Vladimir Karapetoff once gave

me and other Eta Kappa Nu members: (7)

"Don't Take Yourself Too Seriously"

So long and don't forget the feedback.

1. Peters, Rok, "Do You Really Want A Career?", IEEE Manpower Report, EH 0117-2, 1976, pp. 7-1 through 7-18.
2. Idem., Peters.
3. Webster's Seventh New Collegiate Dictionary, 1963, p. 126.
4. Idem., Peters.
5. Beach, Robin, "Effective Chapter Management An HKN Challenge", The Bridge, Eta Kappa Nu Association, September, 1949, p. 1.
6. Dwon, Larry, "Outstanding Young Electrical Engineers: 1936-1969", The Bridge, Eta Kappa Nu Association, February, 1971, p. 6.
7. Karapetoff, Vladimir, "Don't Take Yourself Too Seriously", A recording by the professor before his death which was held at his request by his wife, for presentation to his beloved New York Alumni Chapter Members.

CHAPTERS

BETA DELTA CHAPTER, University of Pittsburgh — The Beta Delta Chapter at the University of Pittsburgh had a fairly active year. New members were initiated at a ceremony held on December 5.

Our programs included a tutoring program to help EE students as well as students outside of the department. We were able to provide tutors in a variety of areas.

Our annual banquet was sponsored by Eta Kappa Nu and the student branch of the IEEE. It was held at the Engineers' Club in the William Penn Hotel, Pittsburgh, PA. Awards were given to the outstanding young EE teacher and the outstanding senior. Dr. Marwan Simaan and Bill Toth received the awards.

by Susan Prior

Israel.....

SUN AND EARTH

By Paul Hirschhorn

Primitive man worshipped with awe that flaming globe in the sky, the sun. Archaeological discoveries have shown that the ancient Egyptians believed it was carried across the heavens in a canoe. Assyro-Babylonian mythology depicted the liberation of the sun god from behind a mountain protected by a winged goddess.

The Jews, on the other hand, frowned on sun worship from the early days of their history.

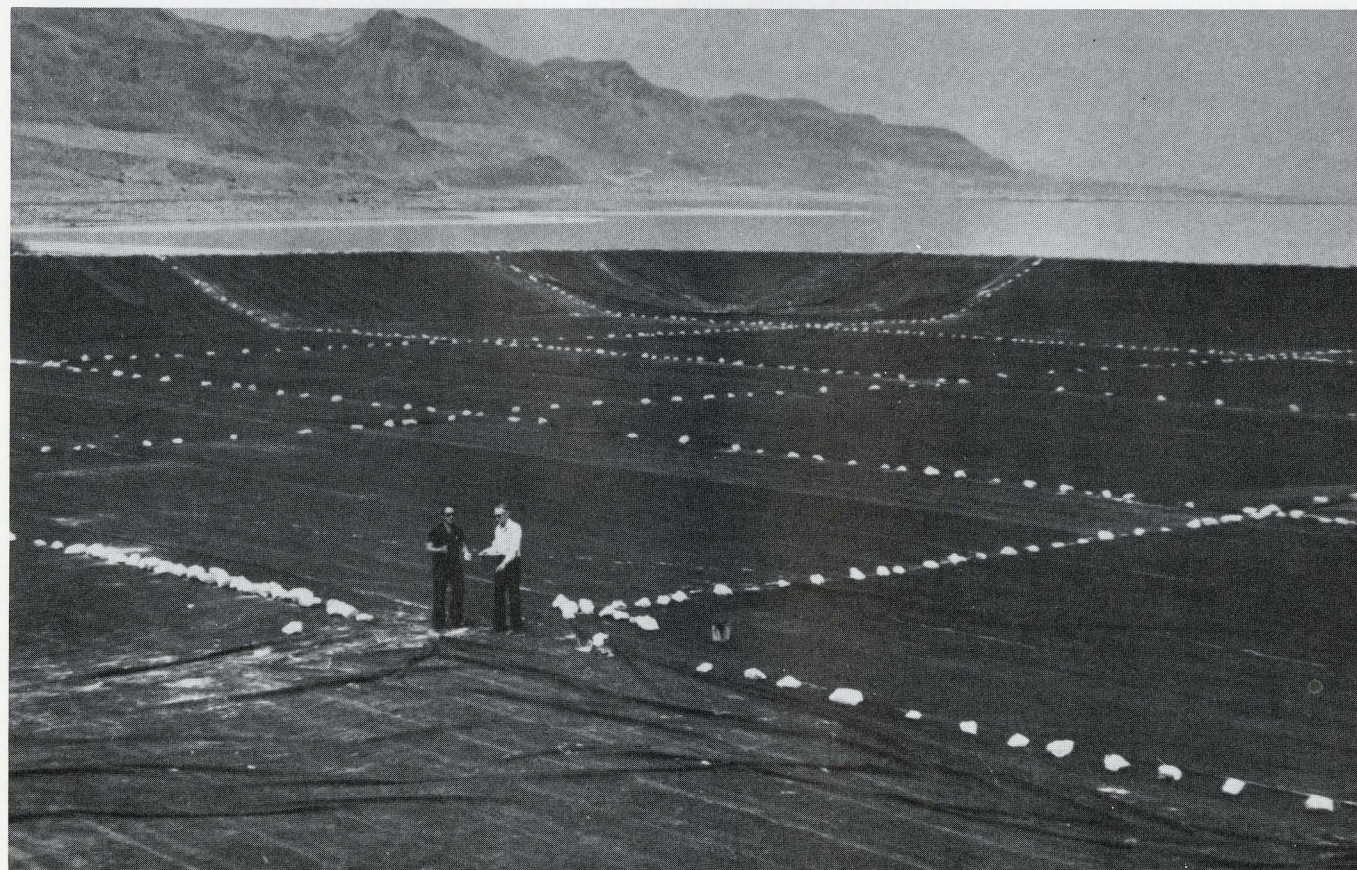
Today, however, modern Jewish scientists in Israel are taking a second look at the sun. National policy dictates that alternatives to fossil fuel must be found, and found fast.

Scientists here are attempting not only to find additional sources of energy, but to develop processes which will not pollute the environ-

ment. More and more, they are turning to nature for answers.

Sun, Sea and Wind

In a way, it may be said, they are attempting to bring the sun down to earth. Working in harmony with nature, scientists are also seeking new ways to harness energy from ever present sea waves and wind. The possibilities for mankind? Clean energy from unlimited sources.



New solar pond to supply power for Israeli resort hotel at the Dead Sea shown with heavy black lining, an important part of the collection and storage process, prior to being filled with saline water.

