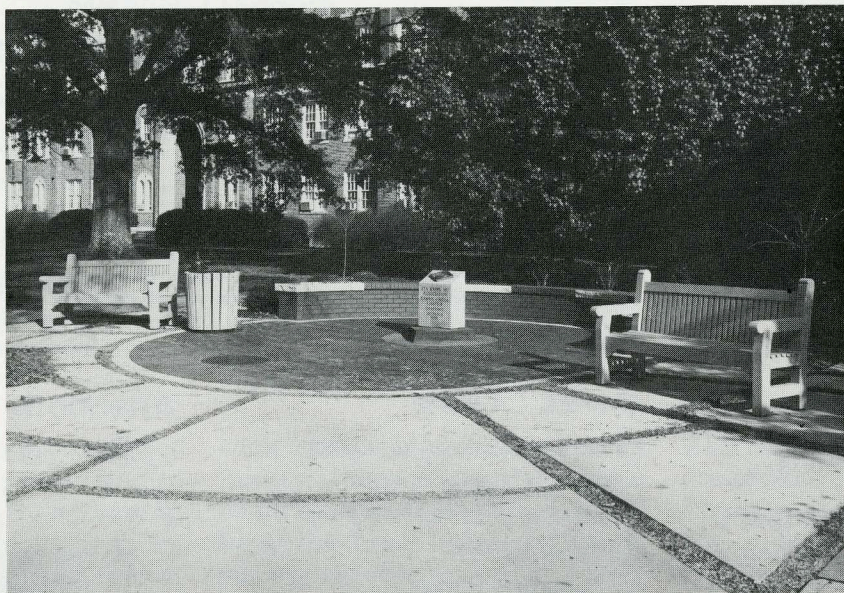
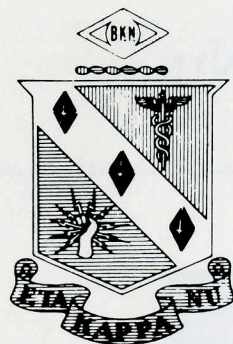


BRIDGE of Eta Kappa Nu



**The Eta Kappa Nu Garden
Gamma Omega Chapter, Mississippi State University**

**Also Featured: Industry Perspectives—How the Corporate Environment is
Changing for Engineers**



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J. Robert Betten

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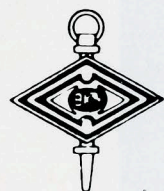
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INDUSTRY PERSPECTIVES

How The Corporate Environment Is Changing For Engineers

by

Michael J. Friduss

Vice President

Customer Sales and Service
Michigan Bell Telephone Company

Editor's Note: This paper is a transcript of the talk entitled "How The Corporate Environment is Changing for Engineers," presented by Mr. Friduss as a representative of Michigan Bell and a volunteer for National Engineering Consortium (NEC) at the June 1991 Meeting of The American Society for Engineering Education in New Orleans. It is printed here with the permission of Mr. Friduss and NEC.



I welcome this opportunity to talk with all of you today and to offer my views on the changing corporate environment as it relates to your engineering curricula. Your invitation prompted two reflections.

One was to remember that I talked with some of you about the subject of Business Ethics in October, 1988 at the National Communications Forum in Chicago; and, to recognize that an enormous amount of change has occurred globally . . . and corporately . . . just since that discussion three years ago.

The pace of change is indeed mind boggling, and it is occurring in an accelerating way as both the rate of change and the amount of change continue to increase. Last year always seems placid compared to this year.

My second reflection was to think back to my graduation in 1964 as an engineer from the Illinois Institute of Technology. Was I ready to enter the business world—to ply my trade? I certainly believe I was.

Did my college education *fully* prepare me for my career in the telecommunications industry? Absolutely not, but I doubt that it was ever intended to provide

such complete preparation. In reality, there is no way that I could have been "fully" prepared for all that has transpired throughout my career.

Think back with me to 1964, my point of reference (although in my industry I suspect these comments would pertain as far forward as 1984, perhaps in some cases as far forward as 1989).

In 1964, the American business agenda was significantly different; and because it was, what our graduates expected, what their potential employers expected, and what was taught in our college classrooms had a different focus than, ideally, it does today.

When it came to our customer, what mattered was whether or not our company had the right product. That was pretty much it. The majority of our engineering talent was focused on making the product . . . or, designing a new product that, hopefully, the customer would buy.

In 1964, the customer was very far removed from our engineering concerns. Most engineering grads were not going into sales or marketing; so, from their perspective, as long as the product "worked" and got to the person

who needed it, that was all that mattered.

Quality was not an issue that was defined the way it is today. Our definition of quality was very narrow. It dealt with internal measures of specific product performance. It had nothing to do with the process of quality or how it might affect the customer.

In the early sixties, it wasn't a matter of whether quality met the six sigma criteria of Motorola . . . at best, quality at that time in my company may have been "1 sigma."

Also in 1964, we had only begun to scratch the surface of technology, particularly in my industry. Many companies were highly skeptical, not understanding the efficiencies technology could bring to their operations, and clearly not understanding the benefits technology could bring to their customers.

Then, business did not think about "cost" the way we do now. Frequently, in our industry we did not think about total cost at all. And when we did, we were really thinking in "cost-plus" terms. That is, our actual cost and what amount we should add to guarantee our profit.

When we wanted to make our ideas work, we generally communicated our expectations in an autocratic, top-down fashion. We were highly structured with clear, rock-solid distinctions between management and labor.

Few of us were enlightened, and even fewer of our employees were empowered to get the job done based on their own intelligence and know how.

In just 27 years, or perhaps even the last 2 or 3 years for my company, just think how much has changed. For today's engineering students, much more matters. Getting a job is frequently difficult—1991 college grads faced the tightest job market since World War II. Also, once hired, the expertise required of engineers is now much greater, much sooner.

Companies such as Michigan Bell, Ameritech, and Northern Telecom must be "picky." Perhaps more than at any time before, we know the specialist expertise and leadership talents we need from each of our employees; and we interview candidates until we find the people we need.

These reflections are at the foundation of four main ideas which I will share with you today; and as I make them, the one overriding observation I want to emphasize is that I do not think my views are unique.

My discussions with business leaders in myriad industries suggest they face similar challenges of success—and even survival.

In fact, recently one of my general managers attended the four week Executive Education Program at the University of Michigan. The seminar had 36 students representing 35 companies from 13 countries.

Commenting on his experiences he said he had "good news and bad news." The good news: The kinds of changes Ameritech and Michigan Bell are making

to become more competitive and to win are right on track. The bad news: Every other company is doing the same thing.

During the past two and a half years, Michigan Bell has embarked on a major initiative to "change" our environment—to change the way we operate, think, act and perform.

Frankly, we had no choice but to do so. After decades of operating as a monopoly—even in the early years after divestiture, the competition started to hit home.

We began to lose market share in nearly all of our product lines. Customer expectations began to significantly change in the areas of price, service and quality.

Big, new competitors entered the fray, as well as small niche players. Also, regulatory and legislative issues, long buried in government bureaucracies, have moved to the forefront of public debate.

Advanced communication technology has become more accessible than ever before... the personal computer, smart phone, fiber optics and digital technology are changing the infrastructure of our world.

Employees now want and need more responsibility and freedom to make responsible decisions at all work levels.

It is not as if we woke up one morning and said "okay, we're bored, let's change." Nor could we point at any one event and say, "that's the crisis that changed our way of doing business."

Rather, all of these events have taken hold at the same time. Their additive effect is really our "crisis." One that has prompted the re-thinking of our business.

Like many other companies, we set a new course for ourselves expressed through a composite mission statement. The eight statements in our mission represent what we expect Michigan Bell and Ameritech to do.

Now granted, it is not all that different from the mission statements of 90 percent of America's competitive leaders. The key for you to understand is the significance our mission has as you prepare our future leaders to enter this brave new world.

Without spending time on every element of the mission, I will touch on four key ideas that will have the most impact on engineers. They are:

- We will provide service to all customers on their terms—and beyond their expectations.
- We will be "the quality people." We will do every job right—the first time—every time—for every customer.
- We will keep our unit costs lower than our competitors.
- Every employee will be empowered to make decisions with confidence and authority that are in the best interests of customers.

Now consider each of these observations as they relate to the engineer.

First: we will provide service to all customers on their terms—and beyond their expectations. For more than a century, we defined customer service as any monopoly would... we wanted to meet the expectations of our customers just enough to prevent the customer from complaining to the commerce commission.

However, competition now demands that in the '90s and beyond, exceeding expectations is the key. Competition has forever changed our relationship with the customer... and, the equation for success has been redefined.

Today, just meeting customer expectations does not provide any competitive advantage. What really matters is who does the best job of exceeding customer expectations... as well as who exceeds them the most. Exceed-

ing them requires that we really understand the expectations.

One study conducted earlier this year gave us some added insight. It attempted to parallel customer perceptions of service with those of the employees who had just provided them with repair or installation services.

Basically, we looked at two categories... those we called "service drivers" and those we called "personal drivers." Service drivers were such issues as doing what we said we would do, on time scheduled delivery or doing the job right the first time. Personal drivers had to do with such things as how helpful, knowledgeable or professional the employee had been.

What we found was that if we just attended to the traditional "service drivers"... customers would perceive that we "met" their expectations. Doing better on service drivers would not move customers from met to exceeded. However, if the personal drivers were there too... then, the customer was more likely to indicate that we exceeded their expectations.

That research underscored for us just how important contact employees are when it comes to customers' perceptions of satisfaction.

What does this mean for the engineer? For one thing, it is absolutely critical that our engineers design processes and systems that allow frontline employees to provide service that exceeds customer expectations. The customer must be paramount. No system, no process can get in the way of satisfying the customers' needs.

