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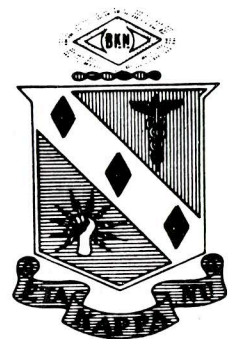
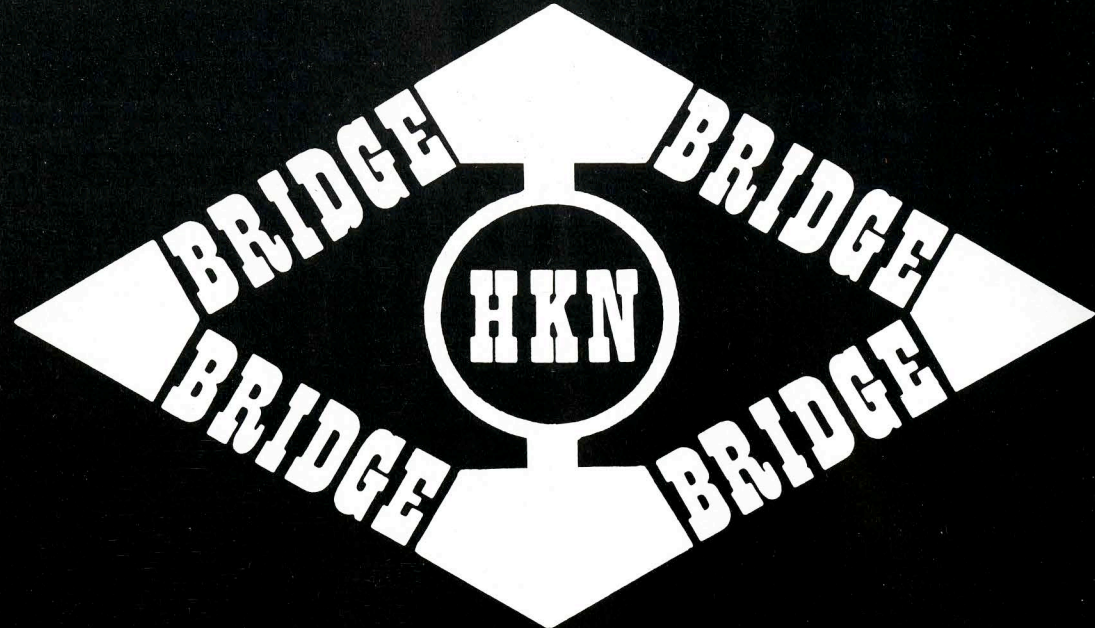
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BRIDGE

spring '79





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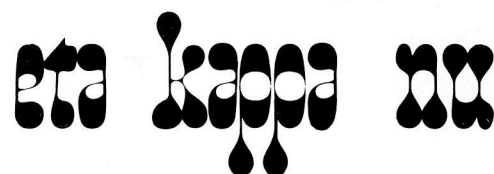
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Electrical Engineering Honor Society
Spring, 1979, Vol. 75, No. 3

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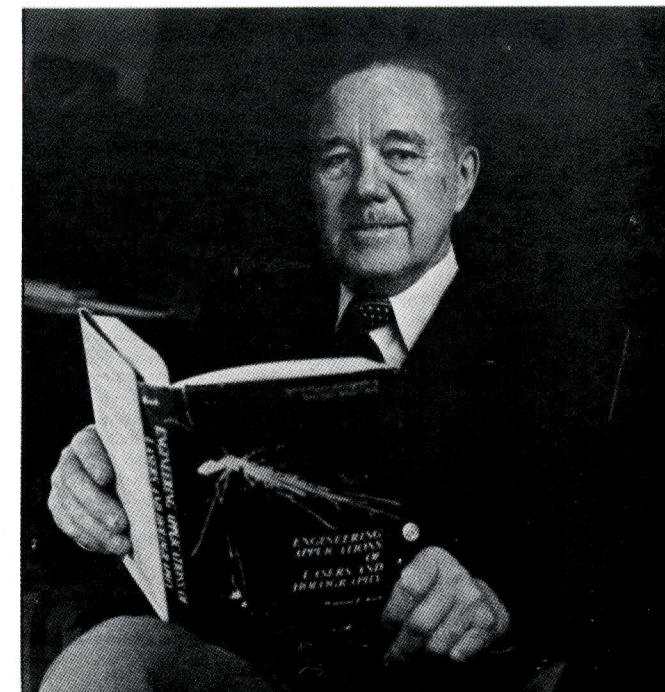
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The BRIDGE is published by the Eta Kappa Nu Association, an electrical engineering honor society. Eta Kappa Nu was founded at the University of Illinois, Urbana, October 28, 1904, that those in the profession of electrical engineering, who, by their 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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ENGINEERING CREATIVITY AND ITS REWARDS



by Winston E. Kock
The University of Cincinnati

The economic growth of a nation is directly related to the ability of its people to make discoveries and to transform these discoveries into useful products. Ninety percent of the increase in output per capita in the U.S. from 1909 to 1949 has been held to be attributable to technological advances. We here review briefly how several important new technologies came into being and discuss certain traits of inventors who create such technologies. We suggest ways which can enable young and old alike to become more creative and review various rewards and benefits they can thereby reap. The author hopes that his background of patent activity (235 issued U.S. and foreign patents at the Bell Telephone Laboratories) will be useful in communicating ways to help the reader experience the excitement stemming from discovery and invention.

Because a high level of creativity is an important asset for a nation, a knowledge of ways for increasing inventiveness can be very useful. Bennis has noted that "creativity is something most of us seem to lose or let atrophy as we leave childhood. To rediscover it we must find ways of recreating our sense of wondering why, of heightening, even altering, our consciousness." ¹ Thus, the earlier in life one seeks to enhance his creativity, the more successful the results are likely to be, and parents should try to make their children aware of this. But the process of influencing youngsters is not an easy one, because the up and coming youth demands that he be shown by examples that the parents' advice is sound. The author believes that if youngsters can be shown how inventions have led to *rewards*, the task of convincing them becomes much

easier.

The technological advances discussed below were chosen because they reveal certain attributes of invention, and because the author was in close contact with their progress.

Some Creative Engineering Contributions

Probably the most important engineering development in the field of electronics is the transistor, and the author considers himself fortunate in having been involved in the early transistor research (including a number of patents).

The transistor came into being as a result of an industrial research program in semiconductors, initiated by the U.S. scientist, Dr. Mervin J. Kelly, then Executive Vice President of the Bell Telephone Laboratories. When this rather far out program was

announced, many were surprised that Bell Labs would embark on such a major research effort simply in the *hope* that it would yield useful results. The engineering scientists involved were widely referred to within the Labs as the "ivory tower group", with a typical question being "In what possible way can a group like that provide assistance to engineers engaged in the Bell Telephone System's communications problems?"

With relative unconcern over such attitudes, the ivory tower group began at once to make impressive strides. Soon an elegant theoretical analysis of the behaviour of electric currents in semiconductors resulted, called "Surface States", and shortly thereafter, John Bardeen, William Shockley and Walter Brattain came up with a device (Fig. 1) consisting of two sharply pointed wires pressing down on a piece of germanium. Just as Dr. Lee

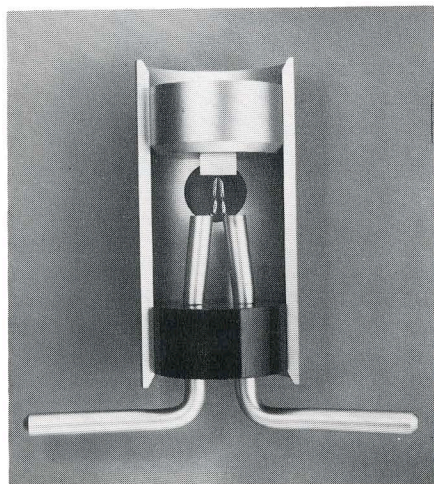


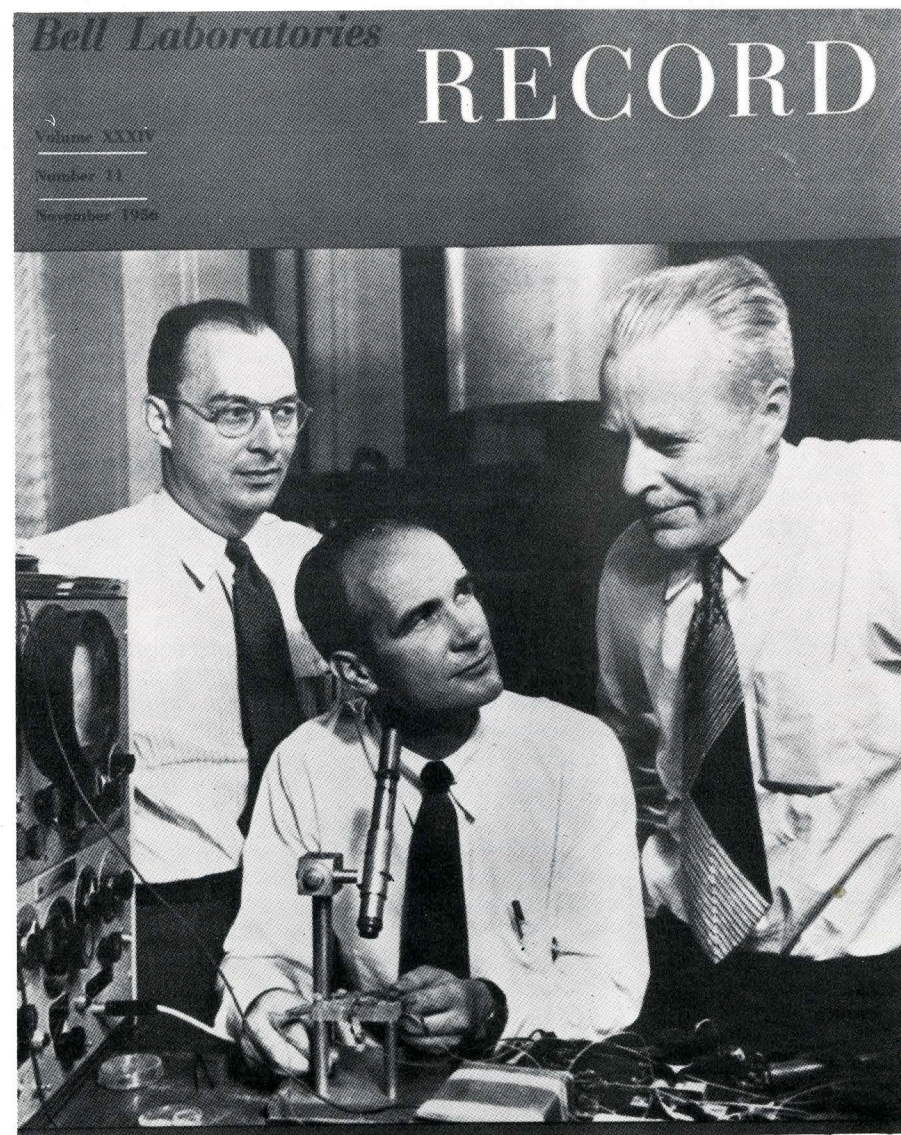
Figure Titles

Fig. 1-A model of the first transistor.

DeForest's first three electrode tubes made history, so this three-electrode semiconductor device was also destined to make history, for it could do what the earlier two-electrode devices could not—it could *amplify* electrical signals, just as radio tubes could. The world's first *transistor* had been constructed, and Dr. Kelly's ivory tower group had brought about a revolution in electronics.

Figure 2 is the now classic photo of the transistor's inventors, Bardeen, Shockley, and Brattain. It was used on the cover of the November 1956 issue of the *Bell Laboratories Record* following the announcement of the award of the Nobel prize to them for their innovative research. Figure 3 is a photo used on the cover of the March 1949 issue of the official journal of the A.I.E.E., *Electrical Engineering*. It includes John Shive, who designed and tested the first "wedge" transistor, and R.L.

Fig. 2-The three most important collaborators in the research leading to the transistor. Left to right, Dr. John Bardeen, Dr. William Shockley, and Dr. Walter Brattain.