In Israel, great strides have already been made in the use of solar energy, of which Israel is the largest per capita user in the world (20 percent of Israel's homes are outfitted with solar heating or refrigerating systems). Dr. Nathan Arad, Director-General of the country's Energy Authority, is optimistic that this use can be increased from the current 2 percent of the country's energy consumption to between 8 and 15 percent in the 1990's.

"About 20-25 percent of all household energy needs — predominantly for space heating and hot water — could be saved by passive systems design and solar energy applications," Dr. Arad said. With this goal in mind, scientists throughout the country are involved in research to expand the production of power from the sun. Recent Israeli developments have included: a high temperature solar energy system, capable

of powering solar air conditioning in summer, heating in winter, and obtaining mechanical energy for home use; and a new solar cell with its own internal storage system that can produce electricity after sundown.

Solar Ponds

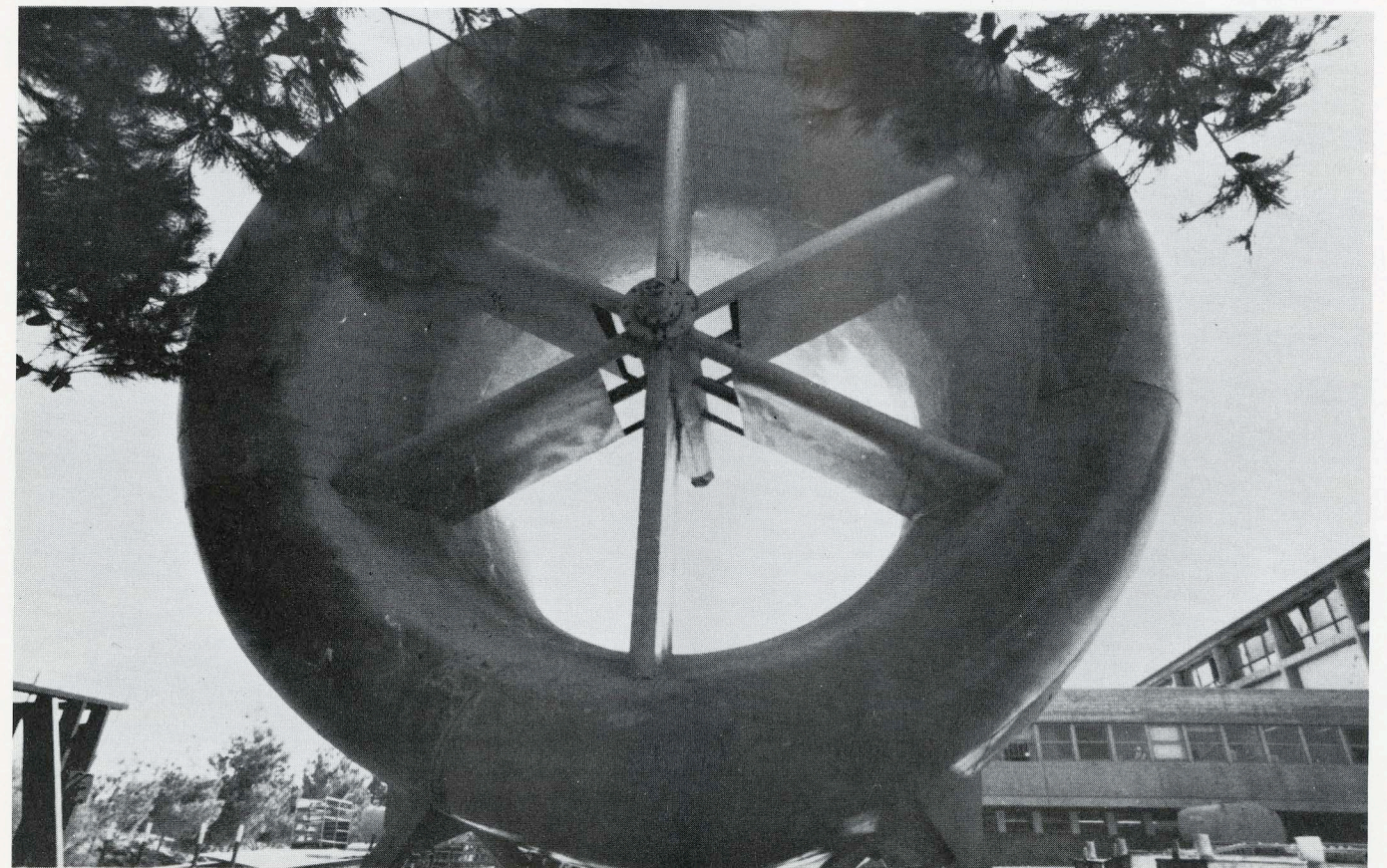
One of the most promising developments in Israel's solar energy research has been that of "solar ponds." The ponds are based on the natural phenomenon that all bodies of water trap the heat at the bottom. There it can be collected for use as a source of energy.

Research into solar ponds, originally suggested by Dr. Rudolph Bloch of the Dead Sea Works, is underway on a national level. A group of scientists headed by Dr. Zvi Tabor, now at Hebrew University, began solar pond investigations some 20 years ago. They have succeeded in developing

a pond which produces heat at temperatures between 90° and 100°C. Heat drawn from the pond's bottom has successfully powered turbines developed specially to operate in conjunction with the ponds.

Using similar principles, Technion — Israel Institute of Technology engineers have developed a shallow solar pond — a 50×3 meter plastic bag consisting of a transparent upper layer and a black bottom layer with water held between them. The "shallow pond" is installed next to a greenhouse: heat collected and stored during the daytime can be transferred to the greenhouse by night.

Future solar pond uses are promising. The Weizmann Institute's Dr. Gad Assaf has made a mathematical study of using the Dead Sea itself as a "solar lake." According to his calculations, 50 square miles of the sea would provide enough energy to double



Circular shroud for increasing the energy output of wind turbines. Structures inside the shroud are supports; the turbine itself is not shown. Photographed in Beersheva, Israel

Israel's resources, through desalination of seawater.

Production of Methane

Water also figures prominently in another project underway in Israel, the production of methane gas from agricultural wastes, including animal manure and vegetable waste.

At Kibbutz Yagur, near Haifa, Technion experts have built the world's largest pilot plant for the production of methane gas. As a side benefit, the methane reactor is also an excellent medium for algae growth. The algae can be fed to many farm animals, which then create manure. Project head, Professor Gedaliahu Shelef, believes this could ultimately lead to farm units self-sufficient in

stationary energy requirements, through a cyclical reuse of their own solid organic wastes.

Biochemists at the Weizmann Institute have begun a basic investigation of an unusual alga that grows in ponds along the Dead Sea. They believe this alga may some day serve as an inexpensive source of glycerol, a combustible alcohol that can be used as a fuel itself and may possibly also serve as a raw material in the production of natural gas or gasoline.