For example, our facilities and our provisioning systems force us to offer installation commitments of 2 weeks for some services. Yet, we have competitors who can deliver the same capabilities within 5 days or less.

That means if we want to be better than the other guy,—if we want to win—we need to find ways to improve our intervals... to do the same quality job in 3 days, for example.

Engineers are the ones who need to anticipate and plan for these changed expectations. At the same time, engineers need to learn even more about the customers.

As part of their orientation training, Electronic Data Systems (E.D.S.) follows a policy that requires new employees to work at its customers' actual facilities for 12-18 months... before beginning their regular assignments, including engineering assignments at E.D.S. Clearly engineers need to feel as comfortable dealing with customers as they do with fellow engineers.

This connection with the customer, reaffirms another important point. In a competitive environment, the customers' expectations will forever increase. Combined with a corporate objective of exceeding those expectations, a never ending cycle of continuous improvement has begun. And that means we must really know the customer and make continuous improvements if we want to win.

Continuous improvement has everything to do with quality, which is the second main idea from our mission that I want to address. Our mission says: We will be "the quality people." We will do every job right—the first time—every time—for every customer.

I will be among the first to admit that "quality" is one of those words that is being thrown around a lot these days. When I speak of quality, I am talking about a systematic, comprehensive leadership approach for our entire company. For us, it is a transformation of the way business is done. And, though we are

off to a great start, it will take us years just to get into the mainstream.

It requires that we identify the customer expectations and establish corporate policy. Our definition of quality insists that we introduce new products and services and that we continuously improve our work processes.

Four principles guide our quality efforts...

- Respect people;
- Put the customer first;
- Manage by fact, not by position;
- And "plan-do-check-act," or in other words, plan what to do. Do it. Check what we did. Act to prevent error or to improve the process, (standardize).

When it comes to quality, frankly we are behind where we should be. We need to be more comfortable and skilled at implementing the continuous improvement process. We need to be better at quality measurement... to be more aware of our strengths and weaknesses from the customers' viewpoint.

That is one way in which engineers can really help us. Within the curriculum, engineers must be learning statistical quality measurements... and be able to apply that knowledge in meaningful ways.

Quality also requires that we build better, more efficient and virtually "human-proof," defect-free facilities. For example: Today, we average 30 troubles per 100 customers per year. By the year 2,000, we think we will need to reduce that figure to no more than 12, perhaps even less. When the network does fail, back up systems, transparent to the customer, must kick in.

Actually, from a quality standpoint, customer expectations will demand a fail-safe performance level, and from a financial standpoint it is important to our success. Another lesson we are learn-

ing is that a side benefit of quality is that it lowers our overall cost of doing business. It is in our financial interest to do it right the first time.

And that leads us to the third element of our mission: We will keep our unit costs lower than our competitors, because, as we see it, there are only two strategies that can cause a company to succeed in a competitive marketplace.

One is to offer a product that is truly differentiated and distinct from the rest. Then people buy what you have to offer and pay what you ask because they cannot get it anywhere else. Companies with products such as these are hard to come by . . . Walt Disney Productions with Disneyworld and Disneyland had it for a while, but today even they have formidable competitors. Also, 3M's "sticky note" product line comes close, but they too have imitators. So, 3M keeps improving, offering more variety to further differentiate their product from the rest.

Unfortunately, the product differentiation strategy is not one we can depend on for success, because we are not that unique. That is where the second alternative comes in . . . it has to do with unit cost.

As you know, unit cost equals total cost divided by volume. The lower our unit cost, the higher our margins or the better our ability to lower our prices. The company with the low unit cost will not necessarily win, but the company with a high unit cost will most certainly lose.

To lower unit costs, we know we need to either decrease our total cost or increase the volume or both; and we know that we have devoted too much attention to decreasing the cost and not enough to increasing the volume—or sales.

Now, sales is a territory engineers rarely thought about when I was in school; and, if we ever thought about cost at all, it was in terms of "low cost" which for us equated with "low quality."

For Michigan Bell, lowering unit costs is essential to competitive survival. Historically, the people of Michigan Bell have been very good total "cost" managers. But that's not good enough anymore.

In the past three years, we have significantly reduced the size of our work force. We have reduced management by 40%. We eliminated 50% of our staff. We have increased the application of technology when it has made sense to do so. And we have just quit doing some things that were not cost justified.

But we know those steps alone won't lower unit costs. Rather, unit costs will only decrease in a significant way when we increase volume. We want to use the majority of our energy in endeavors that generate revenue. If we sell more units, we lower the cost of each unit.

So we have really stepped-up our efforts to stimulate network usage, our core product and competence. For engineers, that means discovering ways to further enhance network connectivity and efficiency.

The final element of our mission that has implications for the engineer is: "Every employee will be empowered to make decisions with confidence and authority that are in the best interests of the customers."

Just a few years ago, the front line employees of our business worked in groups with spans of control in the range of 5-7 employees. Today, the work groups are bigger . . . 15 and higher. Some of our self-directed teams number up to 70.

In the middle of the business—within management—the span has been in the 4-6 range. Now it

is in the 10-12 range and headed upward.

Today, each engineer has a broader span of control than any time in the history of our business. They find themselves in much larger groups, under less supervision. And there are fewer layers between the engineer and the president.

Some would say we have turned our organization upside down, putting more power in the hands of those closest to the customer and the real decisions that need to be made.

And this process has just begun. A recent issue of *Fortune* discusses a new type of organization—termed the adaptive organization. The article suggests that: "If you were to ask a CEO in the year 2000 to take out his pen and draw the organization chart of his company, what he'd sketch would bear little resemblance to even the trendiest flattened pyramid around today."

It goes on: "Picture one of those overhead camera shots in a *Busby Berkeley Musical Musical*: Dozens of leggy dancers form a flower on stage, disband into chaos, and then regroup to form a flag or a fluegelhorn. Like the dancers, in tomorrow's corporation teams variously composed of shopfloor workers, managers, technical experts, suppliers, and customers will join together to do a job and then disband with everyone going off to the next assignment."

"Call this new model the adaptive organization."

Additionally, at Michigan Bell, we have de-emphasized the notion of "management," preferring to focus on the importance of leadership. In fact, we no longer refer to our work force as consisting of "management" and "non-management" employees. The distinction is irrelevant to quality customer service.

All this change has meant that as leaders, we have moved from being brilliant experts, to humble students ourselves. Rather than living in our own separated worlds, we are all operating in a more "cross-functional" manner.

More and more, we are recognizing the value of being a generalist rather than a specialist.

We are also learning that it is more important to focus on the processes and systems we use, rather than just on persons or functions that do particular jobs . . . or just on results that can be tallied-up at the end of the month.

The observations I have shared with you today, lead to the following conclusions:

- Change is the name of the game. The engineers of today and tomorrow need to be ready to adjust to, embrace and even encourage the change.
- The engineering curricula within each of our colleges and universities need to equip future engineers for that challenge.
- Engineers, in fact all future leaders of American business, must understand the essential components of a quality culture and specifically how to use this information as a blueprint for transforming America.

• Engineers need to see the changes required in traditional relationships between the consumer and the producer, the customer and the supplier, the union and management, the worker and the "boss."

• Engineers have to learn up front—before they enter the work place—the value of: collaboration instead of competition; focusing on improving work processes instead of just blaming people; teamwork and the role of appropriate reward systems that motivate team behavior instead of just individuality.

• Engineers have to be prepared for leadership—not just engineering competence.

• To find examples of specific courses, go to any of the corporations that have recently won the Malcolm Baldrige award and ask for their quality training curriculum. They have trained their work force in areas where educational institutions have not traditionally gone.

To oversimplify, let me recall a recent interview with Wayne Calloway, the CEO of Pepsico . . . his 3-pronged advice on winning bears repeating today . . . he said you must do three things:

- Love change

• Learn to dance—meaning be flexible and able to respond deftly in the most unexpected of circumstances

• And leave J. Edgar Hoover behind.

You see, J. Edgar Hoover was the consummate micro-manager. When he was at the helm of the F.B.I., he even wrote notes on reports that commented on the width of margins used by his subordinates. The story goes that at one time upon reading a report with the inappropriate amount of white space, he scrawled, "watch the borders." And for six months thereafter swarms of F.B.I. agents were posted along the boundaries between the United States and Canada and Mexico.

These are not times for "watching the borders." Whatever can be done to equip engineers for the turbulence of the competitive marketplace . . . while ensuring their technical knowledge remains first rate . . . will be of enormous value to many businesses as well as to your graduates.

Those are my thoughts in response to your invitation to speak to you today. I hope they will be helpful in the deliberations which you make as you continually upgrade your engineering curricula. Thank you and good luck!