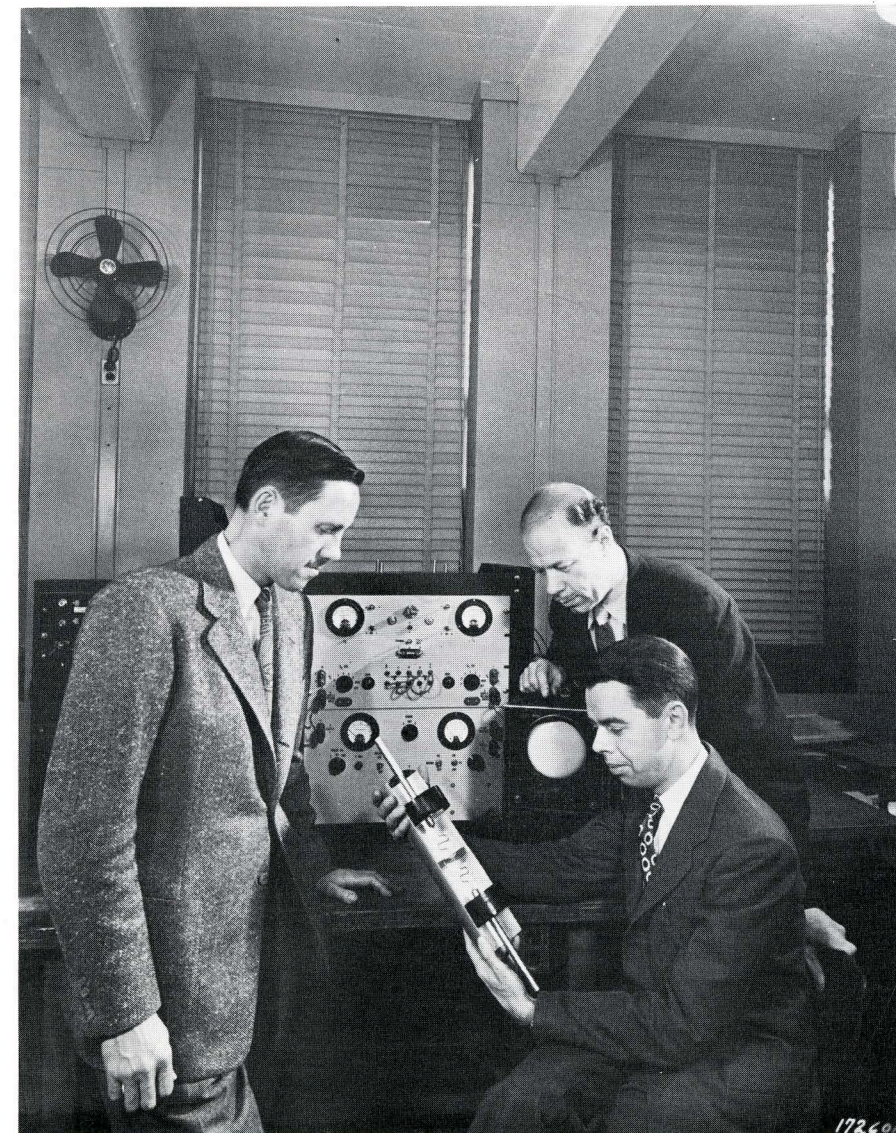
Wallace and the author, jointly responsible for the first "coaxial" transistor. These two devices changed the terminology of transistor amplification from surface state to solid state.

On a statue of Alexander Graham Bell in the lobby of the Murray Hill Bell Laboratories, there is some valuable advice relating to invention and creativity: "Leave the beaten track occasionally and dive into the woods. You will be certain to find something you have never seen before." The invention of the transistor exemplifies well Alexander Graham's exhortation, and it also proved correct Dr. Kelly's conviction that a dive into "semiconductor woods" by a communications engineering group would prove fruitful.

Another, more recent, advance in technology is the laser, which now finds application in communication (wires of glass), medicine (holography and laser surgery), computers (laser readout of holographic memories), etc.² One of the most important of its *future* possible uses is in the nuclear energy process known as laser fusion. If successful, it could supply the world all of its needed energy for over 100 million years, just from the heavy hydrogen present in the sea water. The world owes a debt of gratitude to those medical scientists, radar and communications engineers, industry research experts, and nuclear engineers, who, through their broad backgrounds of knowledge, were able to understand sufficiently well the physics of the laser and

its characteristics to be able to recognize its many application possibilities. Without such innovators, the laser might have remained for many years a laboratory curiosity, and the beneficial economic impact brought about by its wide fields of application might have been greatly delayed. The transistor was never threatened in that way because it was immediately seen as the perfect *replacement* for the radio tube amplifier. The laser's fate *could* have been quite

Fig. 3-Bell engineer R. L. Wallace, right, holds a greatly enlarged coaxial transistor. J. N. Shive is behind Wallace and the author is at the left.



different because it was the very first of its kind, and during the first few years of its life, it was often referred to as a solution looking for a problem.

A third, very early, engineering development, which broke important new ground in the field of *music* involved the application of electronics to the generation of musical tones; its results are evident in the large number of electronic organs now in use in churches and homes throughout the world.

The word *formant*, a German word meaning, roughly, "that which forms", was first employed extensively by the German Scientist Karl Willy Wagner during the late 1920's. Wagner's analysis showed that formants were responsible for the ability of the human voice to create its many different voiced sounds, such as for example, the oo sound, the ah sound, etc. A little later, creativity entered the formant scene when scientists realized that musical instrument sounds *also* contain formants. This realization led to uses of *electrical* resonant circuits to produce, in electronic musical instruments, the resonances contained in true orchestral instrument and organ sounds. The author, after receiving his U.S. Electrical Engineering degree, did the research for his University of Berlin doctorate under Karl Willy Wagner, then Director of the Heinrich Hertz Institut of the Berlin Technical University. He employed the formant principle in an experimental electronic organ which he built in Berlin, and later he headed the development of that organ into a commercial model for the Baldwin Piano Company.

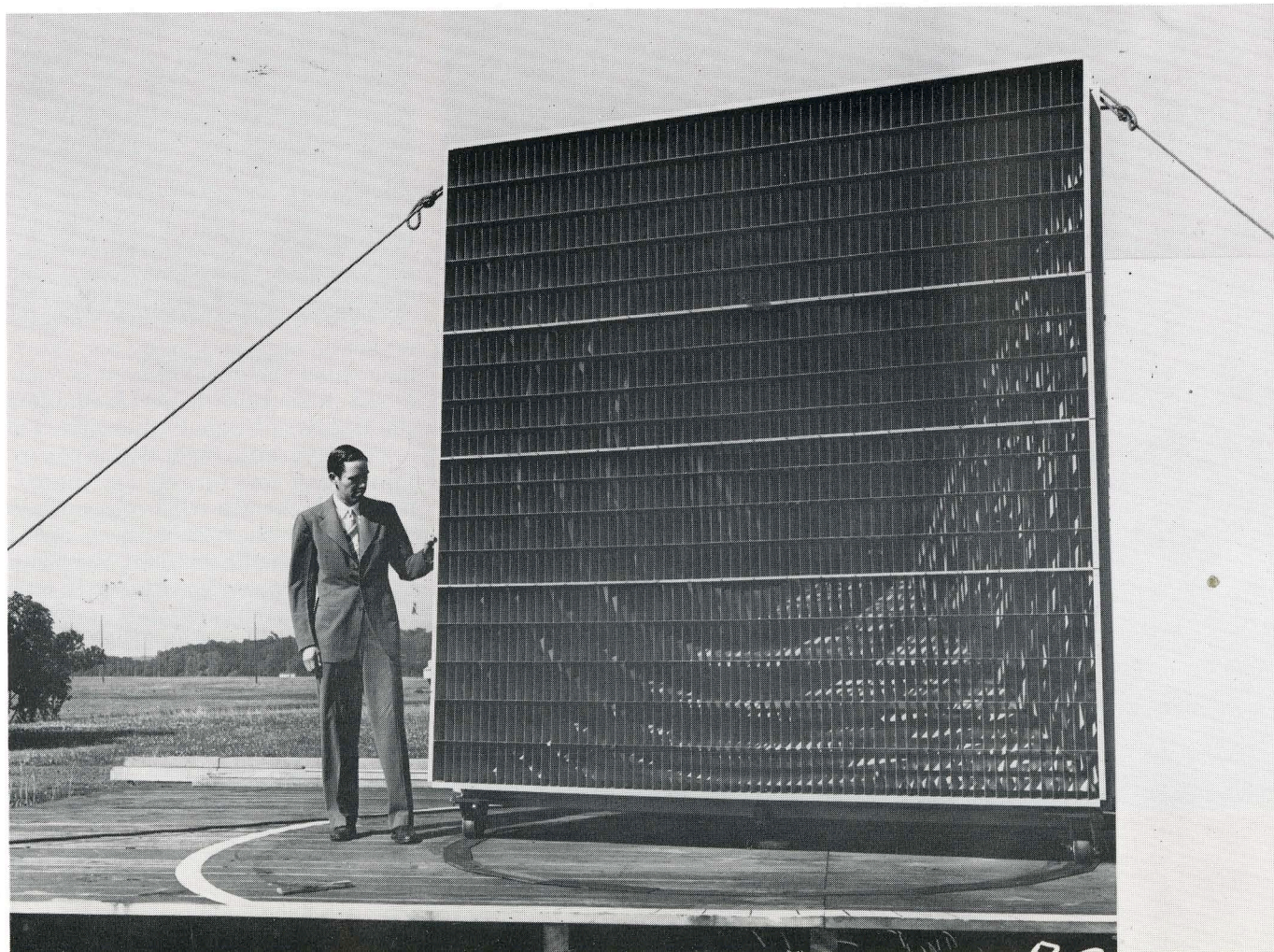
The favorable reception given to that organ was largely attributed to the fact that the organ was designed on the formant principle. This was made evident recently by the American Patent Law Association, which as a way of commemorating the 1976 U.S. Bicentennial, developed a program involving examples of inventions and patents which showed the workings of the patent system in the United States from a historical standpoint. The au-

thor's patent was selected for that Bicentennial program and the Association referred to the Baldwin Company, stating that "upon expiration of the patent, several other producers of electronic organs adopted the formant principle, a tribute to Dr. Kock and to the proper operation of the patent system."

Keys to Creativity

We stress that the three technologies just cited involved two or more disciplines. The transistor involved electrical engineering and semiconductor physics, the laser applications involved optics, medical science, radar, communications, etc., and the formant organ involved a knowledge of the pipe organ and other musical

Fig. 4-An experimental model of the shielded lens antennas employed in the first wide-band microwave radio relay circuit (between New York and Boston). The author is at the left.



instruments, and electronics. Other examples of developments involving more than one discipline are (1) today's extremely important geostationary communication satellites, placed in one-day orbits 23,000 miles above the earth, involving space rocketry, astronomical science, and communication engineering, (2) the first lightweight microwave lens (Fig. 4), which utilized the unusual, higher than free space, velocity in a waveguide (optics and microwaves), and (3) the application of microwave lens principles in designing acoustic lenses. (Fig. 5)

The foregoing demonstrates that a multi-disciplinary knowledge can be quite helpful in bringing about innovations. It has been predicted that the demand will be strong in the 1980's for graduates who can apply engineering principles to medical, biological, and other sciences. A recent report of the Enrico Fermi Institute at the University of Chicago notes that the "interdisciplinary character of the Institute has strengthened the traditional departments of instruction within the University by providing a

common base of intellectual inquiry and the free exchange of ideas. Out of this interdisciplinary environment have come fresh ideas leading to new fields of research."

The author, through his work at the Herman Schneider Laboratory at the University of Cincinnati (which concentrates its support on interdisciplinary research programs) has observed at first hand that this need to involve two or more disciplines has led to numerous proposals being submitted which describe novel and interesting concepts. The existence of a new development in one field permits the interdisciplinary mind to consider related applications of this development in other fields, often with fruitful consequences. Obviously, a development which is novel in one field will constitute a novel development in another field when successfully applied to that other field.

An important property of the creative mind is its constant activity. Tests made by Martindale at the University of Maine, in which the brain waves of creative

and non-creative people were measured, showed that innovative persons exhibit large amounts of brain wave activity (cortical arousal) whereas the brain activity of the non-creative person often sinks to very low levels (to the alpha rhythm), that state of activity which is largely exhibited during periods of sleep.

This is why the rekindling of the wondering-why attitude of childhood is important, it in itself can provide a continued cortical arousal. Any acquired habit which involves brain activity, such as learning and playing the game of chess, is also helpful. The chess player, in advance of each of his moves, must consider how his opponent might respond, then, what *his* next move would be, then, how his *opponent* would respond to that move, and so on. Two winners of the Nobel Prize in Chemistry, Sir Robert Robinson (1947) and Dr. John Cornforth (1975), were both renowned chess players, the latter having played, blindfold, 12 games *simultaneously*, winning 8, drawing 2 and losing 2. One offshoot of the chess game itself is the chess *problem* for which the enthusiast requires no opponent. Many find this pastime very challenging, and later, they may try composing their own problems and submitting them to chess columns. Acceptance by an editor then becomes a recognition by others of their innovative skill.

Learning to play a musical instrument such as the piano also provides valuable exercise for the mind, and at some point the engineer might try composing his *own* musical composition. The acceptance of such an effort by, say, the director of a local church choir would similarly constitute a recognition of his creative ability. Napoleon said "Happiness is the highest possible development of my talents", and to encourage all to aim high, he said "He will not go far who knows from the first whither he is going."