Other Israeli scientists have made headway in modernizing a more traditional form of energy, the windmill. Technion Professor Anthony Peranio has developed a new "rotary viscous friction" device. Consisting of a paddle wheel enclosed in a tank of water or

oil, the device, rotated mechanically by the wind, heats the liquid, providing power.

Ben-Gurion University scientists have discovered that the energy output of a wind turbine can be tripled if it is surrounded by a special shroud. Dr. Oser Igra, who developed the circular shroud, has taken advantage of the principle of airplane wing design, in which differences in air pressure create a suction effect drawing more air into the turbine. The shroud, which Igra claims produces three times the output of a regular turbine, can pick up wind with as little as 20 percent of the turbine facing in the direction of the wind.

Sea As An Energy Source

Professor Peranio, of the Tech-

nion, also sees the sea as an alternative source of energy. In his laboratory he has built a small working model of a sea wave conversion device consisting of a long, inclined ramp leading up to a water tank, somewhat above sea level. The kinetic energy of the waves rushing up the ramp is converted into potential energy. This energy is then extracted from the controlled flow of this water through a conventional turbine.

Increasingly in their varied researches, Israeli scientists are linking the development of energy sources with the preservation of development of other resources, especially water. Technion's Dr. Grossman, head of the team that developed the high temperature solar collector, has turned his attention to the development of a

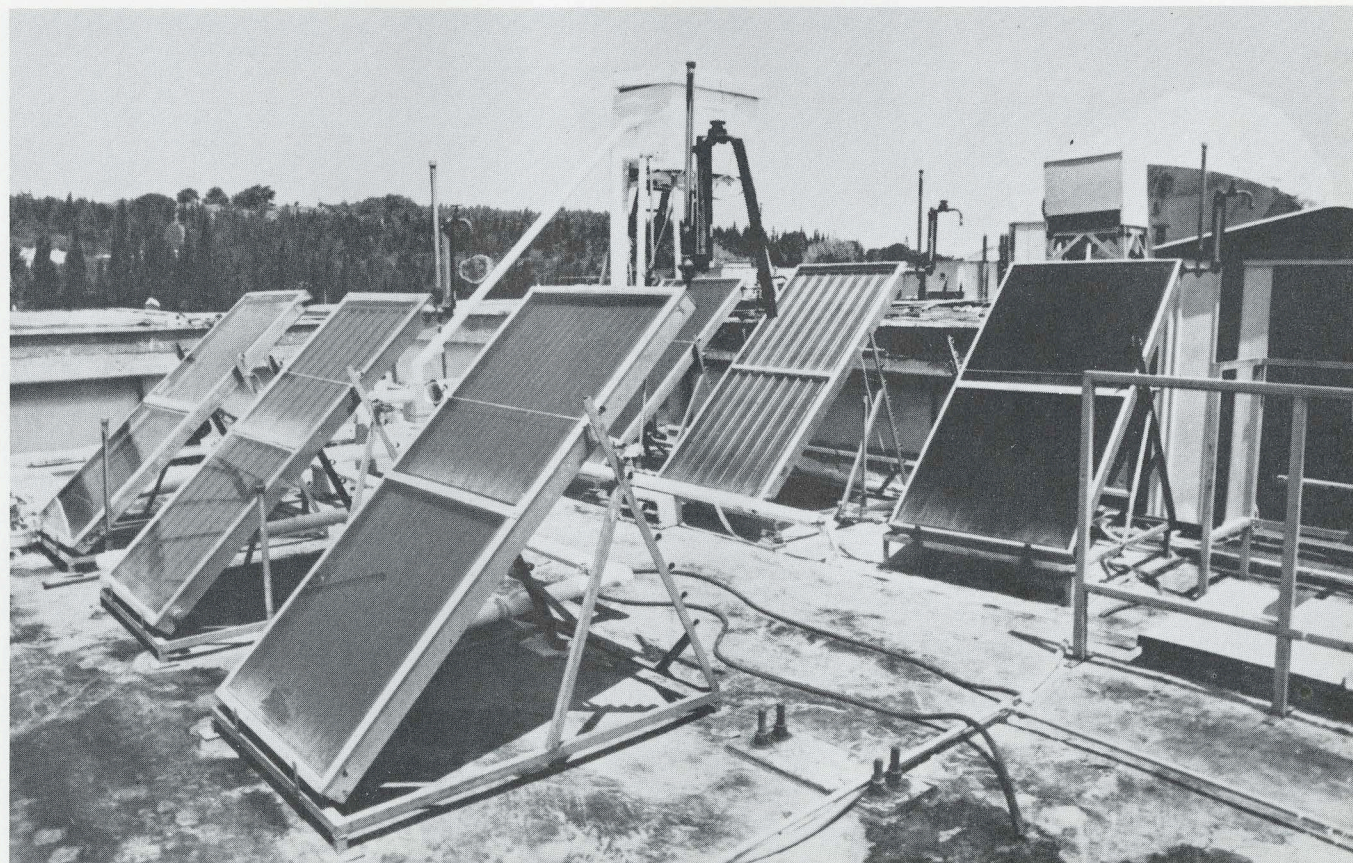
solar desalination system. It could provide the water needs of a family in an isolated area. "Use of alternative forms of energy could have wide ranging effects for Israel and other developing countries as well," Grossman says.

To Preserve A Way Of Life

"For example, in small villages the basic economic support comes from raising cattle and sheep," Grossman explains. "These animals need vegetation. But the residents need to burn the vegetation for cooking and heat. So more and more places become barren desert. This continues until there is no more land and people are forced to move into the cities. Solar and wind energy can

save vegetation, and, in doing so, preserve a way of life."

To paraphrase a popular Israeli joke, some countries are blessed with oil, some with uranium, some with large deposits of coal. What is Israel blessed with? The punchline used to be "with problems." But years of scientific research have changed that answer. While no major fossil fuel deposits have been found in Israel, giant strides have been taken there in developing alternative sources of energy. Today, the country's sunny climate, full blowing breezes, and long seashore make it possible to say that Israel, too, is blessed: with solar, wind and wave energy. And the research being done today can help solve problems of energy shortage in other countries as well.



Various types of flat plate solar collectors at The Technion, Israel's institute of technology.



Noval spherical shaped high temperature solar collector being developed in Israel for space and water heating as well as for cooling.

MERRY MOMENTS WITH MARCIA

"I have a friend who is a real inventor. He took the fender from a Chevy, a motor from a Ford, and the transmission for a Sting Ray".

"Well, what did he get?"

"Three years."

A young husband who had agreed to buy a vacuum cleaner was distrubed when he found that his wife had ordered the deluxe model instead of the standard.

"But dear," his wife explained, "it won't cost any more. All we have to do is pay a little longer."