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TRACEY WALLEN

WINS

NORMAN R. CARSON AWARD

AS

OUTSTANDING EE JUNIOR

by Mike Schoenfelder



Tracey Wallen

Each year Eta Kappa Nu honors a junior in electrical engineering for his or her leadership abilities, scholastic and technical achievements, and service contributions. This award, the Norman R. Carson Outstanding Electrical Engineering Junior Award, was established by Mr. and Mrs. Carson to recognize the student's ability to lead, persuade, and influence the actions of others, as well as to recognize his or her diligence, intelligence, and technical competence. The Lone Star HKN Alumni Chapter of Austin, Texas, administers this award and received many, many outstanding applications. After a long night of careful

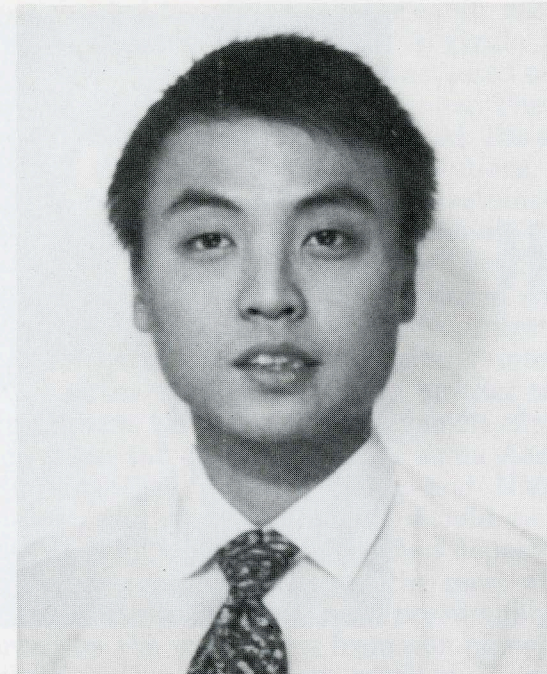
consideration and tough choices, a winner, two runners-up, and three honorable mentions were selected. The winner of the 1990-91 award is Tracey Lynn Wallen (Delta Pi Chapter, Colorado State University).

Runners-up were Chi Chao Chang (Gamma Iota Chapter, University of Kansas) and Denise Michelle Rocca (Beta Omicron Chapter, Marquette University). Elijah Porter II (Zeta Lambda, Prairie View A&M), Anil V. Narwani (Epsilon Kappa, University of Miami), and Paul D. Anderson (Epsilon Rho, Tennessee Technological University) received honorable mentions.

Tracey Wallen is a prime example of the type of student that the Norman R. Carson award was designed to honor. Not only does she combine wide-ranging leadership roles with strong academics, she mobilizes her talents to help those around her. According to Dr. Jorge Aunon, Head of the CSU Department of Electrical Engineering, "Tracey is a bright, hard working student who has shown admirable talent as an electrical engineering student."

Tracey has organized or participated in numerous service activities in several organizations while maintaining a 3.8/4.0 GPA. In Eta Kappa Nu, where she held the Corresponding Secretary position, Tracey was a member of the Adopt-A-Highway Committee, collected coupons for Ft. Collins' homeless, and worked on two Public Service Company projects. The first project involved compiling a library of research on the effects of low frequency electromagnetic waves on humans. The second project consisted of the programming, design, and interfacing of a mechanical bicycle with a computer graphics system.

In Tau Beta Pi she was Chairman of the Service Committee, and in the Sophomore Spurs Honor Society, she repaired old toys for Christmas presents to needy children. As Vice President of IEEE Tracey oversaw all the committees in addition to organizing a Thanksgiving food drive, coordinating departmental technical seminars, and planning the 1991 Student Professional Awareness Conference (S-PAC). She is also a member



Chi Chao Chang

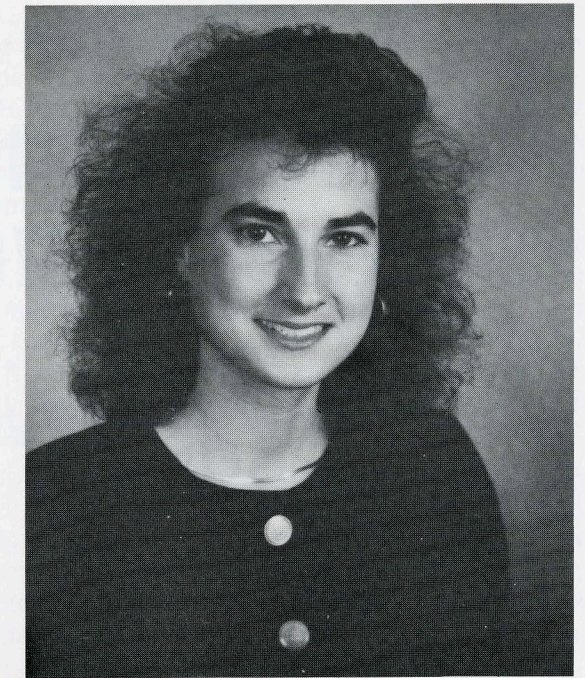
of the Society of Women Engineers, Alpha Lambda Delta, and Phi Eta Sigma.

Tracey serves on the EE Department Undergraduate Curriculum Committee where she helped design a new undergraduate brochure. As College of Engineering Tutor Coordinator, she was responsible for the organization of all College of Engineering Tutors as well as serving as primary EE tutor herself. "Because of her excellent scholastic background and her ability to work well with students," Dr. Aunon selected her as 1991-92 EE Engineering Peer Advisor.

Tracey is currently a Senior Research Assistant at CSU and over the last several years has held numerous summer and part-time jobs. She has received an Outstanding Achievement Award in Foreign Language (German) and various national piano awards. In her spare time, Tracey participates in football, volleyball, water polo, bridge, tennis, swimming, golf, skiing, and camping.

In his recommendation letter, Dr. Aunon writes, "As you can see by both her scholastic and personal achievements, Tracey is truly an exceptional person deserving of such recognition as the Norman R. Carson Award for Outstanding Electrical Engineering Junior." The Lone Star HKN Alumni Chapter wholeheartedly agrees. Congratulations Tracey!

Chi Chao Chang, runner-up for the Carson Award, has kept a perfect GPA of 4.0 while serving as Corresponding Secretary of HKN, Vice-President of IEEE, Treasurer of the Luso-Brazilian Students Association (LBSA), co-founder of the KU Ping Pong Association, and Captain of the LBSA soccer team. Since being selected for HKN membership, Chi Chao participated in several departmental and community service projects. He is also a member of Golden Key Honor Society



Denise Rocca

and has been elected to Mortar Board College Senior Honor Society. During 1991-92 he will serve as Chairman of the HKN EE project for the annual Kansas University Engineering Exposition and as Cataloguer for Tau Beta Pi.

During his junior year, Chi Chao was a Resident Assistant for KU Student Housing and received a Certificate of Appreciation for his outstanding service. He has worked on two technical projects, "A Study of DSP Models for Queueing Networks," and "Intelligent Sea-Ice Classification," a NASA sponsored project. After graduation, Chi Chao plans to pursue a MSEE followed by a PhD. His specific research interests are remote sensing and control systems.

Denise Rocca, also runner-up, has a 3.9 GPA. She served in several official positions for Alpha Omega Epsilon, a social engineering sorority. In Tau Beta Pi, she was Chairperson of the Entertainment Committee for Spring 1991, tutored once a week, and was elected Vice President for 1991-92. Also, Denise is serving as Vice President of the Alpha Sigma Nu Jesuit Honor Society and as President of the Engineering Knights Honorary Organization during 1991-92. She has won College of Engineering Outstanding Student awards as well as several scholarships in both her freshman and sophomore years. As part of her General Motors Scholarship, Denise worked as a summer intern at Delco Electronics where she developed cost of ownership models for the purchasing department. She has also worked in the Mayo Clinic Radiology Department and has tutored high school students in mathematics. For relaxation, Denise plays in the Marquette University Orchestra and participates in intramural basketball and volleyball. She hopes to pursue her interests in design and quality assurance in either graduate school or industry.

Anecdote: A NIGHT IN MINERALNE VODEH

by
George W. Swenson, Jr.
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Editor's Note: Dr. George W. Swenson, Jr. is Professor Emeritus of Electrical Engineering and Astronomy at The University of Illinois-Urbana.

The National Academy of Sciences had sent me to examine the world's largest optical astronomical instrument, as part of a cultural exchange program with the Academy of Sciences of the U.S.S.R. It was 1976, and though the giant 6-meter reflecting telescope had been erected on a Caucasus mountaintop a year or so earlier, little had been heard in the West of its performance characteristics.

I left the Academy delegation in Moscow, and headed for the mountains of southern Russia, attended by a retinue including my wife, Janice, interpreter Natasha from Moscow and interpreter Alan from Washington. I felt like a celebrity. While two interpreters seemed a bit like expensive overkill, we were grateful for their expertise and their unfailing good humor in the face of provocation. Alan and Natasha quickly became good friends. They had several languages in common and were constantly joking and chatting in one or another of them. Janice and I privately referred to them as the Katzenjammer Kids.

Our route took us by air from Moscow to the regional airport of the north Caucasus, Mineralne Vodeh (Mineral Waters), thence by car many hours through the night to the observatory near the village of Zelenchukskaya. The official visit occurred as scheduled, though not quite with the expected outcome; perhaps that would be worth another reminiscent yarn or two, eventually. In any case, after a couple of days we reversed

course, driving back to Mineralne Vodeh to be ushered to our seats in the plane ahead of the other passengers. American visitors were clearly few in this remote provincial center and we received special treatment. In part this may have been because we carried credentials from the prestigious Akademia Nauk (Academy of Science); in part because the authorities wished to isolate us from the other passengers.

We reached the air terminal in early evening, elbowing our way through a dense crowd in the huge waiting room. Apparently there was very bad weather to the north, and crowds of passengers were delayed at this junction of many air routes. And what crowds! The huge hall, the size of two basketball courts, was packed with colorful people from several republics. Every seat was occupied and every square foot of floor filled with a sitting or recumbent figure. Families in exotic dress, probably from Central Asia, brewed tea over alcohol stoves or slept on quilted mats. The people were obviously uncomfortable, and there was a loud background of querulous voices.