The Rewards

With the rapidly growing importance of technology in today's world, many choose to make engineering and science

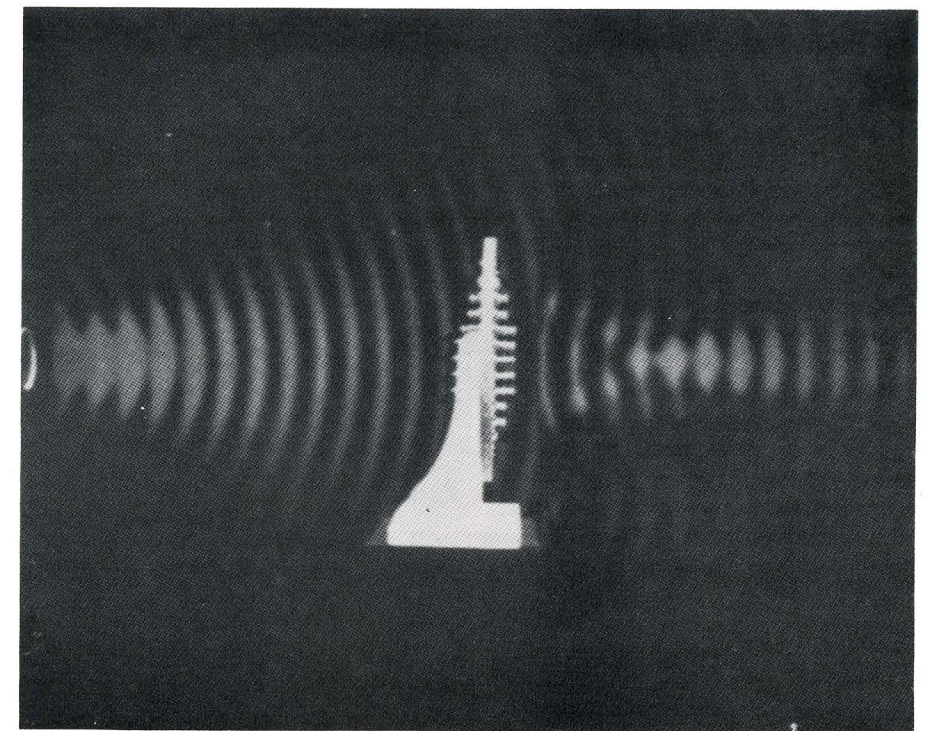


Fig. 5-A microwave lens focussing sound waves. Such lenses, designed as *diverging* lenses cause sound waves passing through them to diverge and thus fill a room or auditorium more effectively.

their vocation, and here the value of the ability to be innovative and inventive is great. If a student can acquire inventive ability during his undergraduate or graduate study years, he may come up with an idea for a new approach in technology for which he can then apply for a patent *prior* to accepting employment. Such solely-owned patents can lead to license agreements between a corporation and the student, for the use of his new idea. The author's U.S. patent application on the formant electronic organ was filed while he was studying for his doctorate at Berlin. That patent and others led to a licensing agreement whereby he received royalties on the commercial version of the instrument during the life of the patents.

But even if the creative engineering student accepts a position in industry *before* he has demonstrated his inventive skill, he can still benefit financially. Although he almost invariably must assign

his inventions and patents to his employer, the employer in time recognizes his inventive capability and rewards him, through the mechanisms of higher salaries and promotions. This occurs because his patent record, being publicly available, is known to other corporations and offers of high-salaried positions from other companies are always available to the innovative engineer. His own company is fully aware of this situation and it therefore makes certain that his salary and his position match those of the market place. During the author's 16 years at the Bell Telephone Laboratories, his salary and the prestige of his position continually improved. His file of *outside* offers numbered nearly a hundred.

Most innovators also enjoy fame as well as fortune. In industry, this acquiring of renown comes about fairly automatically, because the company for which the creative engineer is working benefits substantially through its *publicizing* of the new concepts and achievements of their inventors. The company's customers look more favorably on products of an innovative corporation, and such publicity also induces other invention-conscious engineers to *join* the company in one of its

research operations. The photo of Fig. 4 was widely used in Bell press-releases and advertisement, with the author's hometown newspapers often featuring them. Such publicity also leads to *recognition* of the engineer by others.

One such type of recognition is an appointment to a Board of Directors of a corporation; one of the 1975 I.R. Awards (made by the journal *Industrial Research*) was given to the Hadron Corporation, a company on whose Board the author has served for many years. Such appointments benefit both the Board and the innovator, the former benefiting from the appointee's ideas and his contacts, and the latter learning of new developments which he might otherwise miss. Appointments to Boards of Trustees of colleges and universities also occur with similar benefits as mentioned above. Universities regularly bestow honorary degrees on their graduates who have distinguished themselves in one way or another. Here too both the university and the recipient benefit, the university from the publicity which usually mentions the accomplishments of its own graduate, and the recipient from the new contacts he makes at the award ceremony and from the publicity *he* receives, which alerts his employer to the university's recognition of his talents.

A strong incentive for becoming creative is the ability, thereby, to "join the Club." We refer to a completely unchartered fraternity of persons who, largely through their creativity, have been recognized by the other "members" as "doers", as people of accomplishment. It is natural for such fraternities to exist, because creative people, in attempting to unravel the secrets of nature, and in using these secrets to enrich the lives of persons all over the world, automatically have a common bond with others who have been successful in reaching this same goal. The author was accepted as a post-doctoral student at the Institute for Advanced Study at Princeton in 1935 and 1936, and he thereby got to know many famous innovators including Einstein, Max von Laue, Johann

von Neumann, Wolfgang Pauli, Hermann Weyl, Oswald Veblen, and many others. In 1950 the author was asked to participate in a Summer Study named Project Hartwell; it also involved many innovators, and its Director was Professor Gerrold Zacharias of M.I.T.. The author dedicated one of his books to Zacharias to show his gratitude for having been selected as a member of the "Hartwell Club."

Advice

We close with a few pertinent quotations, taken largely from the "Thoughts" section of *FORBES* magazine. These apply to the young, to the older, and to the research supervisor:

"I have yet to find a man, whatever his situation in life, who did not do better work and put forth greater effort under a spirit of approval than he ever would do under a spirit of criticism." Charles M. Schwab

"Mankind differ in their notions of happiness; but in my opinion he truly possesses it who lives in the anticipation of honest fame, and the glorious figure he shall make in the eyes of posterity." Pliny the Younger

"They that value not praise will never do anything worthy of praise." Thomas Fuller

"The deep-down desire to stand well with our fellows, this laudable hunger to win the public's 'well-done, good and faithful servant', is inherent in every normal human soul. We may flout it when we are young or even in our prime, but when we begin to cast up our life's reckoning, we cannot ignore it. We then realize that this is one of the things that count, one of the things really worthwhile, this esteem and good will of our brother mortals, and the knowledge that we have sincerely tried to earn it." Bertie Charles Forbes

And finally:

"To avoid criticism, do nothing, say nothing, be nothing." E. Hubbard

References

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3. The "Enrico Fermi Institute", University of Chicago pamphlet, distributed to members of the Physical Sciences Visiting Committee, Nov. 1, 1974.
4. W. E. Kock, "Radar, Sonar, and Holography", Academic Press, New York, 1973.
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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.

EPSILON THETA CHAPTER, California State University, Long Beach — This semester's activities were similar to last semester's with some added projects. This semester's usual activities were the annual pledge introduction party. This semester it took place at our faculty advisor's, Dr. Edward Evans, home. Then on March 15 was CSULB's Engineering Day with our pledges working in the open electrical engineering labs and serving a free hot dog lunch! This year's officers are Robert C. Guthrie, President; Onorio Marsella, Vice-President and Greg Brewsaugh, Secretary.

Other activities this semester was the Engineering Banquet and the Honor Society Picnic. This year's

Engineering Banquet was held at the Balboa Pavillion with a new high in attendance. The Engineering Picnic took place on a warm, sunny day and was quite successful.

Some of the new ideas initiated this semester was the introduction of a signature sheet and T-shirts. The signature sheet was to be signed by student and faculty members. This requirement did quite well and I hope it will continue in later semesters. Secondly, all members were asked to buy a silk-screened T-shirt with the Eta Kappa Nu emblem on it. We found this to be a good publicity and fund-raising project.

I hope that this year's achievements will help further semester's build the Epsilon Theta Chapter into an excellent on-campus honor society.

by Robert C. Guthrie

EPSILON - KAPPA CHAPTER, University of Miami — This report will cover the activities of the Epsilon-Kappa Chapter at the University of Miami, Coral Gables, Florida only for the semester ending May 7, 1978; the reason for this being that I was president for this semester only.

This year Eta Kappa Nu co-sponsored with the local Tau Beta Pi Chapter a field trip to a power plant in the Ft. Lauderdale, Florida area. This trip was open to the entire school of engineering and architecture. The trip was a very educational one since we got to see many of the things we see in the classroom applied in practical situation. In addition, we received an excellent lecture on nuclear power plants. We also co-sponsored a second field trip with Tau Beta Pi and IEEE, to the Harris Semi-Conductor Corp. in Melbourne, Fla. Here we received much information as how integrated circuit chip construction takes place as well as its applications to industry.

Many of our members participated in this year's open house which is sponsored annually by the School of Engineering and Architecture. Their participation included touring visitors as well as demonstrating electronic projects on display. This is a good avenue for an interchange of ideas and information between engineers and the public, something which is sorely needed.

This semester our chapter made two outstanding nominations. First, Dr. Guillermo Gonzalez was nominated for the outstanding E.E. instructor award given each year by the Philadelphia Alumni Chapter. We also nominated Manuel L. Mijares for the Alton B. Zerby Award honoring the outstanding E.E. student in the nation. These nominations exemplify

the quality of membership in our chapter, for Mr. Mijares is a current member while Dr. Gonzalez is a former student member.

As president of the chapter, I represented it at the IBM Corporation meeting for officers and advisors of all the organizations. Among the activities included were the tour of IBM facilities as well as computer system demonstrations. This gave us a chance to see what is currently being introduced into the computer systems market. This meeting took place at IBM's Coral Gables offices.

Our final activity for the semester was the participation in the School of Engineering's banquet which is held every semester in order to honor outstanding students. This semester the banquet was sponsored by all of the student organizations including Eta Kappa Nu. At this banquet, which was held at the Coral Gables Country Club, I personally spoke briefly about the history and purpose of Eta Kappa Nu, as well as in presenting this semester's initiates with their certificates of initiation.

This concludes my report for the spring 1978 semester recently concluded. It has been a pleasure being a president of one of the HKN chapters and I wish my successor the best of luck.

by Rafael A. Menenulz

BETA EPSILON CHAPTER, University of Michigan — In the past four months the members of Eta Kappa Nu at the University of Michigan have been at work to promote the good name of our organization on campus. Aside from our usual electee projects like tutoring, publicity, study room cleanup, and the food for meetings committee, several much more ambitious projects were undertaken. In conjunction with the U of M IEEE student chapter, we planned the IC Bomber contest. To win, the contestants had to fly a model airplane across a ten foot circular target, and drop an integrated circuit chip in the center, with out any physical connection. It took a good deal of ingenuity, a stable plane and of course all who took part enjoyed themselves.

Another effort undertaken involved participation of many electees and active members in the demonstrations that the Electrical and Computer Engineering department sponsored during the recent Engineering College open house in March of this year. Some students helped in setting up the displays, drew up the necessary signs for explanation and directions, some of our members led organized tours

through the various department labs, and others actually ran the exhibitions. The program required a good deal of planning and coordination, and turned out not only successful, but impressive.

On April first, there was a conclave between the Engineering School and the Natural Resources School, featuring events in both forestry activities, and engineering. Coordinated by our President J. Scott Linnell and his roommate, secretary of the Natural Resources Club, the events included log rolling, bolt throwing, fortran writing, a slide rule race, two man bucksaw speed contest, and of course, tobacco spitting. This pleasant confrontation was dimmed only by the fact that the Engineers who participated did not practice as the N-R people had, and we were only able to capture 30 of 120 points. Never the less, it was a beautiful day, and a lot of fun.

Throughout the year, we continued the tradition of weekly dinner meetings to enable the active members and the electees an opportunity to get to know the people they sit next to in lecture. This social exposure created many friendships and a friendly competitive struggle for scholastic achievement in the classroom. To cap the year off, we initiated 41 new members, finally forgoing the demeaning blind fold duckwalk that had been a tradition of late. The ceremony was followed by a banquet at a local restaurant where the new officers were elected. Overall, the year was successful, and hopefully the enthusiasm will continue into next year, to make it even better.

by Robert M. Isackson

GAMMA NU CHAPTER, Texas Tech University — Worked in conjunction with student chapter of IEEE in the preparation of a Texas Tech EE department awards banquet. Also contributed \$85 toward the purchase of 5 permanent awards plaques for annual outstanding student awards.

Formed a committee to revise and update our chapter by-laws. Work will be continued next year.

Conducted tours of EE department for the Alumni Homecoming and the local chapter of the Society of Women Engineers.

Assisted the College of Engineering in this year's graduation exercises.

by Peter Phillips

MERRY MOMENTS WITH MARCIA

A no-nonsense type woman boarded the bus. "Let me off at Broadway," she instructed the driver. "Certainly, ma'am," he replied. Every block or two thereafter, the woman loudly reminded the driver not to forget to let her off at Broadway. She finally demanded, "How will I know when we get to Broadway?" "By the smile on my face, lady," sighed the driver.

* * * *

Success comes in cans; failure in can'ts.

* * * *

The dictionary is the only place where success comes before work.

* * * *

Education is what you get from reading the fine print. Experience is what you get from not reading it.

* * * *

A friend of ours who is excited about classic autos bought a car awhile back that runs entirely on electricity. He paid \$10,000 for it — \$5,000 for the car and \$5,000 for an extension cord.

* * * *

Not so many years ago buying on time meant getting to a store before it closed for the day.