If you're such a good fortune-teller, you should be able to tell me the score of tonight's hockey game before it starts."

"Before the game starts, the score will be nothing to nothing."

A medical student was asked how much of a certain drug should be administered to a patient. The young man replied, "Five grains."

A minute later he raised his hand. "Professor," he said, "I would like to change my answer to that question."

The professor looked at his watch and replied, "never mind. Your patient has been dead for forty seconds."

Girl: I love tennis. I could play like this forever.

Boy: Gosh, don't you ever want to improve?

I went to my doctor last week and he told me to take a hot bath before retiring. But that's ridiculous! It'll be years before I retire!



A candidate for public office threatened to sue a certain newspaper for libel. The newspaper denied printing anything improper. When asked if he intended to press his suit, the candidate replied, "Of course, I can't campaign in wrinkled clothes."

Deficit spending: When you're downtown earning \$8 an hour and the repairman is in your laundry room getting \$12.50.

When all is said and done, we usually wish we had done more and said less.

Even with the price of everything going up, writing paper remains stationery.

When you make your job important it's likely to return the favor.

Worry is interest paid on trouble before it is due.

There is no future in a job. The future is in the person doing the job.

Successful people earned their success by doing those things that had to be done when they didn't feel like doing them.

I've been told that middle age is the time of life when your legs buckle and your belt doesn't!!

There once lived a famous Indian chief who possessed a fabulous memory. A reporter, doubting his vaunted ability, asked him, "Chief, I'll bet you can't tell me what you had for breakfast on June 3, 1912." Without a moment's hesitation, the chief answered, "Sausage."

Two years later, the reporter again had occasion to visit the chief and, approaching the old Indian, greeted, "How!"

"Broiled" replied the chief.

Since he lost his money, half his friends don't know him anymore. And the other half? They don't know yet he lost it.

If you can keep your head when all those about you are losing theirs... perhaps it's because you just don't understand the situation.

by **MARCIA PETERMAN**

California.....

AWARD DINNER

Text By
Marcus Dodson

Photos By
Stanyan Buckingham, Jr.

Accented by the fireworks display by Disneyland, the Alton B. Zerby Outstanding Electrical Engineering Student Awards were presented at the Disneyland Hotel in Anaheim on August 3rd, 1979. This was a first in that there were two winners for the first time since it's inauguration in 1965. Present to receive the awards were Max Wolff Hauser, Co-Winner, Donald Steven Stoica, Honorable Mention, and Kevin Allen Sparks and Jay Albert Chesavage, Top Ten. Also receiving awards but not present were Louise Annette Veilleux, Co-Winner, Steven Joseph Treis, Honorable Mention, and Mack Wayne Riley, Robert Allen Sadler, Mary Christine Sinelli and William Francis Zucker rounding out the Top Ten.

The National Board of Directors has charged the Los Angeles Alumni Chapter with the responsibility of conducting the Alton B. Zerby Outstanding Electrical Engineering Student Award program for Eta Kappa Nu. It is fulfilled by the Student Award Committee, chaired by Larry Hamilton, and the 1979 committee members were Richard Cockrum, Marc Dodson, Jimmie Huff, Robert J. Kennerknecht, William E. Murray and David Pivin. In January the student chapters send their nominations to Chairman Hamilton and the committee selects the ten most promising candidates from the 35 to 45 nominees and their resumes are individually submitted to a jury of distinguished leaders in the

Electrical Engineering profession. The 1979 Jury of Award consisted of John Bardeen, Edward Erdelyi, Albert Hauser, Marcian E. Hoff and Robert W. Lucky. These jurists autonomously rate the top ten nominees and the consensus determines the winner and honorable mention.

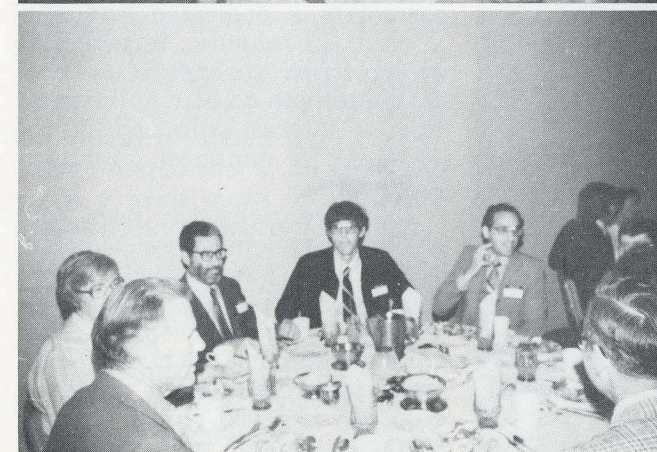
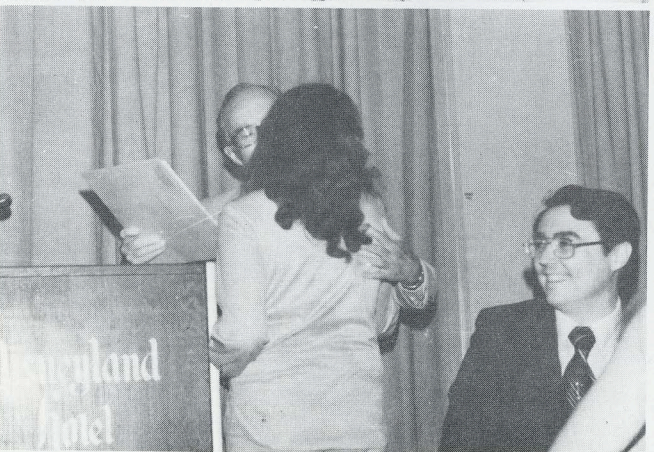
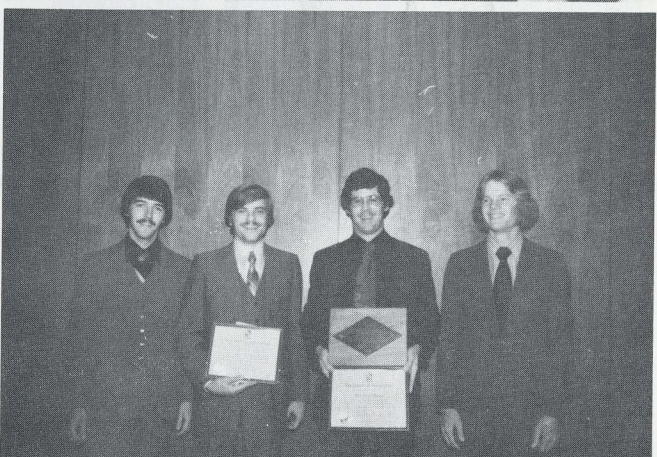
Following dinner, Richard Cockrum, Los Angeles Alumni Chapter President and Master of Ceremonies, introduced the award winners and their families and friends, officers and directors of HKN and guests. He then introduced Paul K. Hudson, Executive Secretary, who gave a report covering the support of HKN members and friends for the student award program through the Alton B. Zerby and the Carl