We were heading east to Baku on the Caspian Sea, and the storm apparently was not expected to delay our flight. Our escort, an official of the airline, hustled us along and installed us in our seats in the plane. Use of seat belts was optional, so it seemed. In any case, mine was broken and useless. After perhaps ten or fifteen minutes our fellow passengers began to file in, amidst much discussion about who should sit where. It all took another twenty minutes, or so. There was no ventilation and the air quickly became depleted of oxygen. Finally the door slammed shut, the stew-

ardess shouted something into the cabin, and one propeller began slowly to turn. A giggle from Natasha in the row behind us punctuated one of Alan's quips in Bulgarian or something. The propeller turned deliberately, then stopped. The other propeller then turned a few revolutions, and slowed to rest in discouragement. Something was obviously wrong, but there was no announcement. The minutes dragged by as we gasped for breath. After a seeming eternity, men appeared on the wings and removed the cowlings from first one engine, then the other. Much poking into the innards of the power plants, then another try at starting them. No luck. I felt ready to die of suffocation when the door opened, the same Aeroflot official marched into the cabin, and Natasha translated the message that we should remain seated until all other passengers had departed.

We were ushered through the mass of humanity in the main hall, now presumably reinforced by the passengers from our plane, and eventually through a door marked "Intourist Center." There was a large room, empty of people but brilliantly lighted, containing perhaps eight or ten desks for officials and clerks, a couple of couches, and doors indicating "men" and "women." At the far end of this room was another door which led into a spacious lounge furnished with couches, card tables, magazine racks, and radios, accommodating perhaps fifty people comfortably. This room, too, was empty of people. This was the facility occupied by "Intourist," the Soviet international tourist agency. Our host indicated that this entire two-room suite was ours for the night. I thought we should be quite comfortable; we had our overcoats and the couches were large and soft.

I later learned that a conversation had taken place between the official and the Katzenjammer Kids. He was worried that the mob outside would penetrate our sanctum, so he wanted to lock us in.

The Kids objected. There was only one key; fire was a danger (those alcohol stoves); nobody wants to be locked in. So he relented and the door to the suite was locked from the inside. During the night there was some banging on the door, presumably from frustrated folks in the overcrowded waiting room, but this was ignored.

The Kids insisted that Janice and I occupy the inner lounge while they stayed in the outer reception area, so we two picked couches, turned out the lamps, and lay down under our coats. As I drifted off, I heard chuckling from outside from still another joke, in what language I couldn't guess.

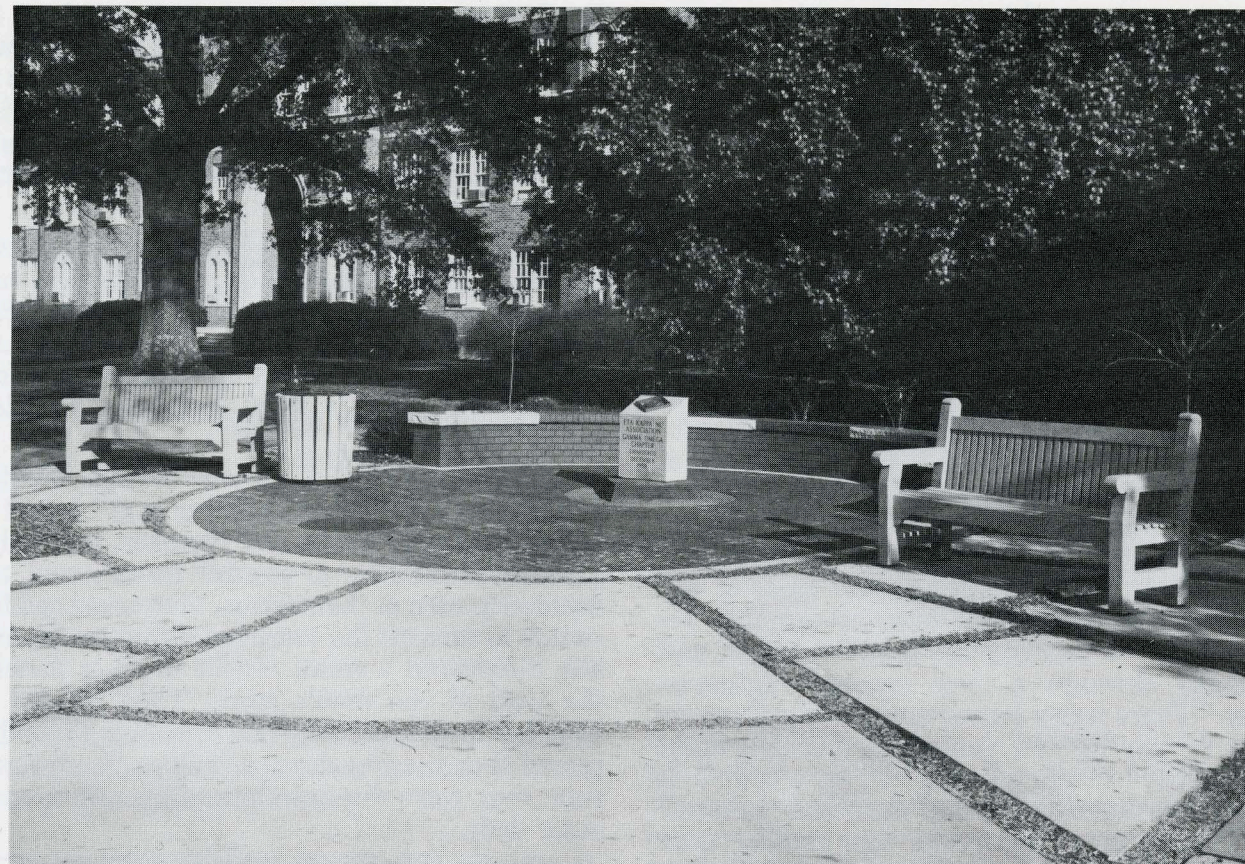
The night passed without further incident, and it wasn't until next morning that I heard the following story. Alan and Natasha had talked together for an hour or so after we'd retired, then decided to turn in themselves. They searched for a switch to turn off the overhead lights, and eventually discovered a small circuit breaker panel on the wall of the men's room. They flipped the switches until all the lights were out in their "bed-room," then they lay down and slept. From time to time they were dimly aware of pounding on the outer door.

Imagine the pandemonium in the great hall when the packed crowd found itself suddenly in total darkness. Imagine the frustration of the airport manager when all his frantic signals brought no response from behind the locked door. All the lights in the huge terminal building remained out for several hours until one of the interpreters finally unlocked the door.

I wondered at the manager's rather glum demeanor as he escorted us to our plane the next morning. This time we were to depart successfully toward Baku. Presumably he was relieved to see us go.

History of the Minimum Wage

Oct. 1937	\$.25	Sept. 1963	\$1.25	Jan. 1978	\$2.65
Oct. 1939	\$.30	Feb. 1967	\$1.40	Jan. 1979	\$2.90
Oct. 1945	\$.40	Feb. 1968	\$1.60	Jan. 1980	\$3.10
Jan. 1950	\$.75	May 1974	\$2.00	Jan. 1981	\$3.35
March 1956	\$1.00	Jan. 1975	\$2.10	April 1990	\$3.80
Sept. 1961	\$1.15	Jan. 1976	\$2.30	April 1991	\$4.25



Dedication of the Eta Kappa Nu Garden at Mississippi State University

by
Greg Dykes

The Gamma Omega chapter of Eta Kappa Nu at Mississippi State University held a dedication ceremony on October 25, 1991 recognizing the project completion of our Eta Kappa Nu monument and surrounding garden. The garden, composed of the monument, park benches, and flowers, adjoins the northwest corner of the Simrall Electrical Engineering Building. Gamma Omega was honored to have Dr. J. Robert Betten, Executive Secretary of The Eta Kappa Nu Association, as our very special guest.

The history of Eta Kappa Nu at Mississippi State University began on May 15, 1958, at what was then the Mississippi State College. On December 10, 1959, the Gamma Omega Chapter of Eta Kappa Nu was chartered at MSU and accepted into national membership. Today 120 excelling students and faculty are active members in the chapter.

The garden dedication was preceded the night before with Gamma Omega's semi-annual new member formal initiation. With faculty advisor



Photos: At Top, Monument is Centerpiece of HKN Garden; at Bottom, A few members of the dedication party gathered at the Monument.



HKN Members, new initiates, faculty, administrators and guests assemble en route' to Gamma Omega's Fall 1991 Initiation Banquet.

Stan Gryzbowski welcoming our guests and initiates, chapter president Ahmad Haque and officers conducted the formal induction of eleven undergraduates, four graduates, and two faculty members.

Afterward, Gamma Omega's new members, officers of the chapter, and special guests were invited to the traditional post-initiation banquet. Executive Secretary Betten was the featured speaker. He honored Professor Emeritus Paul B. Jacob with a plaque of recognition for his long term dedication and previous activity in HKN which included his service as International Vice President and President of the Eta Kappa Nu Association. Dr. Betten also took time to congratulate Dr. B. J. Ball, Head of the Electrical and Computer Engineering Department at MSU, for his recent election to the International Board of Directors and to thank him for his previous activity and current service to Eta Kappa Nu.

The dedication ceremony, which was held in the Eta Kappa Nu garden, consisted of a ribbon cutting and comments from our special guests. The ribbon cutting was jointly conducted by Dr. Betten; Dr. Ball; Professor Jacob, co-organizer of the Gamma Omega chapter of Eta Kappa Nu at

MSU; Dr. R. A. Altenkirch, Dean of the College of Engineering at MSU; and Dr. W. L. McDaniel, Provost and Vice President of Academic Affairs at MSU. The open ceremony was attended by students, faculty, and representatives of the University Administration.

Also in attendance at the dedication ceremony were the following special guests: Dr. R. H. Ruby, Vice President for Student Affairs; Dr. R. D. Koshel, Dean of the Graduate School; Dr. W. N. Smyer, Assistant Dean of the College of Engineering; Dr. J. C. McKee, Vice President Emeritus for Research and Graduate Studies at MSU and head of the EE department when our chapter was established; Dr. H. C. F. Simrall, Dean Emeritus of the College of Engineering; Dr. J. L. Dodd and Mr. L. J. Hill, charter members of the Gamma Omega chapter; and Mr. K. L. Ledlow, first member initiated into Eta Kappa Nu on the MSU campus.