The lion went up to the rhinoceros and asked, "Who is the king of the jungle?" "You are, O lion," came the answer. The lion went up to the hippopotamus and asked, "Who is the king of the jungle?" The hippo said, "You are, O lion." The lion went up to the elephant and asked, "Who is the king of the jungle?" For an answer the elephant seized the lion with his trunk, threw him high in the air, caught him on the way down, and slammed him hard against a tree. The lion arose, half dazed, shook himself, and said weakly, "Just because you don't know the right answer, you don't have to get sore."

* * * *

The hardest thing about climbing the ladder of success is getting through the crowd at the bottom.

* * * *

The lady said to the waitress, "May I have a bag to carry leftovers to my dog?" Her 6 year old said, "Oh, Mother, are we going to get a dog?"

* * * *

"Remember on our vacation when we spent money like there was no tomorrow? Well, it's tomorrow."

* * * *

People at the ages of 4 and 17 are at their mental peaks. At 4 they know all the questions; at 17 they know all the answers.

* * * *

The hotel detective was told to check a guest's luggage in his suite for any property belonging to the hotel. "Did you find any pictures, ash trays or towels in his suitcase?" asked the manager. "No, nothing," replied the detective, "but I found a maid in his grip."

by **MARCIA PETERMAN**

NEW OFFICERS AND DIRECTORS

ALBERT HAUSER
President

Albert Hauser was born in Alsace, France and was educated at the Strasbourg Gymnasium and at the French Municipal School, majoring in Commerce, Humanities and Languages. He came to the United States in 1923 and became a naturalized citizen in 1930. From 1926 to 1934 Mr. Hauser was a student at the Armour Institute of Technology (now the Illinois Institute of Technology) majoring in Mathematics and Electrical Engineering. He has been a Registered Engineer in the State of Illinois since 1946.

In 1934 Mr. Hauser founded the Electrical Utilities Company which manufactures industrial capacitors. He now serves as Chairman of the Board. From 1962 until 1965 Mr. Hauser was a member of the Board of Directors of the Illinois Manufacturers Association. He is a member of numerous civic organizations.

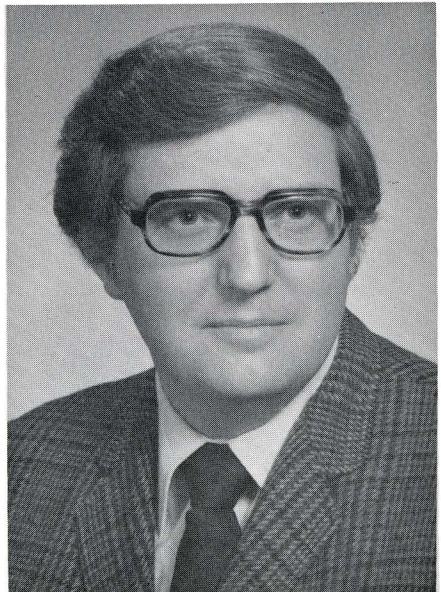


Albert Hauser

ALAN STOUDINGER
Vice President

Alan Ramon Stoudinger was born in Battle Creek, Mich. on April 16, 1938. He received the B.S.E.E. degree in 1961 from Tri-State University, Angola, Ind., the M.S. degree in 1964 from Colorado State University, Fort Collins, Colo., and the Ph.D. degree in 1973 from Utah State University, Logan, Utah.

From 1964 to 1966 Dr. Stoudinger taught at Tri-State University and from 1966 to 1968 at Colorado State University. Upon completion of Ph.D. requirements, he returned to Tri-State University and is presently serving as chairman of the Electrical Engineering Department. Industrial experience includes consulting work in the area of instrumentation and measurements. Academic interests include the area of communication systems and information theory.



Alan Stoudinger

J. O. KOPPLIN
Director

Following service as a pilot in World War II, Dr. J. O. Kopplin completed his studies for a Bachelor of Science degree in Electrical Engineering at the University of Wisconsin at Madison. After graduation he worked for four years as an electrolysis engineer for the Northern Indiana Public Service Company at Hammond, Indiana. He then enrolled in the Graduate College at Purdue University, Lafayette, Indiana, and received the Master of Science and Ph.D. degrees in Electrical Engineering in 1954 and 1958 respectively. He joined the faculty of the Electrical Engineering Department at the University of Illinois at Urbana-Champaign in the fall of 1958. While at the University of Illinois, he served with the Coordinated Science Laboratory working in the area of high-magnetic field superconductors and from 1965 through



J. O. Kopplin

1968 he served as Director of the Honors Programs in the College of Engineering. In 1968, he became Chairman of the Electrical Engineering Department at the University of Texas at El Paso. Since the fall of 1975, Dr. Kopplin has served as Chairman of the Electrical Engineering Department, Iowa State University, Ames, Iowa.

RUSSELL E. LUEG Director

Russell E. Lueg earned degrees as follows: B.S.E.E. in 1951 from the University of Arkansas; M.S.E.E. and Ph.D. in 1956 and 1961, respectively, from the University of Texas in Austin. He served in the U.S. Air Force from 1951 to 1953 and is currently a Lt. Col. in the Reserves. He worked as a Program Engineer from 1953 to 1954 for General Electric and after graduate school in 1960 he joined the faculty at The University of Alabama. A professor of electrical engineering from 1964 to the present he served for two years as acting head of his department. He has worked on various contracts with NASA, the Army Missile Command and the U.S. Navy. He is the author or co-author of three textbooks on electronics and/or electric circuits and has contributed several papers to meetings and journals. He is a senior member of IEEE. He has served as president of the Alabama Society of Professional Engineers and is a registered P.E. For eight summers from 1969 to 1977 he directed or assisted in the direction of the 11 week NASA/ASEE summer faculty fellowship programs in Engineering Systems Designs conducted at the Marshall Space Flight Center in Huntsville, Alabama. He is a member of Tau Beta Pi and Eta Kappa Nu and has served as faculty advisor to the Delta Nu Chapter at The University of Alabama since 1961.



Russell E. Lueg

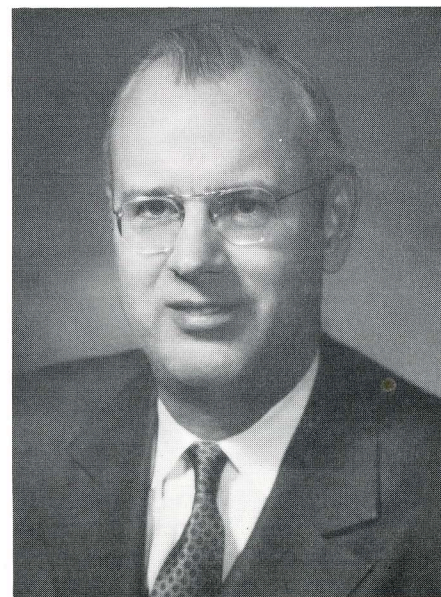
JAMES MULLIGAN Director

J. H. Mulligan, Jr. received the B.E.E. and E.E. degrees from the Cooper Union School of Engineering (1943, 1947) and the M.S. and Ph.D. degrees in Electrical Engineering from Stevens Institute of Technology and Columbia University in 1945 and 1948, respectively. He subsequently pursued additional graduate study in mathematics and physics at Columbia University and New York University.

His career includes engineering responsibilities in industrial, government and academic organizations. First employed as a member of the technical staff in the transmission development department of the Bell Telephone Laboratories, he next served in the Combined Research Group of the Naval Research Laboratory contributing to the development of the Mark V radar IFF system. At the conclusion of World War II he joined the Allen B. DuMont Laboratories where he was initially concerned with research and development on portable and studio television camera and video equipment; later, he was chief engineer of the television transmitter division. From 1949 to 1968 Dr. Mulligan was a member of the faculty of the

Department of Electrical Engineering at New York University, serving as Chairman of the Department from 1952 to 1968. He joined the staff of the National Academy of Engineering in 1968 as Secretary and Executive Officer, a full-time position he held until July 1974. He continued to serve as Secretary of the Academy, an elective office, on a part-time basis until June 1978. From July 1974 to December 1977 he served as Dean of the School of Engineering and Professor of Electrical Engineering at the University of California, Irvine. In January 1978 he returned to full-time teaching and research activities.

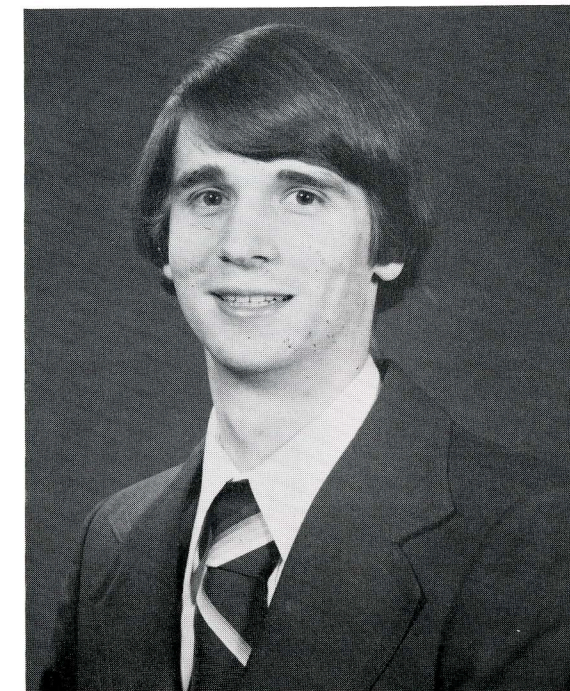
Dr. Mulligan has been extremely active in professional society affairs throughout his career. He served as Vice Chairman of the IEEE Technical Activities Board in 1965-66 and Vice President — Technical Activities in 1968 and 1969. He was elected Vice President of the Institute for 1970 and President for 1971. He has served as a member and subsequently chairman of the Engineering Education and Accreditation Committee of the Engineers Council for Professional Development and is currently a member of its Board of Directors. While at New York University he was active in the work of the New York Alumni Chapter of Eta Kappa Nu.



James Mulligan

Student Award Winners

DOUGLAS R. KRAUL WINNER **ALTON B. ZERBY** **OUTSTANDING STUDENT AWARD** 1978



DOUGLAS ROBERT KRAUL with a G.P.A. of 3.98 was nominated by Beta Mu Chapter at Georgia Institute of Technology. Mr. Kraul has been honored with membership in Eta Kappa Nu, Tau Beta Pi and has served as Chairman of the student chapter of the IEEE.

Mr. Kraul has served as consultant on two successful commercial products: Apple Computer's Apple II home computing system and Audio developments real-time audio analyzer. He designed and constructed two electronic music synthesizers as well as a home computing system.

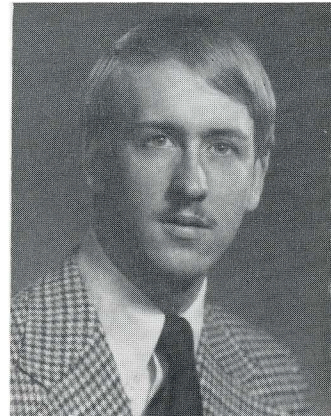
Among Mr. Kraul's publications are "Designing Multichannel Analog Interfaces", BYTE, Volume 2, No. 6, June 1977, "Debounce Scheme for Scanning Type Digital Keyboard", Electronotes, Volume 8, No. 65, May 1976, and "Analog Interfaces for Microprocessor Systems", Electronotes, Volume 8, No. 63, March 1976.

He worked at Electronics Research Laboratory at Hewlett-Packard during his coop program at Georgia Institute of Technology where he worked on an advance cache memory system, designed an LSI logic chip and engineered the system architecture for a complex digital project. The plan was put in operation with essentially no change.

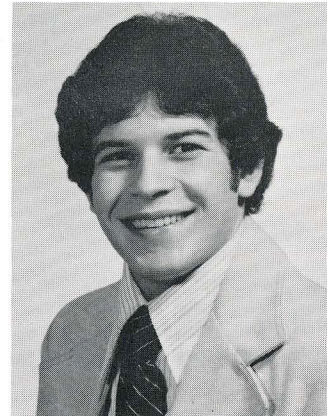
For relaxation he enjoys intramural football, basketball and softball.

**HONORED AT THE
AWARDS DINNER
IN LOS ANGELES
AUGUST 4, 1978**

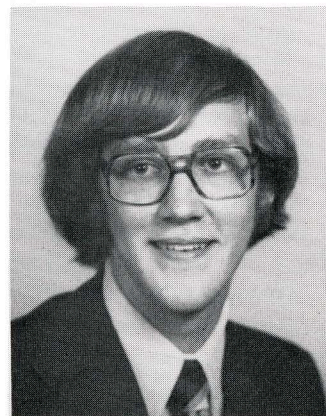
HONORABLE MENTIONS



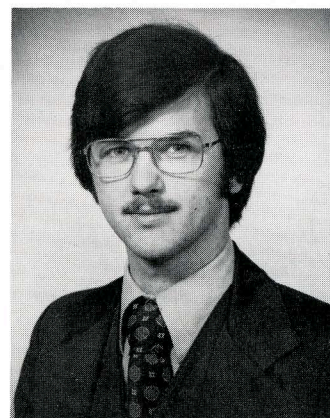
Walter Armin Getzel



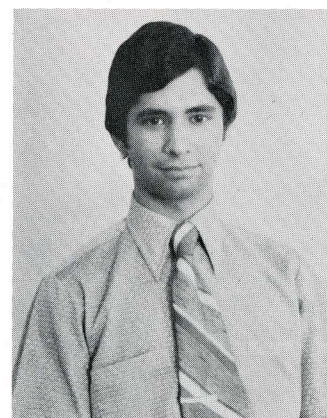
Kurt Rosenbaum Goldsmith



David Harold Greenlee



James Edwin Holeman



Stephen Leo Poizner

WALTER ARMIN GETZEL with a G.P.A. of 3.90 was nominated by Beta Omicron Chapter at Marquette University. Mr. Getzel has been honored with membership in Eta Kappa Nu, Tau Beta Pi, IEEE, and has served as its Chairman. He served as Treasurer of Tau Beta Pi.