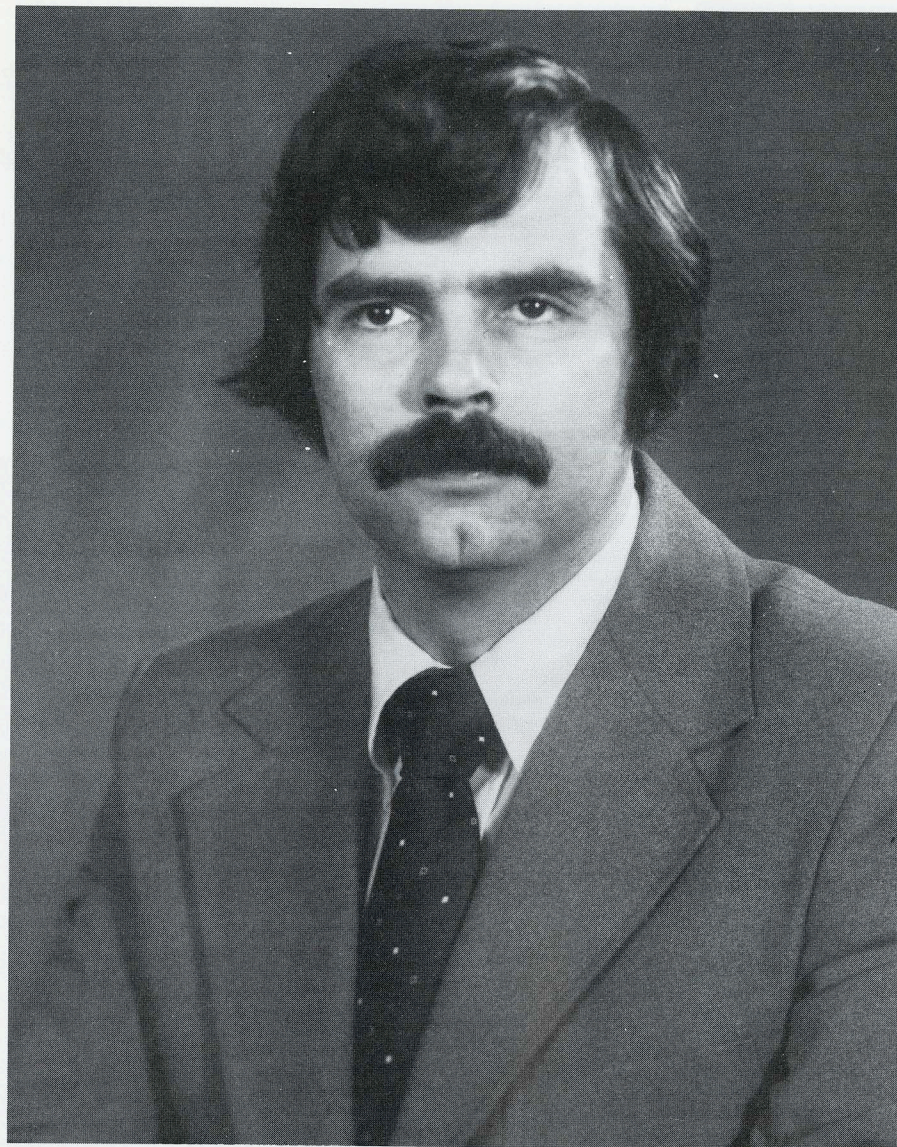
Koerner Memorial funds. Paul recognized Edie Koerner for her major contribution in establishing the Carl Koerner Memorial fund and others in the Doner's Club and Benefactors of HKN.

Larry Hamilton gave a brief history of the student award program and how it is implemented.

Alan Stoudinger, National President, recognized the accomplishments of Jay Chesavage and Kevin Sparks, Top Ten and Donald Stoica, Honorable Mention, who were present. Dr. Stoudinger described the credentials of, and presented the plaque and certificate to Max Wolff Hauser, Co-Winner. Mr. Hauser responded with comments on what the honor means to him.







Russell J. Niederjohn
Winner
Holmes MacDonald Award

Dr. Russell J. Niederjohn of Marquette University has joined the growing list of eminent, young electrical engineering educators honored by Eta Kappa Nu by being selected for the C. Holmes MacDonald Outstanding Teaching Award. Instituted in 1972 by the Philadelphia Alumni Chapter, the

award was named for C. Holmes MacDonald, a dedicated Eta Kappa Nu director who was instrumental in inaugurating the recognition. The Philadelphia Alumni Chapter annually administers the competition for the National Board of Directors from nominating dossiers submitted by

the undergraduate chapters, but the final election of the winner and any honorable mentions is by a National Jury of recognized leaders from education and industry.

Dr. Niederjohn, a native of Schenectady, NY, earned his B.S., M.S., and Ph.D. all in Electrical Engineering, from the University of Massachusetts in 1967, 1968, and 1971, respectively. Since September, 1971, he has been a member of the Electrical Engineering faculty of Marquette University, Milwaukee, WI, becoming an Associate Professor in 1975. He is also Director of the Computer, Speech, and Signal Processing Laboratory.

The winner represents an apt combination of the attributes sought and encouraged in the establishment of the award. He is primarily a dedicated and very successful teacher, but he also exemplifies the creativity, professionalism, public spirit, and human interest admired in the character of our most prominent engineers.

Dr. Niederjohn has been very active in developing new courses at Marquette, particularly in the area of mini- and micro-computers, speech synthesis, and signal processing — fields in which he has led important research studies. Because of his continuously updated material, his

OUTSTANDING TEACHER AWARD

by John H. Spare, Chairman

teaching ability, and his personal interest in his students, his courses are always very popular. He devotes many extra hours to student counselling, student societies, and educational groups, such as educational television, the American Society for Engineering Education, and high school guidance work. All the foregoing have contributed to make him a stimulating, inspiring, and effective professor.