The dedication ceremony of the Eta Kappa Nu garden created a great opportunity for the present members of the Gamma Omega chapter to associate with their chapter founders, garden organizers, and National representatives.



Photos: At Top, A Commemorative Plaque honoring the long time dedicated service of Professor Paul B. Jacob to HKN as traveling ambassador, BOARD member, International Vice President and President is presented by Dr. J. Robert Betten, HKN Executive Secretary; At Bottom, the dedication party surrounding the Monument in the Eta Kappa Nu Garden.

Kappa Beta Chapter Installed Wilkes University

by
Robert F. Arehart and Michael Miller



Since the early nineteen thirties, Wilkes University has grown from a two-year junior college to a full four-year college, and now it has become a multidisciplinary university offering the necessary quality and variety of curricula required to achieve university status. This was the fascinating story that unfolded as Mr. Joseph Wiendl, a member of the University's Board of Trustees, spoke to the new initiates and guests at the installation of HKN's newest chapter, Kappa Beta. The chapter was installed at Wilkes University in the Media Room of the Marts Center on December 6, 1991. It is the first engineering honor society on the Wilkes campus.

Although at Wilkes a relatively short time, Professor Kirk Bush saw the need for an HKN chapter on campus and was the driving force behind establishing the Kappa Beta Chapter. The initiation ritual was conducted by James D'Arcy, the current National President; Robert Arehart, immediate past National President; Dr. Kirk Bush, who will serve as the Chapter Faculty Advisor; and Timothy Sichler, a visiting Assistant Professor at Wilkes. Six faculty members and thirteen students were inducted into the newly formed

chapter as charter members.

The first chapter Officers are:

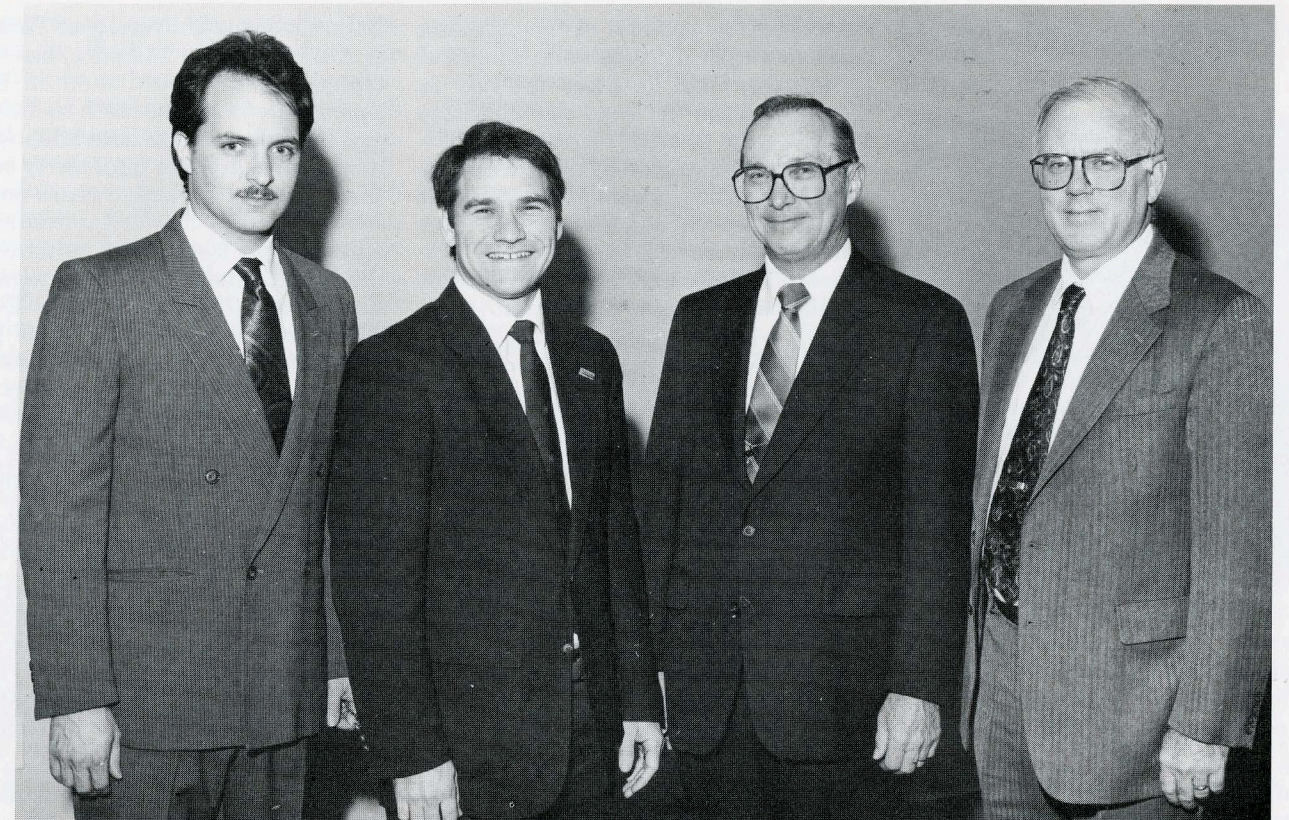
Jeff Webster, President and
Recording Secretary
Kimberly Karrott, Vice President and
Treasurer
Michael Miller, Corresponding Secretary and
Bridge Correspondent
Dr. Kirk Bush, Faculty Advisor

The other undergraduate initiates are:

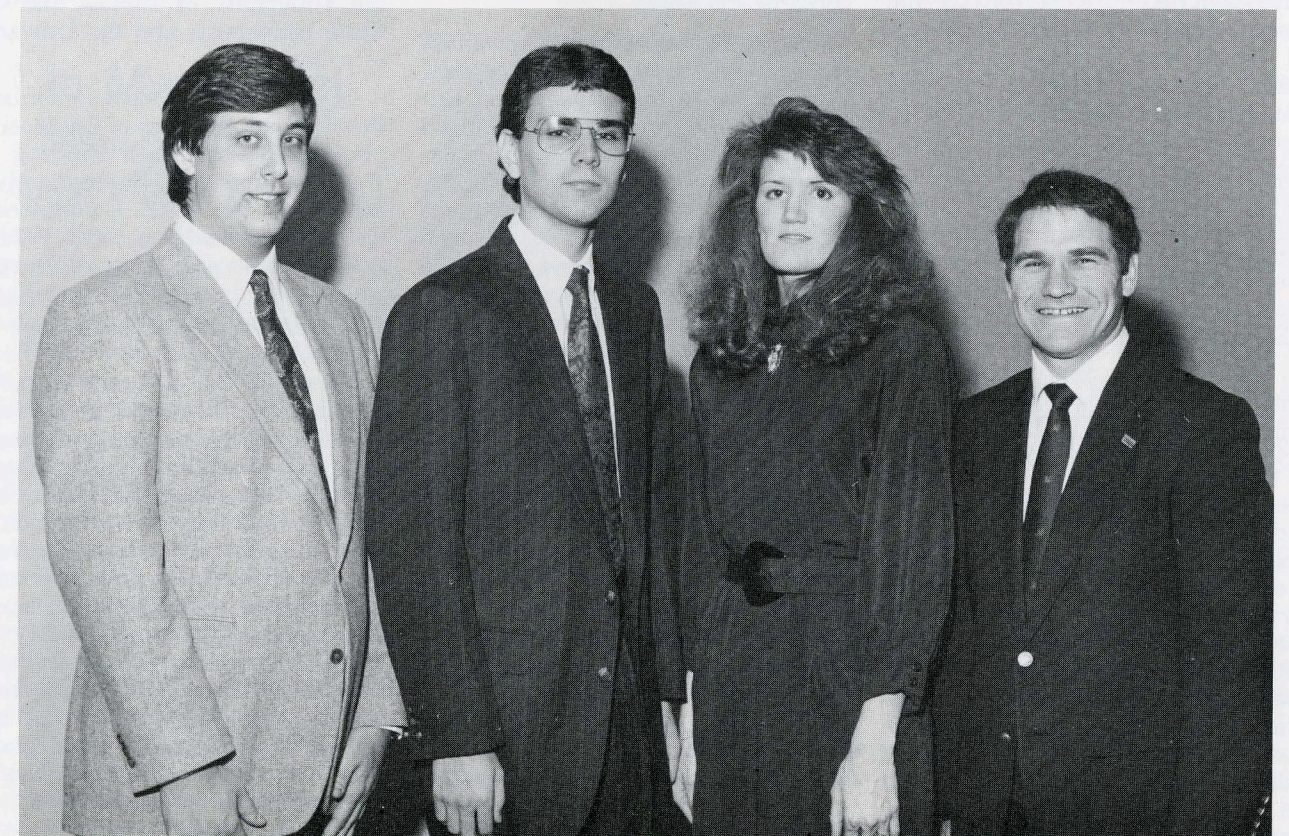
Dennis Dudeck	Paul Ritchie
Tom Dugan	Vince Socci
Robert Kapuschinsky	Charles Stanski
Stephen Pasich	Brent Trauger
Dennis Rauschmayer	John Zukas

The faculty initiates are:

Dr. Munawar Ahmad
Dr. Ahmad Armand
Dr. Vasu Choudhry
Dr. John Gilmer, Jr.
Timothy Sichler
Dr. Thyagarajan Srinivasan



The Installing Officers: From left, Timothy Sichler, Kirk Bush, Robert Arehart and James D'Arcy.