He was a leader in organizational activities and in securing National Science Foundation funds for a Student Originated Project. The project has done so well under his direction that the NSF is funding a second continuing project. He has been very active in the Engineering Student Council and acted as Chairman and organized committees and served as communicator between students, faculty and administration. Mr. Getzel has been active on the college newspaper, Blueprint.

For relaxation he enjoys model railroading, woodworking and carpentry.

KURT ROSENBAUM GOLDSMITH with a G.P.A. of 3.85 was nominated by Pi Chapter at Oregon State University. Mr. Goldsmith has been honored with membership in Eta Kappa Nu, Tau Beta Pi, IEEE, and has served as President of Eta Kappa Nu. During his term of office as President, he initiated a fund raising campaign which brought in \$700,000 which the chapter used to buy a portable oscilloscope to be used by the members. He doubled the membership in Pi Chapter. He also served as Treasurer of Tau Beta Pi.

He is currently working on an Impulsive Noise Suppression Circuit for AM receivers as a senior project. The project is being funded by Oregon State University's independent Study Steering Committee.

For relaxation he enjoys skiing, judo and stereo.

DAVID HAROLD GREENLEE with a G.P.A. of 3.97 was nominated by Epsilon Mu Chapter at University of Texas at Arlington. Mr. Greenlee was honored with membership in Eta Kappa Nu, Tau Beta Pi, IEEE, and served as Chairman of the Eta Kappa Nu Study Clinic. This study clinic provides free tutoring for engineering students, six hours a day, five days a week.

Mr. Greenlee organized and conducted tours for campus visitors and has served as laboratory teacher and grader as well as valued technician in the establishment of the school's solid state laboratory. Mr. Greenlee organized a group which raised \$1200 through a sponsored fast for world hunger relief.

For relaxation he enjoys stamp collecting, photography and playing the trumpet and piano.

JAMES EDWIN HOLEMAN with a G.P.A. of 3.94 was nominated by Delta Gamma Chapter at Louisiana Tech University. Mr. Holeman was honored with membership in Eta Kappa Nu, Tau Beta Pi, and served as Chairman of the IEEE.

Mr. Holeman has written the following publications: "Development of a Microprocessor Backup Relaying System for 138 and 345 KV Substations", Dallas Power and Light STEP Program, Dallas Power and Light Company, Dallas, Texas, August 1977, and coauthored Paper: "Hodoscope Data Storage Study for Safety Test Facility", Technical Memorandum ESD 121 Argonne National Laboratory, Argonne, Illinois, January 1978. He initiated a Stereo Review. Local stereo dealers were allowed to display their equipment in the Student Center in exchange for allowing it to be tested by IEEE student members.

For relaxation he enjoys juggling and bridge (contract and duplicate).

STEPHEN LEO POIZNER with a G.P.A. of 3.97 was nominated by Psi Chapter at the University of Texas at Austin. Mr. Poizner has been honored with membership in Eta Kappa Nu, Tau Beta Pi, Alpha Phi Omega and the IEEE. He served as Vice President of Eta Kappa Nu and as President of Alpha Phi Omega.

He served as Chairman of the Texas Union Ideas and Issues Committee, a university speakers and symposia planning committee with a budget of \$27,000. For the fall they have planned seminars and speeches, panels and debates. He was awarded the Dad's Day Outstanding Male Student Award, 1977, chosen on the basis of leadership, scholarship, and service to the university.

For relaxation he enjoys chess, bridge, music, sports and reading.

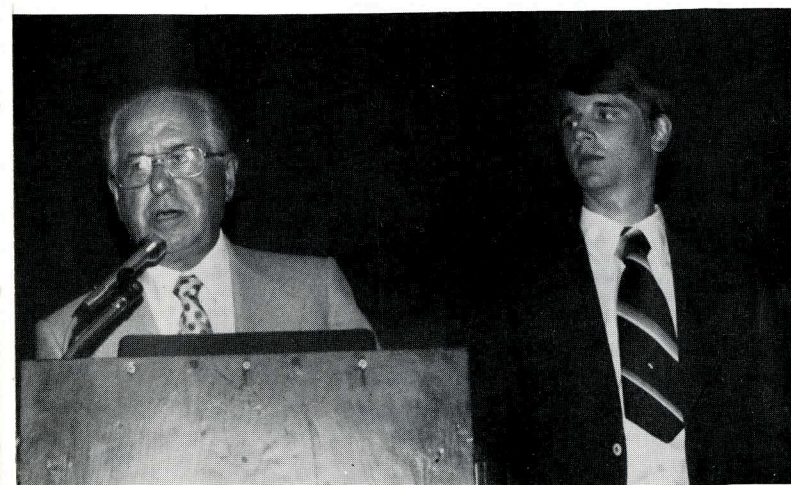
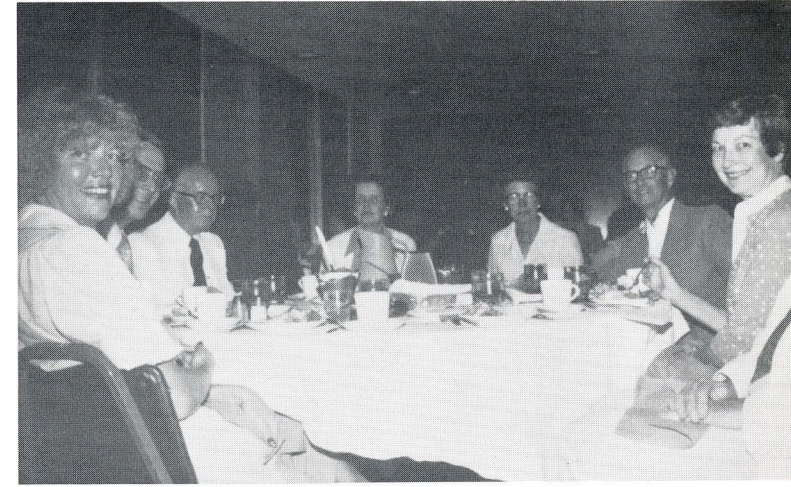
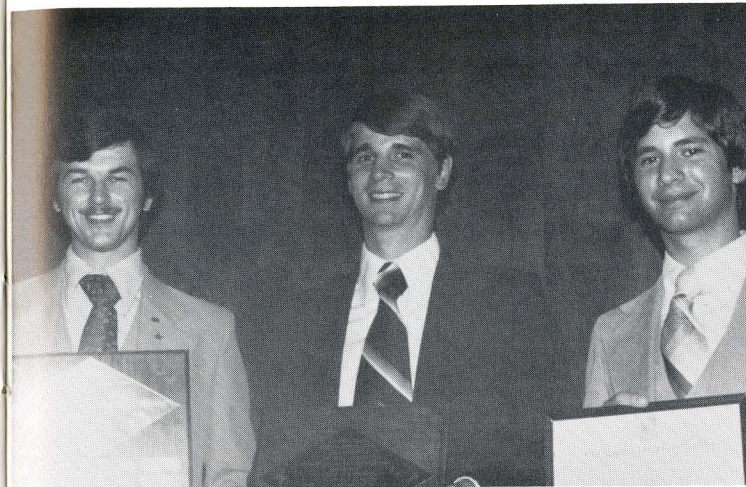
Los Angeles

AWARD DINNER

On the beautiful evening of August 4th, 1978, one hundred members and guests gathered at the Disneyland Hotel in Anaheim, California for an award dinner held by the National Board of Directors and the Los Angeles Alumni Chapter. The dinner was preceded by a social hour. At the awards ceremony President Albert Hauser presided, assisted by Allen R. Stubberud, President of the Los Angeles Alumni, and Larry Hamilton, Chairman of the Award Program. The student award winners (see previous pages) were presented certificates and plaques. Dr. Edward A. Erdelyi was presented Eminent Membership in the Association and gave a

most enjoyable talk. Professor Paul K. Hudson, Executive Secretary, gave a Eulogy in honor of Past President Carl Koerner who passed away recently. Then there was a "first" for Eta Kappa Nu. A supplement to the printed program was distributed and Junior Past President Marc Dodson announced that the National Board of Directors had met in secret session without the knowledge or presence of the Executive Secretary, and had elected the Executive Secretary to receive the Distinguished Service Award of the Association. A plaque and certificate were presented to an astonished and deeply touched Executive Secretary.

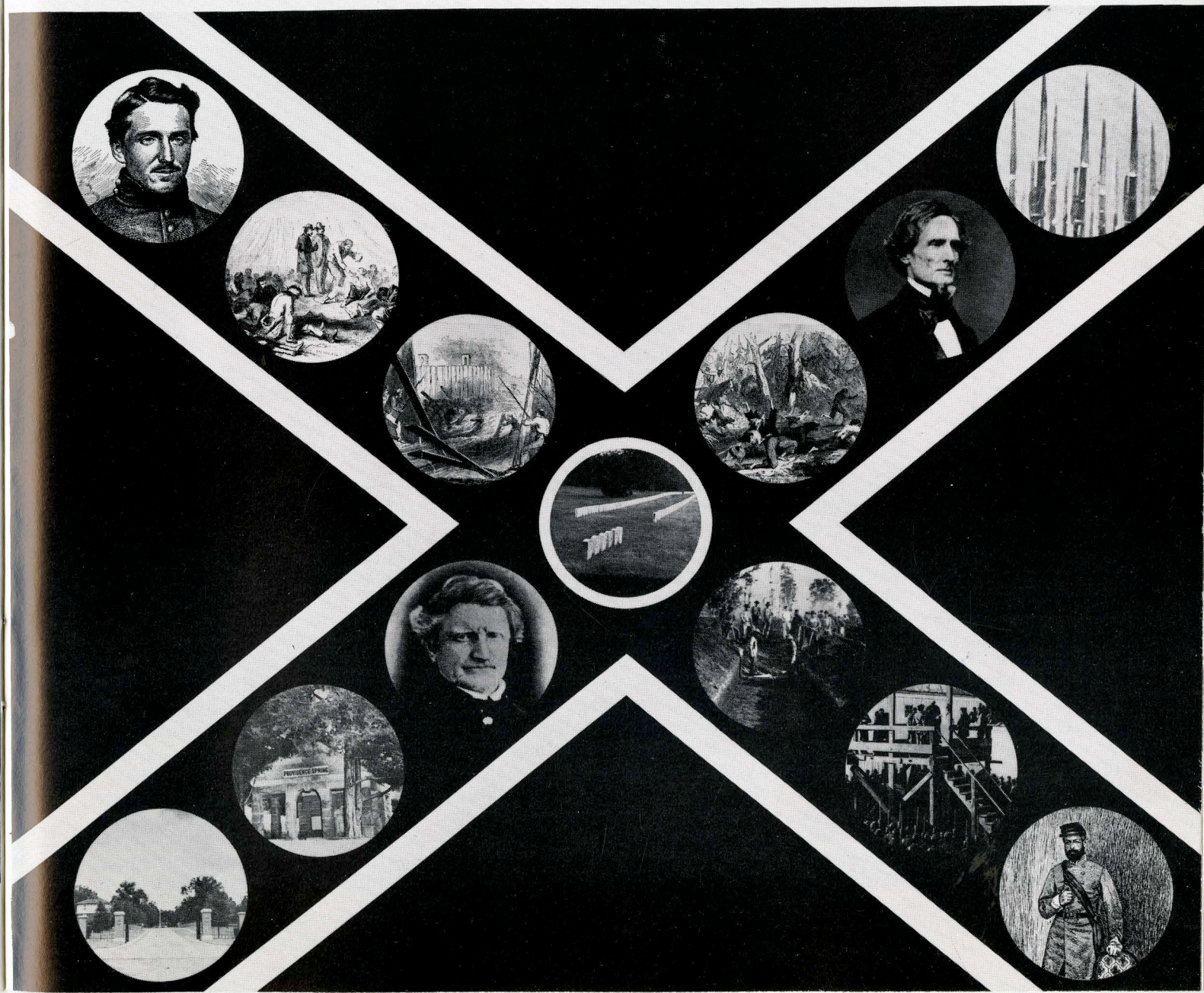
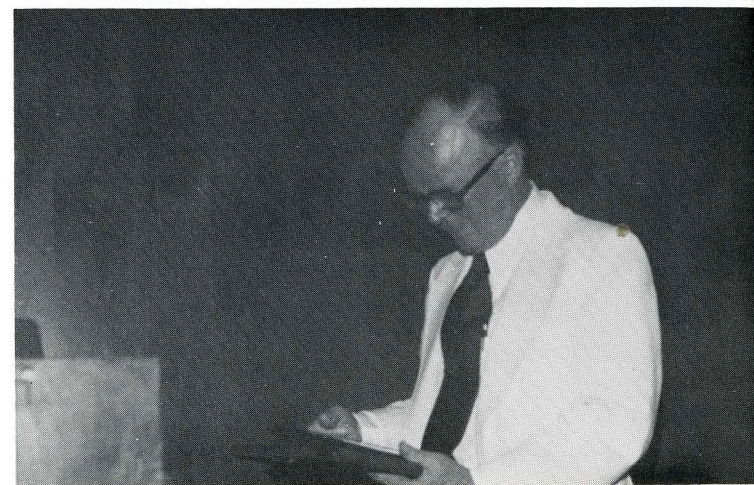
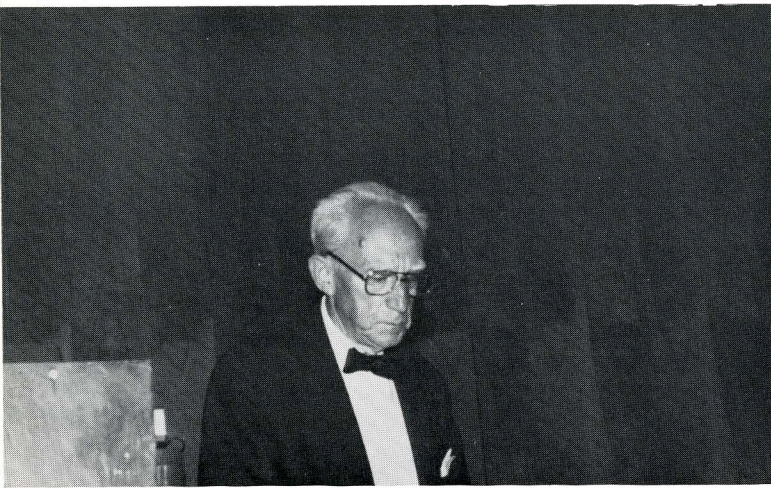
Photos by Stamyam Buckingham Jr.