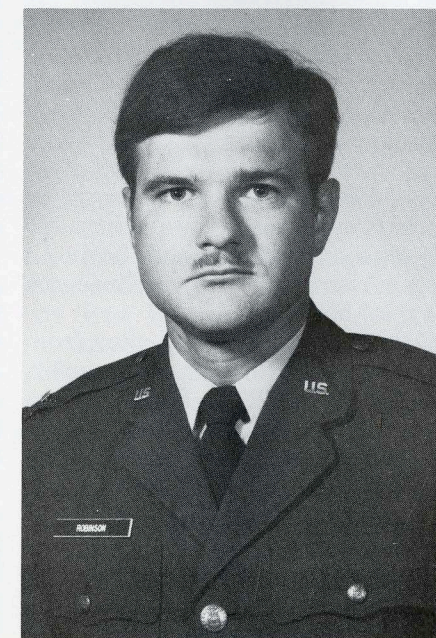
This year's winner has authored or co-authored 29 published technical articles and conducted nine seminars, mostly in the area of computer hardware, software, and speech processing. He has directed 15 graduate students, served on many faculty committees, and has been very active in IEEE and ASEE, nationally, regionally, and locally, having held many responsible committee chairmanships. His research has been funded by four NSF grants totaling over \$250,000, and he is a consultant to two nationally-known corporations. In his spare time, which must be rare, he designs and builds quality furniture, being a skilled woodworker, and is an expert in the development of this craft in early American history.

An honorable mention in last year's competition, Dr. Niederjohn was also the recipient of the 1977 Dow Outstanding Young Faculty

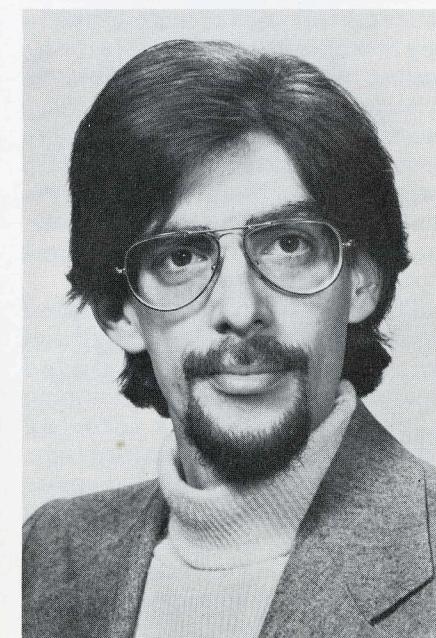
Award. It is also interesting to note that his colleague, Dr. James A. Heinan, was the Eta Kappa Nu C. Holmes MacDonald Outstanding Teaching Award winner in 1973, making Marquette the first two-time winner. This is also a tribute to Beta Omicron Chapter for their recognition and appreciation of superior faculty members and their willingness to document their esteem.

The 1978 award certificate and engraved tray and serving set were presented to Dr. Niederjohn at Marquette's Eta Kappa Nu Spring Banquet, April 29, by Albert Hauser, National President, and John H. Spare, Award Chairman. Honorable mentions cited by the National Jury in 1978 were Alan J. Grodzinsky of MIT, and Captain Stanley R. Robinson of the Air Force Institute of Technology.

Stanley R. Robinson
Honorable Mention



Alan J. Gradzinsky
Honorable Mention



CHAPTERS

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

GAMMA BETA CHAPTER, Northeastern University — This year Gamma Beta instituted a number of innovations as well as continuing the well seasoned HKN traditions. The innovations included a change in the chapter bylaws permitting three initiations per year as well as the establishment of an electrical engineering program evaluation.

Last Fall officers faced a serious dilemma. All engineers at the university participate in the cooperative program. Approximately half of the students are at school while the other half are at jobs frequently distant from Boston. The CoOp schedule dictates that the same group of students are at school during the Fall and Spring. Therefore some eligible students were unable to join HKN. A proposal to add a Winter initiation was overwhelmingly approved by the membership. Gamma Beta's first Winter initiation was held in March.

The electrical engineering program evaluation was administered to seniors at Spring registration. It provided the opportunity for each student to criticize various aspects of the five year program such as course sequences, labs, and the CoOp experience. Results were presented to the department chairman who has expressed an interest in our recommendations.

Three initiations necessitated three workdays this year. Fall and Winter assignments included clean-up, carpentry, and wiring work at a children's tutoring center and a mental health clinic. Spring workday provided more strenuous tasks. A helping hand was given to the Northeastern chapter of the American Society of Civil Engineers who are building a playground for handicapped

children in the Boston area.

The popular HKN tutoring workshop was continued this year. Members devoted one or two hours per week to aid fellow students, especially underclassmen.

This year's officers were: John Terzakis (President), Stephen Klein (Vice President), Thomas Wheeler (Treasurer), John Fernandes (Recording Secretary), David Petillo (Corresponding Secretary), and Vernon Valero (Bridge Correspondent). We feel that it has been both an honor and a pleasure to serve the Gamma Beta membership.

by Vernon C. Valero

GAMMA IOTA CHAPTER, University of Kansas — Overall, the Gamma Iota Chapter had another fine year. We were involved in several activities this year.

Eta Kappa Nu, in conjunction with IEEE, nominated Dr. Harry Talley for the Gould Award (outstanding undergraduate teaching). We were very pleased when Dr. Talley did indeed receive this award last Saturday night at the annual Engineering Exposition Banquet.

HKN presented a project at this year's Engineering Exposition. The theme of the exposition was "The Imaginative Mind." We displayed a voice recognition device using a microprocessor and various supportive hardware. It was a delightful display. People enjoyed seeing the computer write their words across a CRT as they talked into a microphone.

Other members participated in the display of this year's recipient of the Bendix Award — a long bone analyzer, using frequency response of a damaged bone in comparison with the response of a normal bone.

HKN sponsored a speaker from General Dynamics, Phil Courier, on March 28, 1979. He spoke to a group of interested engineering students and friends about fiber optics and the F-16 fighter. There was a very good turn-out and a lot of interest.

We will soon be joining IEEE for the spring picnic. This is the event of the semester. Everyone enjoys

softball, good food and friendly conversation.

As our present officers step aside to let a new group enjoy the opportunities of leadership in HKN, we have attempted to strengthen the chapter's participation in the Engineering Council by electing more representatives. For any group such as ours, the one most important duty (and most satisfying) is active participation in a policy-making body of the school. Ours is the Engineering Council. The Council is guided by Dean Kraft, the Dean of Engineering, and an outstanding individual. With proper cooperation the Council can make great great improvements in our school. We want to have a strong input.

by Barry Bowles

GAMMA PHI CHAPTER, University of Arkansas — During the first few weeks of classes last fall, members of Gamma Phi selected a new faculty advisor and began the procedures of selecting new members. Dr. Stanley Stephenson accepted the chapter's invitation to serve as advisor and immediately began helping the chapter plan its activities.

Twelve EE students were given invitations to join in the fall semester and were received by members at a smoker where a history and description of HKN were given. As a result of this ten new members were initiated on Nov. 13. The fall activities also included a very well attended picnic on Oct. 27 and a party given by one of our faculty members following the picnic.