New Chapter Officers: From left, Michael Miller, Jeff Webster, Kimberly Karrott and Kirk Bush.

In Memoriam



Edward C. Jordan

Dec. 31, 1910 - Oct. 18, 1991

Edward C. Jordan, Professor Emeritus of Electrical Engineering at the University of Illinois at Urbana-Champaign, died at Urbana after a short illness on October 18, 1991. He was 80.

He spent his entire life from the age of seventeen in the practice of electrical engineering, having served successfully through the whole gamut of roles from radio broadcast technician through engineering student, industrial engineer, professor, researcher, administrator, author, editor, and consultant to government and industries over a span of six decades. His accomplishments have been recognized by numerous awards and offices.

Born in Edmonton, Alberta, Canada on December 31, 1910, he attended the public schools of that city and was graduated by Victoria High School in 1927. The following year he enrolled in the University of Alberta in the Electrical Engineering Department, and obtained a position as Control Operator in the university's radio broadcasting station, CKUA. He served in that position until 1935, supporting himself while he earned BSEE and MSEE degrees in 1934 and 1936. His first electronic development project was a pioneering automatic gain control system which provided a 30 decibel compression ratio for the radio station's studio audio system. Upon receiving his master's degree, he sought a position in the electronic industry; however, the depression limited his options so he

accepted a position as an electric power engineer in the nickel mines of Sudbury, Ontario. After one year in this situation he went to Ohio State University to study for a Ph.D. Although handicapped by impaired hearing, for which he designed and built his own hearing aid, he won the degree in 1940 for a thesis supervised by Professor William L. Everitt, who became a lifelong colleague and friend.

Dr. Jordan then spent a year teaching at Worcester Polytechnic Institute, after which he returned to Ohio State to join the electrical engineering faculty. In 1943, Everitt was called to war service in Washington, whereupon Jordan assumed the entire burden of electrical communications and electromagnetic theory courses including the developing field of microwave technology. During this period he initiated his successful career as a textbook author, collaborating with Everitt and others on *Principles of Radio* (Prentice-Hall, New York, 1942) and starting work on *Electromagnetic Waves and Radiating Systems* (Prentice-Hall, New York, 1950). In addition, he collaborated with George Sinclair on the measurement of aircraft antenna patterns by modeling.

In 1945, W. L. Everitt was appointed Head of the Department of Electrical Engineering at the University of Illinois (Urbana-Champaign campus) and Jordan joined the department as Associate Professor. As part of Everitt's mandate to develop the Department into a leading teaching and research institution, Jordan founded the Radio Direction Finding Research Laboratory. He later assumed leadership of the Antenna Research Laboratory as well. He continued with a regular load of classroom teaching and thesis supervision, also, until 1954 when he became Head of the Department. At that time he exchanged his career as a classroom teacher and hands-on researcher for that of an academic administrator, leading his department through revolutionary changes over the next twenty-five years.

Probably his best-known work was the textbook *Electromagnetic Waves and Radiating Systems*, first published in 1950, which has influenced electrical engineering seniors and graduate students for forty years. It was reprinted many times over the next sixteen years, and in 1968 an extensively revised second edition was published, co-authored with Professor Keith G.

Balmain of the University of Toronto. It still has a wide audience, has been translated and published in both Spanish and Chinese (both in Taiwan and Beijing), and has been adopted by universities in more than thirty countries. During his active years on the Illinois faculty Edward Jordan also edited major symposium volumes for the IEEE Antennas and Propagation Society and The International Union of Radio Science (URSI), and published many review papers on antennas, electromagnetics, electronics and electrical engineering education.

Edward Jordan was elected a Fellow of the Institute of Radio Engineers, later the Institute of Electrical and Electronics Engineers (IEEE), in 1953. In subsequent years he was awarded Honorary Life Membership by the IEEE Antennas and Propagation Society, and other IEEE awards including the Education Medal (1968) and the Centennial Medal (1984). He served in several IEEE national offices and committees.

In 1974, he was elected an Eminent Member of Eta Kappa Nu, and through the years he was honored for his professional accomplishments by the University of Illinois, the Ohio State University, and the University of Alberta.

In 1967 he was elected a member of the National Academy of Engineering, "For Radio Direction Finding and Antenna Research." Subsequently, he served on the NAE Committee on Telecommunications until 1974, as well as on several other ad hoc committees and panels dealing with telecommunications techniques and policy.

He was in demand as a consultant to industry, government and universities. Over the years he served on advisory boards and panels of the Department of Defense, the U.S. Air Force, the National Science Foundation, the Institute of Electrical and Electronics Engineers, the International Scientific Radio Union, Penn State University, University of California, M.I.T., University of Houston, Purdue University, and, of course, the National Academy of Engineering. In these voluntary public service duties he became widely traveled throughout the world and was reinforced in his stature as a world leader in his profession.

During his 25 years as Head of the Illinois Electrical Engineering Depart-

ment it continued the evolution initiated by William Everitt from an institution primarily devoted to undergraduate teaching to a major research and graduate teaching organization. The state government of Illinois budgets few resources for research and graduate study. At the same time, during the Jordan administration the nation demanded of its universities much greater emphasis on advanced technical education and research, mainly in response to the perceived imperatives of the Cold War and the challenge posed by the launching by the Soviet Union of the first artificial earth satellites. Resources were provided mainly in the form of research grants and contracts from Federal agencies, which supported salaries for faculty and graduate students, equipment acquisitions, and (through "indirect cost" allowances) infrastructure improvements. Dr. Jordan managed these opportunities skillfully and wisely, recruiting an outstanding faculty and encouraging new initiatives in promising research directions,

always with primary emphasis on quality. The result by the time of his retirement in 1979 was the country's largest department of electrical engineering (100 professors, not including computer science) consistently ranked among the top four in surveys of quality of research and graduate education. At the same time, the department was producing annually the country's largest number of combined undergraduate and graduate electrical engineering degrees. During his term as Head, Jordan signed over 600 E.E. Ph.D. theses at Illinois.

Upon his retirement he was asked by the Howard Sams Co. to act as Editor-in-Chief of the Seventh Edition of the classical IT&T electronics handbook, *Reference Data for Radio Engineers*, a task that occupied much of his time until 1985. The handbook was renamed *Reference Data for Engineers: Radio, Electronics, Computer and Communications* to reflect the rapid evolution of the profession since the Sixth Edition in 1968. The book contains 48 chapters and 1,360

pages. At the time of his death he was engaged in preliminary work on the Eighth Edition.

Professor Jordan was the son of Conrad and Erna Penk Jordan. He married Mary Helen Walker in September 1941, in Edmonton. She died June 1, 1986, in Urbana. He later married Caroline W. Egbert, who survives.

Also surviving are three sons, Robert Jordan of Cairo, Egypt, David Jordan of Helena, Montana, and Thomas Jordan of Eugene, Oregon; three grandchildren; and three stepdaughters, Virginia, Barbara and Judith.

He was greatly admired and respected throughout radio and electronic engineering circles of the entire world. To the younger faculty of his department he was a father figure, to senior colleagues and fellow Rotarians a friend and confidant and golfing partner. He will be missed by all.

Prepared by G. W. Swenson, Jr.

In Memoriam

Julian Drenner Tebo

July 5, 1903 - Dec. 18, 1991

Dr. Julian Drenner Tebo died on December 18, 1991 in Wyomissing, Pennsylvania. His home for all but the last two of the past 57 years was 30 Sutton Place, Verona, New Jersey.

He was born in Harpers Ferry, West Virginia on July 5, 1903 and was raised in Baltimore, Maryland. His education was of special importance to him, and he obtained his bachelor and doctorate of engineering degrees from Johns Hopkins University in 1924 and 1928, respectively. He then joined Bell Telephone Laboratories where he worked until his retirement in 1968. While at BTL he edited the *Bell Laboratories Record* (1949-56), and the *Bell System Technical Journal* (1953-57). He was also instrumental in organizing the AT&T Company Museum. He was a popular speaker on the subjects of telephone and space science at many BTL and AT&T functions.

During his working years and for many years afterward as an engineering consultant, he was active in many engineering and scientific organizations including: American Institute of Aerospace and Aeronautics (AIAA), American Institute of Physics (AIP), American Society of Mechanical Engineers (ASME), Engineering Foundation, Engineers Joint Council (EJC), Institute of Electrical and Electronics Engineers (IEEE), Montclair Society of Engineers, National Inventors Hall of Fame, New York Academy of Sciences, and Society for the History of Technology (SHOT). In addition, he was a member of Alpha Tau Omega social fraternity, Eta Kappa Nu, Sigma Xi, the Scientific Research Society, and the Telephone Pioneers of America. He was listed in various directories including: American Men and Women of Science, Engineers of Distinction, National Faculty Directory, Who's Who in America, Who's Who in Engineering, and Who's Who in the East.

He was a Fellow of the IEEE and the author of numerous technical papers. He was awarded a number of patents and received many honors,

among them the Alan Ploss Award from IEEE Electro in 1986.

Most in Verona will remember him as a long-time member of the Verona Town Council, serving as council president in 1962 and 1965. Students will remember him as a popular substitute teacher, teaching most of the courses offered and most of the grades in junior and senior high school. He was instrumental in designing and constructing the new senior high school on Fairview Ave. As a member and vice president of the Senior Citizens Housing Corporation, and the Senior Citizens High Rise, he co-designed and promoted this structure, also on Fairview Ave.

He is survived by his wife, the former Helen G. Heuser of Newark and Parsippany, his sons Jay Drenner of Davis, CA and Robert John of Severn, MD, and daughter Cathellen May (Mrs. Larry K. Shick) of Reading, PA; grandchildren Christopher Michael, William Randall Shick, and Laura Kay Shick; and several aunts, nieces, nephews and cousins. He is predeceased by a grandson, Jeffrey Richard.