Interesting Places

— PART FOUR —

ANDERSONVILLE





by **PAUL K. HUDSON**
Editor — Bridge

INTRODUCTION

Springtime is here and with it the vacation season. In recent years many people have been traveling to Plains, Georgia for what it has to offer. It is not much — just the welcome station and Billy's gas station. You are not permitted to even drive past the president's house. Therefore we thought we would like to call attention to a place of much greater interest that is on the road to Plains. We refer to Andersonville, on the left side of the road, if you are traveling to Plains from the East.

Now that more than a century has passed, Andersonville can be

viewed in a clearer and fairer light. The conditions there during the war were indeed regrettable but we must recognize that the conditions in the northern prisons were about as bad. The fatalities at Andersonville were higher than in the northern prisons but not much higher, and this is easily accounted for by the fact that by that time the South had run very short of both food and medicines. Lastly, neither Jefferson Davis nor the people of the South were responsible for the conditions there.

Today Andersonville is a very beautiful and thoughtful place.

Soldiers of all the wars are buried there and the place is well kept. A visitor can spend several pleasant and educational hours whether he is on the way to Plains or not.

By the flow of the inland river,
Whence, the fleets of iron
have fled,
Where the blades of the grave-
grass quiver,
Asleep are the ranks of the
dead; —
Under the sod and the dew,
Waiting the judgment day;
Under the one, the Blue;
Under the other, the Gray.*



Part of the cemetery at Andersonville showing the graves of the Raiders. For obvious reasons they were not buried with the other soldiers.

The date was February 1864 — the place, a whistle stop called Anderson Station located sixty miles south of Macon. A stockade had just been finished having a livable area of thirteen acres — later enlarged to twenty. In the year to come it would imprison 50,000 Union soldiers, 13,000 of whom would die. It would be named Fort Sumpter, but everyone would always call it Andersonville.

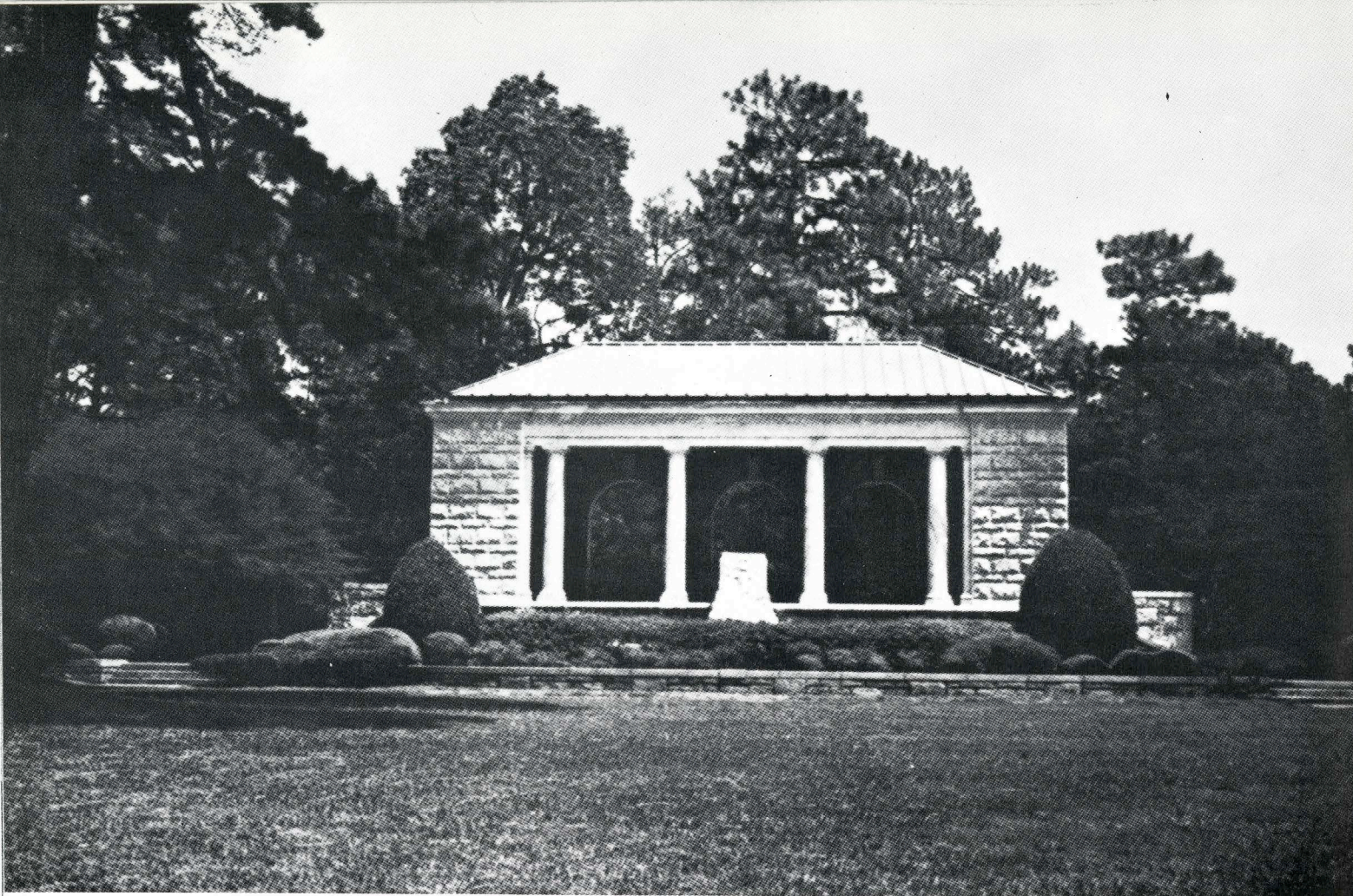
In the half-century following the war, several dozen former prisoners wrote books and pamphlets describing Andersonville and the conditions they experienced, but they do not agree on any important

point. Although it is true that different people usually record events differently, the main problem in this case was that the prisoners simply could not be objective. A number of other people wrote histories based on research, but their conclusions probably were established before they began the research. In fact a history of Andersonville could not be written from research data alone. Anyone who would attempt such a project would need, in addition to scholarship, vast social experience, imaginative interpretation, value judgment, compassion, sensitivity, and the ability to look deep into the souls of men,

individually and collectively. Such a man presented himself in the first half of the present century and spent several decades researching and reflecting on Andersonville. In the end he wrote a superb historical novel in which historical fact, quite naturally, was subservient to dramatic intensity. His name was MacKinlay Kantor.

THE PHYSICAL PLANT

The stockade at Andersonville was built of 20-foot pine logs, standing together with the bottoms buried five feet in the ground. To discourage escape by tunneling under, a second stockade



Memorial Day services are conducted each year at Andersonville. Shown above is the Memorial Speaker's Rostrum.

was built at a distance of 70 feet, and a *dead-line* was established fifteen feet inside the main stockade. The dead-line was made of small posts with slats nailed on top. If a prisoner went beyond the dead-line, he was shot. The exact dimensions of the main stockade are not known, but they usually are reported to be 1620 feet by 780 feet. Two gates were built on the west side, and these were surrounded by secondary palisades that worked as locks to prevent the gates from being rushed when they were opened. A small creek flowed from west to east through the center of the prison. The west side was used for drinking and the east side for a sink. Not enough water flowed to maintain proper sanitation and, in addition, the stream was further polluted by a bakery and a brigade of soldiers just outside. There were a few crude buildings outside for administra-

tive purposes but no structures inside at all. The weather in winter was well below freezing and in summer so hot it made a noise, yet the prisoners were left to their own resources in the matter of shelter. The first to arrive found scraps of wood left from the construction of the stockade which they managed to weave into small hutches. Most of the later arrivals propped up blankets or coats on sticks or dug holes in the ground into which they could crawl. Some had no shelter at all and were forced to lay on the open ground in rain and sun. It rained hard on 21 consecutive days in June. Death came on the run. A prisoner's abode was called a *shebang*.

FOOD

The daily ration for each prisoner was a piece of corn bread about the size of a brick. The

quality of the corn-meal as well as the baking was very poor. The meal was coarse-ground with cob, and the corn bread was still dough in the center. On alternate days raw corn meal was issued instead and since many prisoners did not have either cooking utensils or wood for a fire, it had to be eaten raw. From time to time beans, rice, hominy, and pork were issued in small quantities.

These, in the robings of glory,
Those, in the gloom of defeat,
All, with the battle-blood gory,
In the dusk of eternity meet; —
Under the sod and the dew,
Waiting the judgment day;
Under the laurel, the Blue;
Under the willow, the Gray.



Several States have erected memorials at Andersonville. This monument was placed by the State of Wisconsin. The slender white marker in the left foreground shows the location of the dead-line.

DAILY LIFE

Although occasionally and informally the guards would rob prisoners of their clothes, possessions, and money before they put them in the stockade, most of the prisoners were permitted to keep whatever they had. These things were vitally important because they could be exchanged for food and services. One Union dollar was worth about 10 Confederate dollars and thus a considerable amount of food could be purchased from sutlers for very little Union money. A great many informal shops were established by the prisoners including barber shops, hand laundries, and even a restaurant. A prisoner who came in with a considerable quantity of money could live in reasonable comfort unless — unless — .

When the prison was established, no provision was made for

law and order. It might seem that the desperate circumstances of most of the men would cause them to join together in a quasi fellowship, to pool all resources in an effort to stay alive. This did not happen. Although there were numerous ordinary friendships, in general the law of the jungle was supreme. Unfortunately, some of the prisoners were better read than others in this particular law. Among the masses were several dozen gangsters — vicious killers who had been spawned in the slums of New York City. They had hired into the army, usually to avoid prosecution for criminal acts, but they had no intention of fighting. At the first opportunity they either deserted, and then hired themselves back again, or surrendered to the enemy. Collectively this group was called either *New Yorkers* or *Raiders*. They recruited about 100 other prisoners of similar vein and, as an organized club, proceeded to rob

everyone in camp of everything of value. Any prisoner who resisted was killed on the spot. Death from other causes were so numerous that there was no way to tell how many murders were thus committed. At first the work was done only under cover of darkness, but by the first of June it was done on numerous occasions in daylight hours. Towards the end of the month, a large group of the victims who called themselves the *Regulators* armed themselves with clubs and attacked the Raiders. The battle was violent but short, and when it was over all of the main Raiders were captured. With the permission of the commander of the prison, Captain Henry Wirz, a formal trial was held outside the prison. A jury was selected from newly arrived prisoners who would not be prejudiced, and both sides were given full hearings. At the conclusion the jury condemned to death six of the Raiders and sentenced several dozen others to



This little creek, which was badly polluted before it reached the prison, supplied the drinking and sanitary needs of 50,000 men.

be confined in chains. The remainder was caused to run the gauntlet upon reentering the stockade. The names of the six condemned Raiders were: Charles Curtis, Pat Delaney, F. Sullivan, A. Muer, J. Scarsfield, and William Collins. A scaffold was built on July 12th and at 2:00 PM Captain Wirz brought the prisoners in under armed guard. He announced, "I return these prisoners in as good a condition as I got them — you have tried them and found them guilty — I wash my hands of this entire affair and may God have mercy on them and you." Until the very last minute the six men did not think that they really were to be hung and kept asking, "You fellows don't really mean to hang us do you?" But the answer came back, "That is about the size of it." They were all hung at once, but Collins' rope broke and after being revived he was hung a second time. Following these activities, a regular prisoner's

police was established and a justice of sorts prevailed.