The spring semester smoker was held on March 27 and nine new members were able to join HKN on April 9. Several committees were formed in the spring with the most notable ones being the committee to update our constitution by altering the pledge selection process and the one to plan a "homecoming" banquet for former active chapter members and area professional members to coincide with the Razorback homecoming festivities this coming fall.

During the past school year Gamma Phi also presented awards to the outstanding sophomore

electrical engineering student who obtained the highest cumulative average and to the outstanding EE professor.

This past years officers were: Blake Watkins, President; Mark Bluhm, Vice-President; Rick Derickson, Recording Secretary; James Champion, Treasurer; and Mary Wallace, Corresponding Secretary.

by Joe Hill

GAMMA MU CHAPTER, Texas A & M University — The Gamma Mu Chapter of Eta Kappa Nu at Texas A & M University had an exceedingly prosperous and fulfilling year. Spring 1978 brought an extremely positive and innovative executive board into office, who devoted much care and great forethought into drawing up a truly ambitious plan of action for the fall semester.

The fall of 1978 began superbly with one of the largest group of initiates in the history of Gamma Mu. With great energy and unsurpassed zeal our members and pledges embarked on our Chapter's fall goals.

Our undergraduate pledges were kept especially busy. In addition to polishing their sand-cast bridges, finding out about Eta Kappa Nu and its rich history, and interacting with Chapter members and the faculty, our pledges also devoted much time and energy towards their initiation projects. One particularly beneficial pledge project was compiling a new Transistor Characteristic and Availability List for the Electrical Engineering instrument and parts room. This was a very valuable time-saving service to all A & M's engineering students and faculty.

Updating our EE department's bulletin boards with pictures of our new professors (taken by our pledges), and pertinent information on their interests and educational backgrounds was a fall pledge project that was also quite helpful to all Engineering students. Another excellent enterprise undertaken by our fall initiates was obtaining current data on employers in engineering fields, and updating our EE

department's student job files. Especially valuable to Gamma Mu was a pledge endeavor to compile an up-to-date Chapter directory with relevant information on all our members and initiates — well over 100 graduates and undergraduates!

Three pledges completed an excellent survey of the summer job experiences of our EE students. Some very informative data was compiled on the various EE-related job fields available — including information on locations, salaries, and the practical significance of each to today's EE students. This useful material was made available to everyone, along with the pledges' recommendations on employment.

Another group of pledges worked diligently to incorporate material on recent national and local Eta Kappa Nu activities into the slide show we use to introduce ourselves to new members.

An additional major fall activity was representing the EE department in the annual Texas-wide high school "Career Day". With the assistance of IEEE, our Chapter pledges and members prepared, set up, and manned a superb engineering booth; giving special emphasis to the EE field.

by Charles Brown & Lois Lefler

DELTA XI CHAPTER, Air Force Institute of Technology — It is the privilege and pleasure of Delta Xi chapter at the Air Force Institute of Technology to announce that one of our faculty members, Dr. Stanley Robinson, has been selected for Honorable Mention in the C. Holmes MacDonald Distinguished Young Electrical Engineering Teacher Award competition sponsored by the Philadelphia Alumni Chapter of Eta Kappa Nu. Professor Robinson is one of two Honorable Mentions awarded along with the winner. This award program attempts to identify and give national recognition to electrical engineering professors who have demonstrated, early in their career, special dedication and creativity in their teaching responsibilities. Professor Robinson certainly demonstrates these

qualities and we at Delta Xi chapter are very proud of him. Last year AFIT had another Honorable Mention awarded to another of our faculty, Dr. Peter Maybeck. It is certainly an honor and credit to AFIT and its students to have such fine teachers on the faculty. To Stanley R. Robinson we extend our most hearty congratulations.

by Jeffrey Frack 2nd/LT

LAMBDA CHAPTER, University of Pennsylvania — The Lambda Chapter of HKN took an active role in initiating a tutoring organization within the College of Engineering and Applied Science. We collected the names of possible tutors, mostly from the Eta Kappa Nu and Tau Beta Pi honor societies, and made a list of tutors and the courses they could tutor in. This list was then distributed to students and the faculty advisors, so that any student running into problems could easily find help.

HKN also aided in the evaluation of all undergraduate courses in the College of Engineering and Applied Science. Members distributed questionnaires in the classes, and then helped summarize the results to produce a 50 page booklet describing how the students feel about the effectiveness of teaching in their courses.

On the lighter side, the Lambda Chapter helped organize a social hour for all engineering students, faculty, and staff. Refreshments and a congenial atmosphere were provided, and the most common reaction was, "Great, when are you going to do this again?" We also helped put together an engineering school dance, which was also quite a success.

BETA PI, City College of N.Y. — Once again the Beta Pi chapter of Eta Kappa Nu is winding up a successful year of operation. This year's program will culminate with our annual dinner on April 26. Our program this year has sponsored a great deal of worthwhile activities amongst our students. One of these activities which has been performed in cooperation with our chapter of the I.E.E.E. is over 20 hours a week of

CHAPTERS Cont.

tutoring service to the students of Electrical Engineering at C.C.-N.Y. Also we have lent service to our school with aides to serve as guides at our schools bi-annual open house and high school promotions campaign.

Our new president Mr. Robert E. Barry Jr. who has proven himself to be an outstanding student is now proving to be an outstanding organizational leader. We are now correlating data on past and present members of our chapter to serve as a guide to future members.

At this years annual dinner the Beta Pi chapter will continue an old tradition and begin a new one. As in the past we will be presenting a Teacher of the Year award to the professor who has demonstrated the best understanding of the material and the needs of his students. In addition we are presenting an award to the outstanding graduate student instructor under similar judging criterion. Finally we are instituting an award for the outstanding undergraduate student member who through his scholastic and extra-curricular record has proven himself a step above the rest of his graduating class. This terms teacher of the year selection was a popular selection indeed, Professor Vincent Del Toro is not only an outstanding instructor but was a charter member of the Beta Pi chapter. The recipients of the other awards are Mr. George Sevaston as the outstanding graduate student instructor. The selection of undergraduate member was a difficult one indeed with the award finally being awarded to Mr. Craig T. Zabell, and an honorable mention being awarded to Mr. Nitin Pandya.

With the drive and achievements of this chapters members we can be sure that the Beta Pi chapter of Eta Kappa Nu at The City College of New York will continue to flourish in the years to come.

GAMMA XI CHAPTER — Fall 1978 semester was a successful one for the Gamma Xi Chapter of HKN. The Chapter continued some of the projects accomplished in past semesters with excellent results.

The Chapter inducted 22 new members on November 3 in the best initiation ceremony in a few years. Dr. Robert O. Harger, EE Department Chairman, was a Guest Initiation Officer, being the character James C. Maxwell. A pleasant refreshments party followed the ceremony.