CHAPTER ACTIVITIES

Annual Report 1990-91 Beta Alpha Chapter Drexel University

Prepared by:

President: Agnes L. Lucena
Vice President: Vaughn Sialr
Treasurer: Christina Sepich
Secretary: Mona Gupta
Secretary: Jacqueline Steady
Bridge Correspondent: Scott Casper

Drexel University Electrical Engineering

The Department of Electrical and Computer Engineering at Drexel University is a large department in a private university located in West Philadelphia, Pennsylvania. Every year the department confers about two hundred ECE bachelor's degrees, several dozen master's degrees, and five or ten doctorates. It is a polyglot community with students and faculty from all over the country and the world. In spite of (or perhaps because of) the size of the department, the communication channels do not always operate perfectly, often causing serious misunderstandings. Also, there is a disturbing lack of opportunity for undergrad students, graduate students, staff and faculty to interact on a social, rather than academic or professional level.

Drexel University operates an extremely successful Center for Cooperative Education on a large scale. The Center provides assistance to the undergraduates in obtaining the mandatory co-op assignments required for graduation. Co-op is an excellent career preparation program, but the system makes running a student group difficult. Seniors and freshmen complete a standard nine-month school year, but all other students are only on campus for six-month periods at a time and then leave to go on co-op. (Sophomores, pre-juniors, and juniors are on campus from mid-September to March or from April to the end of August.) The structure of the program

makes it difficult to maintain continuity in an organization from term to term. It also makes it difficult to create a spark of interest in students to plan for future activities, especially those which occur during the time period which they will not be on campus. For example, in October, students show very little interest in planning any activities which may occur in May.

Additionally, the co-op program forces the university to operate on a quarter system of four ten-week terms per year, which can only be described as "intense," especially in a difficult major such as electrical engineering. The students are often overburdened with work, and have little time for extracurricular activities. Activities must be fit into students' schedules. Significant advertising, particularly by word of mouth, must be conducted to obtain support for any activity. This report is a record of those activities, compiled for the use of HKN Nationals and future officers of this chapter.

Social Events

Beta Alpha Chapter organized the following events:

Barbecue/Volleyball Parties—At the end of the spring term 1991, our chapter co-sponsored with the Institute of Electrical and Electronic Engineers (IEEE) a party for students and faculty of the department, and anyone else who cared to attend. The party was held on campus at the Creese Student Union Complex which includes a sunken volleyball court. Together HKN and IEEE provided hamburgers, hot dogs, condiments, soda and beer.

Lampoon Luncheon—Our department's most time-honored and favorite HKN tradition is to organize the annual luncheon and faculty roast. This event is held every year in the spring and is a farewell event for the senior class. This year's roast was held on June 3rd at a nearby restaurant. All the officers and a secretary in the department office sold tickets to the luncheon, which included a buffet lunch, open beer and soda taps, and the traditional roast afterwards. Several seniors performed on stage by imitating their professors, and we

presented the annual roast awards to the faculty, based on suggestions by students submitted on questionnaires circulated in class. This year, we began and ended the show (roast) with a song. We opened with a parody of "Gilligan's Island" and closed with the parody of "American Pie," which was written last year. The chapter also presented awards to the most outstanding professor and teaching assistant in the department, based on student responses to a survey. About 110 people attended the luncheon, including almost all the faculty, many graduate students, juniors and seniors. This year, to entice the juniors to come to the annual roast, we went to one of their classes and gave them a preview of what to expect at the show. A good turnout of the juniors was important to insure a successful roast for next year.

Service Project

Accreditation Review—The HKN president and several other student engineers volunteered an hour to speak to the ABET Accreditation reviewer while she was on campus last fall term.

Professor Evaluation—This past academic year, several professors were up for either tenure or a promotion. The Student Department Head Representative, an IEEE member, and I sent out and evaluated student surveys regarding the appropriate professors. We then submitted an overall student evaluation of each professor to the ECE Department Head.

Graduate School Road Trips—This fall, we surveyed students applying to graduate schools regarding where they were applying and would like to visit. We collated the information and broke it down into lists of names according to the university. We left up to the students the task of finding an appropriate day and time for their own university visit.

Graduate School Seminar—In conjunction with the Graduate School Road Trips, we sponsored a seminar where the graduate students spoke to seniors and juniors about the ins-and-outs of graduate schools. This seminar was a large success and we advise the new officers to hold another seminar next year.

Eta Kappa Nu Chapter Enhancement

In addition to serving the ECE department and its students, many events are designed to help the chapter.

E.I.T. Review Manual Sale—Through the sales of the E.I.T. Review Manuals and Solutions Manuals, our chapter raised over two hundred dollars to supplement the income from the initiation of new members.

Reconfiguration of the Board of Officers—Due to the cooperative system, our chapter deemed it necessary to appoint two junior officers, one for each cycle. This would allow the chapter responsibility to be shared between two persons instead of one. Also, it made it possible to familiarize the two junior officers with the chapter responsibilities for a full academic year instead of six months.

F. C. "Scotty" Powell Student Lounge—A student lounge for the ECE Department was obtained at the end of this academic year. It is located across the hall from the offices of the ECE student societies: IEEE, ISHM, and HKN. All students are welcome to use the lounge. Currently, the knowledge of the lounge's existence is not widespread, but by next September it should be.

Annual Report 1990-91 Nu Chapter

Iowa State University

1990-91 Officers and Data

Spring/Fall 1990 Officers

President:
J. Eric Thiel-Schnell
Vice President:
Jeff Hass
Treasurer:
Joe Ellerbach
Recording Secretary:
Joel Fastenau
Corresponding Secretary:
Sam Jain
Bridge Correspondent:
Tom DeWit
Faculty Advisor:
Dr. David Stephenson
Number of Members: 103 (Fall)
Number of New Initiates: 31 (Fall)
Number of Business Meetings:
approx. 30

Spring/Fall 1991 Officers

President:
John Straetker
Vice President:
Dandon Campbell
Treasurer:
Michael Clausen
Recording Secretary:
Richard Reseland
Corresponding Secretary:
Ranj Castelino
Bridge Correspondent:
Surinder Devgun
Faculty Advisor:
Dr. David Stephenson
Number of Members: 134 (Spring)
Number of New Initiates: 21 (Spring)
Number of Business Meetings:
approx. 30

Programs and Activities

VEISHEA Displays:

Continued activity
50 man-hours
Spring
VEISHEA is a student-run, university-wide "fete" in which departments and groups can open their doors to the general public. In coordination with the Institute of Electrical and Electronics Engineers, HKN set up and manned various displays and exhibits of the department. Involvement was by active members, and was one of several required service projects that could be selected by new initiates.

Motorola Presentation: New activity
10 man-hours
Fall

This semester, Motorola was invited to Iowa State University to give a talk on mobile communications. Cosponsored by IEEE, the Society of Women Engineers, Tau Beta Pi and HKN, this meeting drew between 100 and 150 students. It was an opportunity for students to learn about industry, and also to hand in resumes! It is a goal of this chapter to promote more such meetings in the future.

Picture Display: Reinstated activity
10 man-hours
Spring and Fall

Each semester, we like to take pictures of the new initiates. This gives them a memento of their initiation, and provides us with an interesting visual record of years past. Each fall, this picture is entered into the BOMB annual yearbook and listed under the "Eta Kappa Nu electrical engineering honor society."

HKN/IEEE Picnic:

Continued activity
25 man-hours
Spring and Fall
Every semester the students and faculty of the electrical and computer engineering departments are invited to attend a picnic sponsored by the HKN and IEEE chapters.

Test File Setup: New activity
30 man-hours
Spring and Fall

The chapter is attempting to set up a test file of subjects that electrical and computer engineering students commonly take. This start up of the project is the responsibility of new initiates, and continued maintenance of the file will be the task of the officers.

Sweatshirt and T-shirt Sale:

Continued activity
30 man-hours
Spring and Fall
Depending on the climate, either sweatshirts or T-shirts are made available for HKN members to purchase. The logo of the apparel depicts the HKN shield with its different fields, and is also individualized to contain the department name. Being only a few cents over cost, the T-shirts and sweatshirts are a real value for the money for students who wish to remember their days at Iowa State. Also this is an easy way to increase our exposure on campus.

High School Senior Recruitment:

New activity
100 man-hours
Spring and Fall
Proposed by the new department chairman, this activity holds great opportunity. It is hoped that high school seniors who are thinking of entering engineering can be contacted by someone from their own home district, and have the benefits of attending Iowa State University explained to them by a student currently studying here. A small trial mailing was tried last semester, but the Department plans to widen the scope of the project during the current academic year with help from the chapter.

Lab Kits: New activity
20 man-hours
Spring and Fall

In this project, electronic components will be purchased from a local supplier at minimum cost, and packaged according to the specifications of the EE235 lab instructors. This class is the first laboratory class that stu-

dents in electrical and computer engineering are required to take, and usually accounts for the largest part of a student's lab supplies. By taking advantage of this fact, the chapter can provide a market for the local supplier, a small profit for the chapter, and save the student some money by selling kits that are less expensive than the bookstore's price.

Weekly Board Meetings:

Continued activity
1 hour/week
Spring and Fall

The chapter holds weekly board meetings that are open for all members to attend. This semester, a concerted effort has been made to attract non-board members to the meetings. This has been done by placing large signs on the chapter's bulletin board and by spreading the word by mouth. Thus far, the members who have shown up are actively pursuing different activities. It is a long-term goal of the chapter to increase member participation in the affairs of the chapter (please see below).