PROVIDENCE SPRING

A most amazing event occurred on the 15th of August. Very little water flowed in the creek and what little did flow was thoroughly polluted, making the prisoners frantic for water. During the night a great rainstorm came up that flooded the prison and washed away part of the stockade. In addition, it caused a freshwater spring to burst forth in the north end of the prison. Thus, for the first time a good supply of uncontaminated water was made available. The prisoners considered this an act of God and named it *Providence Spring*.

ESCAPE

Numerous escapes were attempted, but few were successful. Most of them were achieved by

digging tunnels under the stockade. Occasionally members of a work-detail outside the prison would overpower their guards or run away when their backs were turned. Most of the escapees were tracked down and recaptured by bloodhounds. A few pretended to be dead and were carried out to the dead-house to be buried the next day. The dead-house was not very far from the stockade, and when they attempted to get away that night, they were shot by the guards. Plans were made on several occasions to rush the stockade, but they were never carried out. The greatest problem with escape plans was the numerous *informers* among the prisoners who would divulge information to guards for an extra ration. Thus, most tunnels were discovered before they were finished. The deadline itself was a very great deterrent to most forms of escape, because even to put a hand over it could mean instant death. Most of



Providence Spring today

the books on Andersonville state that any guard that shot a prisoner inside the dead-line was paid \$30 and given a 30-day furlough. This is, of course, ridiculous because the Confederate Army had neither the guards nor the money to spare and did not care that much about the matter anyway. Also, had it been true, there would have been far more prisoners killed than have been reported.

From the silence of sorrowful hours,
The desolate mourners go,
Lovingly laden with flowers,
Alike for the friend and the foe;
Under the sod and the dew,
Waiting the judgment day;
Under the roses, the Blue;
Under the lilies, the Gray.

WHY DID THEY DIE?

A prisoner who came to the stockade with a considerable

quantity of money had an excellent chance of surviving. Yet very few had much money. A prisoner who could perform a needed service also had a good chance. Again, few could perform a service either from a lack of training or a lack of tools. It would seem that a prisoner who came in excellent health would have the best chance of all, but just the opposite was the rule. For reasons that have never been investigated, the prisoners who came in superb health, who had been well fed and cared for, including perhaps a dram or two a day, were the very first to die. Most died in thirty to sixty days. The lean scraggly, hungry-looking cases lasted the longest. Probably part of the answer is to be found in the difficulty encountered by the well-fed group in adjusting to the terrible conditions of Andersonville. The scruffy group did not have much of an adjustment to make.

It should be remembered that many of the soldiers that died at Andersonville did so by choice. Any prisoner that was willing to join a work detail outside the stockade was given extra rations and other benefits that would make the difference between life and death. Although many saved their lives in this manner, they were a small percentage of the total. The majority considered it unpatriotic to help in any way and gave up their lives instead. It was a noble idea but in some ways regrettable, because the Union government made no effort to exchange the prisoners and those that had saved their lives in this way went home with as much honor as any of the others. It is understandable that a prisoner would not want to contribute to the war effort of his captor, but it is not clear that he should give up his life instead of doing routine work at the prison.

Although Confederate surgeons listed 43 different causes of death, most of the prisoners died of scurvy, gangrene, gastro-intestinal disorders or a combination of all three which was called marasmus or wasting-away. The primary causes were inadequate food, shelter and pure water. Many writers felt that the most important of these was food. They pointed out that the prisoners were not in the habit of eating corn meal and that it scratched and inflamed their intestines. This is, of course, a possibility, but it seems more likely that the intestinal infections were caused by the polluted water. These infections caused a reduced food intake and, in turn, scurvy and gangrene. Several of the prisoners who boiled the water before they drank it reported no problems of any kind except hunger. It must be remembered that the rations issued were not materially different from those issued to the Confederate troops in the field. Also, Polynesian sailors who get lost at sea for months at a time in open boats with very minute quantities of food and water fare much better than did the prisoners. Such sailors could live indefinitely on the rations issued at Andersonville. Of course the poor shelter made its contribution, but the great numbers of deaths and the quickness of their coming point directly to the water.

So, with an equal splendor,
The morning sun-rays fall,
With a touch, impartially tender,
On the blossoms blooming for
all;-
Under the sod and the dew,
Waiting the judgment day;
Brodered with gold, the Blue;
Mellowed with gold, the Gray.

WHY DID IT HAPPEN?

There is no question that the prisoners of Andersonville were poorly treated, but to blame the people of the South is a grave error. The Confederate citizens time after time tried to help the prisoners by bringing them food and clothing, but they were always turned away by the guards. Also,

numerous citizen groups sent petitions to Richmond requesting that the situation at Andersonville be improved. In spite of the fact that they were losing the war, they did everything they could to gain humane treatment for the prisoners.

Jefferson Davis did not become a great hero, at least not out of the same cloth as Robert E. Lee. But there is no evidence that he was directly responsible for Andersonville. Quite the contrary, when the deplorable conditions were brought to his attention, he always asked his cabinet to investigate. The cabinet would then ask the prison commander for a report, and when it came it was always favorable. Davis was indirectly responsible for Andersonville in that he appointed General John H. Winder as Commissary General of Prisons even though he knew that the Confederate citizens hated Winder. He had formerly placed Winder in charge of Martial Law at Richmond but later got him out of town to prevent a possible assassination. Davis favored Winder, because they had been friends at West Point.

It is everything but certain that Winder, and Winder alone, was responsible for the conditions at Andersonville. He selected the prison site even though there was a better site with more and better water nearby. The prison was built in a woods but Winder would not permit wood to be cut for shelter or heat. When Southern citizens brought provisions for the prisoners, it was Winder who refused to allow the material to be taken into the stockade. Finally, we can not overlook his statement, "I am killing as many of the enemy at Andersonville as twenty of our divisions in the field." He died before the end of the war and so was not called to answer any charges.

Captain (later Major) Henry Wirz was in charge of the day-to-day operation of the stockade, and many writers assign the blame for everything to him. This is an error as Captain Wirz had little or nothing to do with causing the problems. If Wirz had refused to operate the Stockade as Winder wanted it, he not only would have

been relieved of the command but court-martialed as well. Many writers have stated that Wirz was a stupid nobody before he came to Andersonville. The truth is just the opposite. Wirz held the degree of Doctor of Medicine from two distinguished colleges (Paris and Berlin) and was a successful practicing surgeon before the war. He was seriously wounded early in the war and thus had to be reassigned to noncombatant duty. He was a kind and faithful family man and lived with his wife and small daughters at Andersonville.

Following the war the Union Government, being prodded by the newspapers, decided to substitute retaliation for rationalization. Someone had to be hung and since Winder was dead, Wirz was selected. Officers of other prisons were also detained, but Wirz had been at Andersonville and that sealed his fate.

So, when the summer calleth,
On forest and field of grain,
With an equal murmur falleth
The cooling drip of the rain;-
Under the sod and the dew,
Waiting the judgment day;
Wet with the rain, the Blue;
Wet with the rain, the Gray.

THE KANGAROO COURT

A trial was held in Washington with Colonel N. P. Chipman as Judge Advocate. Thirteen specifications were made against Wirz charging that he killed thirteen prisoners. In every case the prisoner was not identified by name even though it was stated that several of them remained among the other prisoners for days after their fatal wounds. Yet no one could remember a single name — no one knew who it was that Wirz had killed. It was specified and sworn to that Wirz had killed several of the prisoners during the month of August. Everyone knew at the time, but no one seemed to remember at the trial that Wirz was not even at Andersonville in August but spent the entire month in a hospital at Atlanta. Chipman interviewed all prospective witnesses and discharged all who

stated that they would testify that Wirz had not killed anyone. He used force to prevent one former prisoner from appearing in court to testify. Several former prisoners who testified against Wirz stated informally but within the hearing of many spectators that Chipman had told them what to say and that it was all a *bunch of lies*. In short, Chipman had received orders to hang Wirz, and the trial was just the machinery to make it legal. President Johnson, who knew votes when he saw them, approved the finding of the court. Shortly before the execution, government officials came to Wirz and stated that Johnson would spare his life if he would give false testimony against Davis. Wirz always a man of honor, refused to do this and stated truthfully that he did not even know Davis. He was hung on November 10, 1865. Shortly after the execution it occurred to a great many people that it amounted to a lynching, and this was the main reason no one else was brought to trial.

Some of the things that other prisoners wished to present in court but were prevented by Chipman are: (1) When Providence Spring appeared it was well within the dead-line, but Wirz made special arrangements to have the water piped into the prison so that all could enjoy it. (2) When the dead-line was established one of the shebangs that was made of sticks was within the line, and the guards told the occupants to tear it down. It was too fragile to be torn down and rebuilt elsewhere. Wirz happened to come in the prison at that moment, and the prisoners appealed to him. Without hesitation he told the prisoners that their "house" could stay and ordered the guards to leave it alone. Then with a wink he told the prisoners to be careful about sleepwalking. (3) A group of prisoners worked outside the stockade and, upon returning, one of them found that he had left his knife (an object of almost infinite value to any prisoner) at the place where they had worked. The guard would not let him return to get it. Wirz happened to be riding his horse nearby and, upon learning the problem, returned

with the prisoner and helped him hunt for the knife until it was found. (4) Wirz somehow found extra corn for the prisoners and permitted them to make some corn-beer to help fight the scurvy. *Conclusion:* Clearly this was not a man who hated the prisoners or wanted to kill them. Wirz did everything that he was permitted to do (by Winder) to make them comfortable. Yet he was the only one punished.

Sadly, but not with upbraiding,
The generous deed was done;
In the storm of the years that are
fading,
No braver battle was won;-
Under the sod and the dew,
Waiting the judgment day;
Under the blossoms, the Blue;
Under the garlands, the Gray.

THE GREAT WAR SECRETARY

Edwin McMasters Stanton, Lincoln's Secretary of War, was all brains and no heart. He was very intelligent and hardworking but his human values were lacking. It was said that the War Department was in such a dreadful condition that Lincoln was compelled to find a despot such as Stanton to beat it into shape. Stanton cared nothing for anyone and went out of his way to be hateful even to the heroes of the North that had distinguished themselves in battle. He cared less than nothing for the Yankee prisoners who were held in Andersonville. He refused to exchange prisoners on any basis and near the end of the war refused to accept prisoners without exchange requirements. Grant was the only general who was not afraid of Stanton.

GENERAL CONCLUSIONS

To understand Andersonville fully it would be necessary to understand general warfare. Sherman said, "War is Hell." He could have added, "And if I find any part that is not Hell, I will make it Hell." Thus, in his march through Georgia he burned and looted the homes of innocent civilians wherever he found them.

Recently we attended a banquet of about 400 people in Columbia, South Carolina. The main speaker, who was very personable, made the remark, "Don't make a Yankee mad or he will burn your house down." Everyone laughed, and we were pleased to know that the bitterness is gone or, to say it more exactly, "things" are in proper perspective.

The conditions at Andersonville were regrettable, but not much worse than the conditions in all of the Northern prisons, especially Elmira. Had it not been for the lack of food and medicine and a man named Winder, Andersonville probably would have been better than any prison in the North.

Andersonville and the War happened because people would not reason together. The United States is the only country in the world that had to fight a Civil War to get rid of slavery. All of the other countries got rid of it by the most compelling of all reasons, namely, they discovered that free labor is cheaper than slave labor.

Even if the reader does not plan a trip to Plains, Georgia, we would urge a visit to Andersonville. It is an educational, soul-searching experience like none other.

One of the most touching scenes of the war occurred at Columbus, Mississippi. Although it was a small event, we believe it to be one of the truly noble ones in human history. Some of the ladies of Columbus gathered at the cemetery to decorate the graves and in doing so, placed flowers impartially on those of the Confederate and of the National soldiers. The event would have gone unnoticed had not F. M. Finch written the poem of commemoration that has been used with this story. *

No more shall the war-cry sever,
Or the winding rivers be red;
They banish our anger forever,
When they laurel the graves of
our dead;-
Under the sod and the dew,
Waiting the judgment day;
Love and tears, for the Blue;
Tears and love, for the Gray.

CHAPTERS

◀ From page 11

GAMMA ALPHA, Manhattan College — This year the Gamma Alpha Chapter of Eta Kappa Nu continued many activities that could be considered a tradition. The activity that I believe to be the most important is the tutoring service offered to all students in Electrical Engineering. From this service a student doing poorly in a particular course can obtain one-to-one assistance with a fellow student. In this situation both students benefit. The student needing assistance usually obtains a clearer understanding of the course material and the HKN tutor gets the satisfaction of knowing he helped someone in need.

Our members also formed a committee to help organize the annual Open House at Manhattan College's Engineering Building. Helping the students construct their projects to be displayed, making a list of would-be projects, allotting equipment to be used and where all projects were displayed was part of the work done.

Our final activity this year was the annual dinner where teachers and students have the chance to sit down and discuss anything that comes to mind. An excellent speech was given by one of the professors in the Philosophy Department.