Our Chapter again organized the Teletype Course which was started during the Fall 1977 semester and was designed to inform students how to make full use of the University's teletype facilities. Four separate sessions were offered and student response was enthusiastic as in past semesters. We also carried on the free tutoring of electrical engineering courses by HKN members to anyone needing it. Forty persons sought and received the course assistance.

During the Spring Semester preregistration period, HKN coordinated an informal 4-hour-long EE advising session to help students plan their schedules and courses for the following semester and beyond. Donuts were provided. Many EE students found this service to be very helpful and it is being repeated this Spring 1979 Semester.

HKN and IEEE officers made a change in the EE course evaluation answer sheets so that they could be handled easily by the University's computer system. This modification consisted of converting the answer sheets so that the students could punch out their responses to the questionnaire instead of writing them in. This permits rapid tabulations of the course evaluations that are regularly carried out near the end of semester.

Last, but not least, the Chapter along with IEEE arranged two field trips for all interested EE students, one to the Bethlehem Steel plant in Sparrows Point, MD and the other to the General Motors plant in Baltimore, MD.

The Fall semester ended with the election of two officers: Cheryl Liss as Recording Secretary and Buddy Cunningham as Bridge Correspondent.

by M.F. (Buddy) Cunningham

UPSILON CHAPTER, University of Southern California — The Upsilon Chapter started the fall semester with great expectations and enthusiasm. With leadership from our president - John Parsons, and with support from his cabinet; vice-president - Keith Yamashiro, treasurer - Mark Kobayashi, corresponding secretary - Ramzi Bader, recording secretary - Leo Hui, and bridge correspondent - Mike Yakura, the fall semester got off to a good start.

One of our activities this fall was participating in the University-wide Jog-a-thon. By receiving pledges for each quarter mile run by a jogger in one hour, we raised funds for the chapter. So on a bright Sunday afternoon several of our members got out there and gave their all for the chapter. A special thanks goes to Dave Garcia, '79, who ran the most laps, 30.

This semester we initiated a total of eleven members. Nine undergraduate and two graduate members. Congratulations to them.

The big event of the semester is of course the Initiation banquet. This year it was held at the Proud Bird Restaurant. Our guest speaker was Jeff Rochlis, president of Mattel Toys Electronics Division. Mr. Rochlis spoke of the electronic applications in computer games. At the banquet we also presented the award for Outstanding Professor of the Year to Dr. Murray Gershenson. Congratulations to Dr. Gershenson for a fine job.

There were other events of significance in the semester. One was our new faculty advisor, Dr. Charles Weber, taking over for Dr. Willard Rusch. We thank both men for their support. Also, the Upsilon Chapter placed its picture in the El Rodeo (university's yearbook) for the first time.



UPSILON CHAPTER
UNIVERSITY OF SOUTHERN CALIFORNIA

Above — New Initiates

Below — Initiation Banquet



THE ETA KAPPA NU COLLEGE OF BENEFACTORS

SUPREME BENEFACTOR

Edith Ann Koerner

HIGH BENEFACTOR

Helene Koerner Gahlen

Lloyd Hunt

Fritz A. Koerner

BENEFACTOR

Marc Dodson

Larry Dwon

Irma Hanson

Fred Harrell

Edward Jordan

Eugene Mueser

Everett S. Lee

Howard H. Sheppard

Joanne Waite

Hanging on to.....

WHAT YOU HAVE

Since the dawn of time, safeguarding measures — ranging from burying treasure to mammoth electronic security devices — have been used by man to protect his valued possessions from fire, flood and the menace of thieves.

From the first axe hidden under a rock to an 87¼ ton vault door — the world's largest — manufactured by Diebold, Incorporated for The First National Bank of Chicago, man has continually sought new and better means of protecting what is his.

Evolving from the "under a rock" approach, ancient Egyptians, over 4,000 years ago, perfected the first lock. Using a pin arrangement and a wooden key so large that it had to be carried over the shoulder, caches in pyramids gave first evidence of what is today the safety deposit vault. Treasures of ancient days — the riches of kings — were kept in the pyramids. The Bible recalls that Joseph stored corn in the safety deposit vaults of Egypt for seven years to provide for hard times of the future.

Homer's immortal *Odyssey* describes "The Citadel", a vault-like depository where valuables originally were protected by an "intricately knotted cord." Later this was replaced by a wooden bar attached to an iron latch inside a huge door.

To gain access to this ancient vault-like storeroom, a hole had to be bored into the door, and a two-foot key inserted to lift the bar.

Historians of the Roman Empire period described vaults of stone divided into compartments which were either individually owned or leased to groups. Trusted slaves were locked inside these vaults as guards; others remained outside on 24-hour duty. Thus, the first cooperative safe deposit vault.

Greek treasures, and tax money were likewise stored in vault-like strong rooms.

In the famed Greek temple, the Parthenon, a special chamber was divided from the main stateroom as a depository for temple treasures and citizens' property.

Today's modern burglar, fire and water-proof vaults resulted from countless experiences. Increased demands on protective devices encouraged experimentation, and necessity has proved to be the proverbial mother of invention.

The first public safe deposit vaults in the U.S. were built in 1865 for Col. Francis H. Henks at the 140-142 Broadway building in New York. Two years later, Col. Henry Lee built the Union Safe Deposit Vaults, first of their kind, in Boston.

The public, however, was apathetic to the idea of fire-proof vaults in these early years. The

Chicago fire in 1871 proved to be a turning point when it was learned that 879 of Karl Diebold's safety devices survived the holocaust. At this time, the Diebold Safe and Lock Company was only thirteen years old.

In the year of 1871, at the time of the Chicago fire, there were exactly six safe deposit companies in the United States. As the public grew to recognize the value of the vaults of the time, the number of safe deposit companies grew to fifty in the next four years alone.

By the year of 1876, Diebold had constructed what was then the largest vault in the world for the San Francisco Safe Deposit Company. The main door had five locks for extra security. The vault contained 4,600 safe deposit boxes. It took 47 freight cars to transport the vault from the Canton, Ohio, headquarters of Diebold to San Francisco.

Today, more than 100 years since the Chicago fire, experience and experiment have paved the way for great strides in vault technology. The 87¼ ton double-leaf design vault door at The First National Bank of Chicago featuring the latest in scientific electronic security devices, is massive evidence of the strides man has made during the past 4,000 years to protect what is his.



THE WORLD'S LARGEST BANK VAULT DOOR standing guard over 40,000 safe deposit boxes at the First National Bank of Chicago, lends massive evidence to the strides man has made in safeguarding his possessions since the first lock was perfected by the Egyptians nearly 4,000 years ago. The doors, weighing 87¼ tons, were built by Diebold, Incorporated of Canton Ohio.

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