Pledge Projects: Continued activity
100 man-hours
Spring and Fall

As part of their initiation, we require initiates to participate in at least one pledge project. A sample of previous projects follows:

- Although the initiation meetings and times are organized by officers, many pledge week activities are set up by initiates. Often, the initiation social hour is set up by one of the initiates. The making of the pledge book, sending of letters of invitation for the initiation ceremony to the parents, placing the HKN bridge on display outside the department building, are all examples of things done every semester by the initiates.
- Initiates also have the opportunity to get involved in the haunted house which is held at the local mall each Halloween. The carnival is sponsored by the Child Abuse Council, and the chapter donates any needed manpower to help out.
- Graduate students who are initiated are required to give presentations about their experiences in graduate school. This gives undergraduate students (students of all disciplines are invited) a chance to ask them about graduate school firsthand.

A Look Ahead

The immediate goal of the Nu chapter is to encourage more HKN members to organize and participate in our activities. We have started to do this by inviting ALL members to our weekly board meetings and setting up a participating active member list. To become a participating member, they will have to become involved in at least one activity per semester and/or attend board meetings.

However, before doing this, we realize that the chapter must become more visible on campus. The test file, recruiting high school seniors, and proposed fundraisers are all steps in that direction. Fundraisers that are planned include bake and pop sales as well as obtaining a photocopier for student use. The copier could give all students easier access to a copier within the building, and hopefully we can provide a cheaper rate than currently offered on campus. A volleyball tournament among all the engineering honoraries is also planned for next semester. No tournaments have been held since 1988, and as traditional sponsors, we feel that we should take the lead in organizing a new tourney.

In order to attract members who cannot commit to more than one semester, we would like to have some of our cabinet positions available as single semester positions. In addition, in order to work more efficiently, we plan to add a number of different posts that would assign different roles to different people.

Hopefully, the successful integration of these ideas will result in a much stronger and more prominent Eta Kappa Nu chapter at Iowa State University.

*Prepared by Surinder Devgun
(Bridge Correspondent)*

Annual Report 1990-91 Gamma Theta Chapter University of Missouri-Rolla

1990-91 Officers and Data

Fall Officers

President:
Jon Joplin
Vice President:
Darren Melton

Treasurer:
Ryan Elbert
Recording Secretary:
Brian Fortman
Corresponding Secretary:
Dave Medrow
Bridge Correspondent:
Roger Younger
Historian:
Scott Leigh & Susan Lowe

Spring Officers

President:
Ryan Elbert
Vice President:
Brian Fortman
Treasurer:
David Medrow
Recording Secretary:
Gary Elbert
Corresponding Secretary:
Scott Deffenderfer
Bridge Correspondent:
Keenan O'Brien
Historian:
John Schmidt

Number of Members: approx. 48
Number of New Initiates: Fall: 14
Spring: 12
Number of Business Meetings: 13

Activities

Hobby Club: Recurring
1200 hours
Fall: Darren Melton
Spring: Brian Fortman

The Hobby Club is a laboratory that has been set aside for student use. The Electrical Engineering Department has loaned oscilloscopes, power supplies, and function generators to the club, while the chapter keeps parts (such as transistors, resistors, various ICs, etc.) in stock, or assists in ordering materials for anyone wishing to begin a project. Members keep the club open during regularly scheduled daytime hours, and from 6 p.m. till midnight four days a week. The Hobby Club also provides a place to work on laboratory assignments and to study or do homework.

Help Sessions: Recurring
120 Hours
Fall: Jeff Herbst
Spring: Don Brundage

Gamma Theta chapter provides assistance for students of the two basic linear circuits classes. The sessions last about two hours and are held weekly. Not only does this provide a valuable service for EE students just beginning classes within their major, but it also allows students to get to know a few of the upperclassmen and feel more secure in their new department.

Lab Insurance: Recurring
60 Hours
Fall: Anne Kruse
Spring: Darren Melton

Each semester, Gamma Theta provides insurance against breakage of laboratory equipment for EE students. The \$2.50 fee provides \$200.00 of coverage in case of an accident, and is sold during the second week of classes. The policy is mentioned in the syllabus of each laboratory class, and chapter members sell the policies in the EE building lobby.

Electrical Engineering Department Picnic: Recurring
100 hours

At the beginning of the fall semester each year, Eta Kappa Nu and IEEE jointly sponsor a departmental picnic to welcome the students and faculty back from vacation. Members barbecue hamburgers and hot dogs and provide refreshments for the faculty and students. This year's turnout was one of the largest in recent years.

Informal Initiation: Recurring
100 hours
Fall: Gary Elbert
Spring: Casey Engstrom

Informal initiation began the third week of the semester, when eligible students received invitations to join Eta Kappa Nu. These students were invited to a Pledge Mixer where the officers provided information about Eta Kappa Nu and answered questions. The pledges were then required to make a plaque and acquire the signatures of HKN members and faculty. Next, the pledges participated in Workday, where they performed odd jobs for the EE Department.

The pledges were also required to learn about Eta Kappa Nu's history and proceedings, proving their knowledge with a three-part quiz near the end of the semester. The first part deals with the National Constitution, while the second concerns the local by-laws. The last part of the quiz is a basic linear circuits test, which is basically a humbling experience for all involved. After the quiz, a pledge social is held at a member's house and is open to all members.

Banquet/Formal Initiation: Recurring
50 hours

Fall: Rick Gasaway
Spring: Ryan Elbert

At the end of each semester, Gamma Theta held a banquet to honor the new pledges. The formal initiation

was held at the banquet, and awards were given to the pledges (such as Best Plaque and Outstanding Pledge awards). Members, faculty, and families were invited to attend. Speakers this year included Dr. Walter Gajda, Chairman of the EE Department, who spoke in the Fall, and Professor Gabriel Skitek, one of Gamma Theta's founding fathers, who spoke at the Spring Banquet.

Student Council Representation: New

One member noted that the Electrical Engineering Department was not represented on the Student Council and suggested Gamma Theta petition for a seat on the board. The necessary paperwork was filled out and Gamma Theta became one of the first honor societies to be represented on the Student Council at UMR.

Recognition of Members

Two of Gamma Theta's members achieved national recognition for their accomplishments. Becky Dancy, a former chapter president, received an Honorable Mention in the Alton B. Zerby Outstanding Student contest, and member David Medrow was awarded an Honorable Mention in Eta Kappa Nu's Norman R. Carson Outstanding EE Junior contest.

Annual Report 1990-91 Zeta Lambda Chapter Prairie View A&M University

The Zeta Lambda Chapter of the Eta Kappa Nu Association has successfully completed another year of fostering a spirit of liberal culture in the engineering college at Prairie View A&M University of Texas. This year, we are proud to say that many firsts have been accomplished with the participation and hard work of the members.

The fall of '90 brought about many changes in our chapter. First, a series of meetings among the members led way to the first T-shirt design for the chapter. Wearing the T-shirts with our royal blue and red appeared to have increased the awareness of the association by the other students within the College of Engineering. Second, as a part of the selection of prospective initiates for the fall of '90, the members held a screening of the stu-

dents selected by the professors within the Electrical Engineering Department and themselves, based upon student scholastic achievement within Electrical Engineering. During the screening process, prospective initiates were told about the history of Eta Kappa Nu, its purpose and what being in the association meant to us. Afterward, the prospective initiates were asked questions pertaining to Electrical Engineering by a general assembly. This was followed by a one-on-one session in order to determine whether they already conferred honor upon their Alma Mater through activities, leadership potential, and exemplary character. Likewise, the prospective initiates were given the opportunity to ask questions they deemed necessary. After they completed their questions, they were excused, discussed by the members, and then voted upon as initiates for the fall of '90.

The initiates were as follows: 1) Michael D. Blackshire, 2) Seana M. Hopson, 3) Eureka C. People, 4) Asif Rahman, 5) Jesmin Rahman, and 6) Jean E. Simpson. During the initiation phase, the initiates were required to do the following: 1) Shine the bridge, 2) wear the symbolic royal blue and red ribbon for one week, 3) obtain individual signatures of professors and members of the association, 4) write a technical report, and 5) present a group project to the chapter before the induction ceremony was to take place.

For the group project, the initiates decided to make a banner for the chapter. The banner was completed and submitted to the Zeta Lambda Chapter the day of the induction ceremony, November 19, 1990. The banner was proudly hung and is seen by all who enter the Electrical Engineering Annex via the College of Engineering and Architecture Building.

Following the induction ceremony, the newly inducted members were welcomed to the association with a barbeque and seafood festival held on the ranch of our sponsor, Dr. John Fuller.

The semester was concluded with a Christmas Banquet held in honor of all the honor societies and associations within the College of Engineering and Architecture.

The spring of '91 was just as exciting and fulfilling as the fall of '90. During this semester, the members worked as teaching assistants, free of charge, to the professors of their choice within the Electrical Engi-

neering Department. The initiation process was the same as in the fall.

After the induction ceremony which was held on April 4, 1991, the following officers were elected for the 1991-1992 academic school term: 1) Tara Williams—President; 2) Chancellor Archie—Vice President; 3) Bobby Mays—Treasurer; 4) Elijah Porter—Corresponding Secretary; 5) Roderick Maddox—Recording Secretary; 6)

Charles Ocansey—Bridge Correspondent; 7) Kimberly Jenkins; 8) Ralph Minter; and 9) James Northern.

The weekend following the ceremony was concluded with a banquet in Houston held in honor of the new members of the Zeta Lambda Chapter. It was followed by an Honors Banquet recognizing their achievement as well as the achievements of other students within the College of

Engineering and Architecture.

As members of Eta Kappa Nu's Zeta Lambda Chapter, we were successful in inducting a total of 15 new members into the Association, who, by their attainments in Electrical Engineering, have and will continue to bestow honor upon their Alma Mater through distinguished scholarship, activities, leadership, and exemplary character.

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