Looking back over the year's activities all went according to plan. The main reason for this was the cooperation of all our members, and I only hope next year's members will have the same success.

by John E. Mahoney

DELTA UPSILON CHAPTER, Bradley University — This year the Delta Upsilon Chapter at Bradley University worked closely with IEEE to become involved in various projects. Most importantly, the combined effort resulted in the dismantling and removing of some old unused equipment from the EE lab to make room for a student lounge. Judging by the many deserving EE students who now relax there, this effort has proved to be very worthwhile. It has also provided a place to offer coffee and donuts to the students and faculty in order to raise money for the chapter.

Other activities included the induction of 8 new members, organization of a combined banquet with Tau Beta Pi and the other engineering

honor societies, and the planning of the annual EE senior banquet. At semester's end, a plaque will be presented to the best senior project, and a special award given to the most outstanding Eta Kappa Nu senior.

Hopefully, next year's officers have been inspired to produce an even better and more active chapter.

by Larry Polyak

DELTA MU CHAPTER, Villanova University — This year Eta Kappa Nu became an integral part of the electrical engineering department at Villanova University.

The honor society held coffee and doughnut hours each month for the students and faculty. Delta Mu chapter became involved with a new tutoring program, which included class instruction as well as private tutoring.

Villanova University's Electrical Engineering Department now offers a computer science degree option. A career conference was held for the sophomore EE's to inform them of the distinctions between the different curriculum, and what employment opportunities are directly related to each degree. It was a tremendously informative conference for the seniors and juniors, as well as sophomores.

Eta Kappa Nu (Delta Mu) also presented awards to outstanding students in the department. This was done up to 1964, and has been nonexistent until this year. The sophomore electrical engineer who obtained the highest cumulative average was presented with an award. Five seniors were also recognized for their contributions to the department and their academic achievement.

The Delta Mu chapter has expanded its functions in the university, which was very pleasing. Next year, Delta Mu would like to expand further, to include, among other activities, community related services.

by James Wood and David Kunkler

DELTA EPSILON CHAPTER, Ohio University — Fall quarter began with a bang for Delta Epsilon of HKN. We began the quarter with a very healthy treasury due to last year's T-shirt transfer sales.

A chapter By-Laws Committee was formed to update the existing chapter by-laws. This was necessary because many of the provisions in the by-laws were out-moded, out of date or were written when Ohio University was on the semester system.

A yearbook drive to have 75% of the membership purchase yearbooks was obtained quite easily. This allowed us

to enter our group photograph free of charge into this year's *Spectrum Green*.

A smoker for new initiates was held October 12, for the purpose of familiarizing the initiates with the members of HKN. The functions and purpose of HKN were explained after which questions of a general nature were answered.

Our second annual Casino Night was held October 21, 1977. Currency of 1, 5, and 10 "watt" bills were purchased and used to play at roulette, blackjack, poker, or Wheel of Fortune. The games were run by the faculty since they knew "all the odds", so to speak! Entertainment was provided by an informal group of musically talented EE majors. And, of course, much food and beer were consumed throughout the night.

HKN sponsored a student/faculty dialogue on October 24, 1977. This is a means to have debate and discussion of ideas or problems that are of concern to EE students as well as the faculty. As usual many things were achieved during the dialogue, such as the announcement that three CMS terminals were going to be installed for the department and that students would have unlimited access to them. These terminals will be peripheral devices to the University's IBM 370 computer.

Our fall banquet for the induction of new members was held November 11. Our guests of honor were Mr. and Mrs. Ed Schweitzer. Professor Schweitzer is an instructor in the electrical power field who recently joined the EE staff at O.U.

Tutoring services were again made available for all sophomore and junior level courses. A sign-up procedure was utilized and then arrangements were made so that small groups of 4 to 5 people were obtained. This allowed greater participation by each student.

by Patrick C. Morrissey

THETA BETA, University of Portland — On Monday, April 10, the Theta Beta Chapter of Eta Kappa Nu, the university's Electrical Engineering Honors Society met at Osbecks restaurant in St. Johns for their annual initiation ceremony. Twelve new members were initiated into the nationally recognized society. Also attending were current members and engineering faculty.

At the same time new officers for the 78-79 year were elected. Paul Larson was elected president, and Elvina Kawakami was elected secretary-treasurer.

by Kenneth Moore

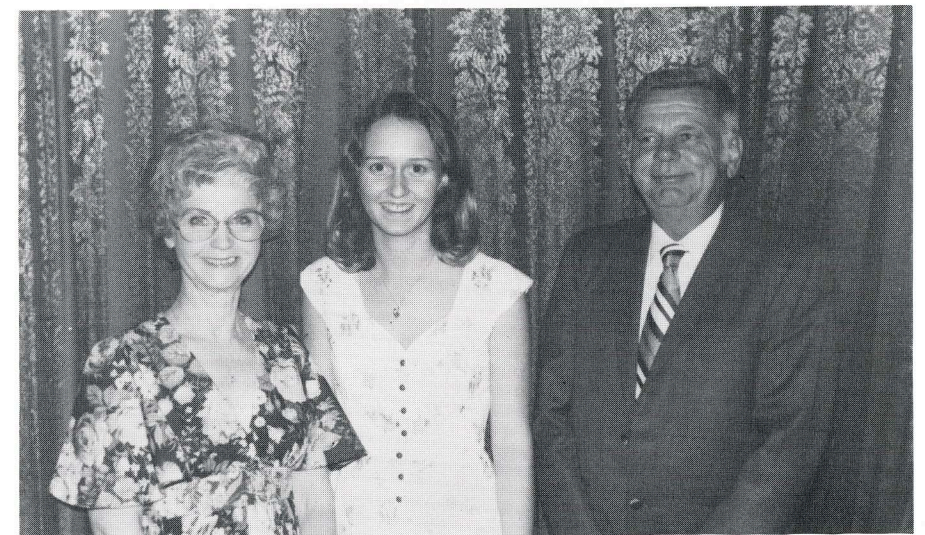
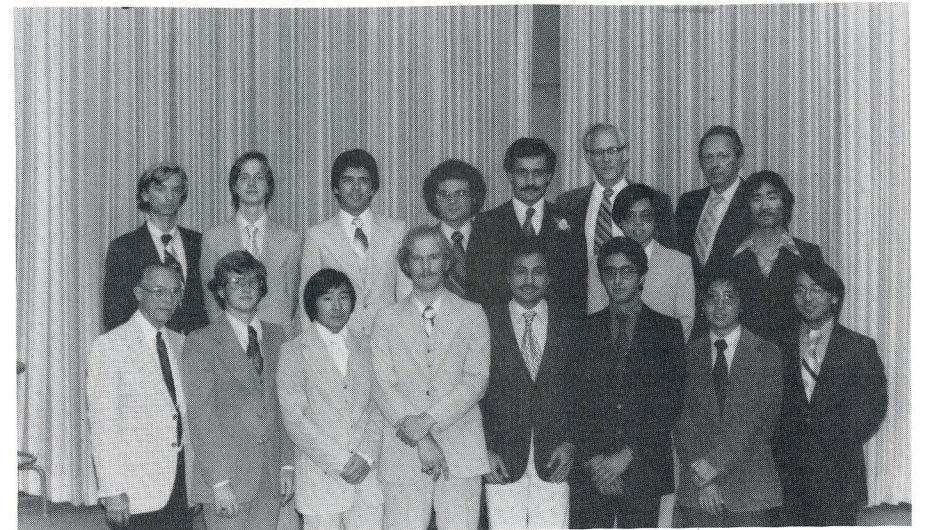
UPSILON CHAPTER, University of Southern California — The Upsilon Chapter of Eta Kappa Nu at the University of Southern California ended its 1978 spring semester with the acknowledgement of eight more undergraduate members to increase the active list of members at the University.

The spring semester initiation ceremonies and banquet were attended by the National President Mr. Marc Dodson and his wife; Mr. Herb Sommers, a past National Director; and Dr. Willard Rusch, the former Upsilon faculty advisor and a member of the National Board of Directors. Other guests attending the spring semester banquet were Dr. Tsen-Chung Cheng, an professor at U.S.C.; Mr. Bill Bealer, a former U.S.C. graduate and guest speaker from Disneyland; and Mr. and Mrs. Joseph Brom, for whose son the Jeffery J. Brom Memorial Award is named.

Chapter President Eric Seiss spoke at the banquet on the various projects during the spring semester including the field trips arranged by the Upsilon Chapter for the engineering students to the Hughes aircraft facilities in Culver City and the Ralph M. Parsons offices in Pasadena. A special award was presented to Ms. Linda Akiyama, the past fall semester president for the outstanding work she did for the Upsilon Chapter. A special recognition of achievement was given to John Graham, another chapter member, for being selected validictorian of the graduating undergraduate class at U.S.C. for the 1978 Spring Commencement.

Mr. Bill Bealer, a former U.S.C. graduate (BSEE' 61) and now Chief Engineer at Disneyland in Anaheim spoke on the background of Disneyland and the people who make the park run. His slide presentation and speech were followed by an informal question and answer period.

Later in the evening, Dr. Rusch spoke on the history of the Jeffery J. Brom Memorial Award, noting the past recipients of the award and something about the young man, Jeffery J. Brom, for whom the award was named after. Then John Parsons, the chapter Vice-President and previous recipient of the award presented the 1978 Jeffery J. Brom Memorial Award to Ms. Beverly Sanders, a sophomore undergraduate student from Titusville, Florida. Ms. Sanders received a certificate and a \$50 book grant, along with her former high school receiving a \$100 book grant.



UPSILON photos, top to bottom; Initiation group; Mr. and Mrs. Joseph Brom with Beverly Sanders (center); Robert Strand and Linda Akiyama.

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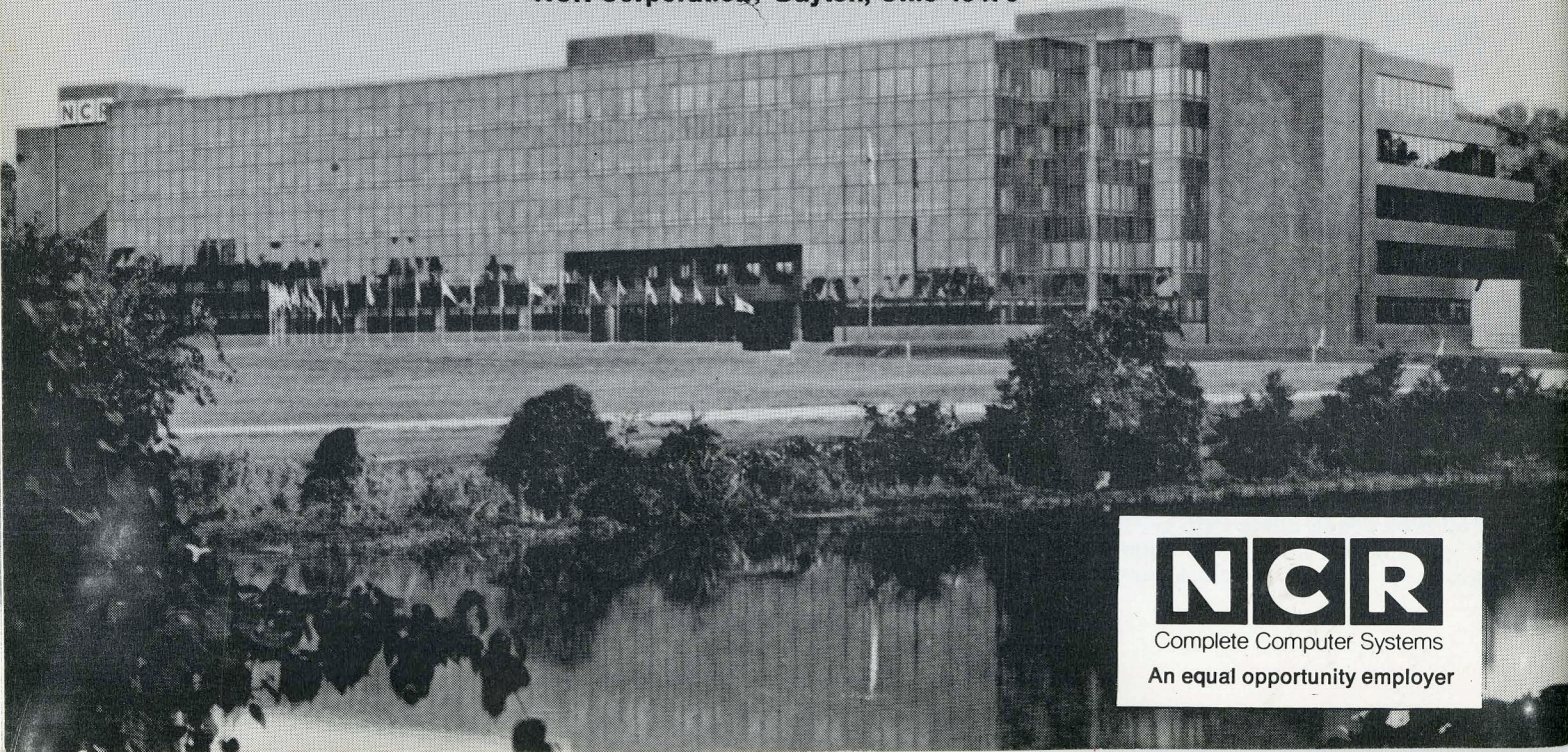
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