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Contributing Editors
Larry Dixon Carl Koerner Marcia Peterman Mogge Pomeroy
Jack Pullen Leon Zelby
Photography Editor Howard Sheppard

Electrical Engineering Honor Society August, 1978, Vol. 74, No. 4

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The BRIDGE is published by theEta Kappa Nu Association, an electrical engineering honor society. Eta Kappa Nu was founded at the University of Illinois, Urbana, October 28, 1884, 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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Member Association of College Honor Societies
Forms of government funding over the last twenty-five years have had an adverse impact on engineering colleges in that they contributed substantially to the shift of emphasis from curricula and research to finance, which in turn, contributed to a charge that the colleges were operating in an vacuum, with little connection to the industry. To remedy this situation, it would be desirable to modify the incentives and pressures within the government-sponsored research by government agencies and to introduce the competitive funding mechanism, a degree whose background would be more in concert with the needs of the industry than a degree whose background seems to emphasize preparation for graduate study.

Introduction

It is extremely difficult to prove unequivocally impacts of social change, particularly those that seem to have beneficial effects in the short term. It took decades to recognize that many of the educational innovations have not had the biggest impact on the primary level and secondary level in spite of some relatively minor educational techniques (1,2,3). Whether the deterioration of educational standards was due solely to those changes, one cannot really tell, for there are many interrelated factors that contributed to changes not only in the educational system, but in the society as a whole. Belatedly, some school districts and states are beginning to require competency demonstration prior to promotions from grade to grade, and prior to graduation from high schools. In view of the large percentage of high school graduates who attend other colleges, it is somewhat surprising that such deficiencies have not been noticed earlier; but, on the other hand, college admission requirements have been satisfied inasmuch as generally the better students were those who continued with their education.

In the case of the impact of government funding, the situation may be somewhat similar in that it will take many more years before the adverse effects of such funding will generally be recognized in spite of the fact that there are already indications that such funding does not have as beneficial an impact on the engineering colleges and profession as it appeared: decreases in the rate of patent applications and issue in spite of tremendous growth of expenditures for research and development, relative decline in engineering enrollments, growth of schools of technology, and others.

It would be presumptuous in our contemporary society to ascribe its trends and characteristics to one factor alone. The main reason for this is the complexity of our society and the degree of interaction between the many social factors, accelerated and amplified because of consumerism and of travel. Nor do many of the available data lend themselves to an unique interpretation. As a result, it is necessary to review some of the probable causes of a given effect and to try to present a reasonable, self-consistent hypothesis on the basis of available evidence. In such a review and formulation of a hypothesis, one cannot divert oneself completely from the influence of one’s background and experience; but what one must do — or at least try to — is to avoid conclusions based on vested interest or on wishful thinking. Thus, one must be careful that the data can be accepted reasonably easily by familiarizing oneself with the history of various trends and their effects. It would be imperative to temper the assessment of long-range impacts with much more than the short-term evidence.

In what follows, an attempt will be made to justify the hypothesis that the changes in the rate of government funding of R & D on engineering colleges and the profession as it appeared: decreases in the rate of patent applications and issue in substantially different: the one hand, they are in response to social pressures and fundamentally concerned with research and curricular emphasis which, in turn, contributed to a change of emphasis between the colleges and industry.

A Brief Historical Perspective

Until the post World War II period, engineering used to be associated more with doing than with reflecting, more with action than with scholarly pursuits. Engineers were people who built roads, bridges, railroads, power plants, transmission lines, etc. In the process, they relied more on handbook information, experience, and rules-of-thumb than on direct application of fundamentals. In the process, they uncovered improvements in methods, modifications of end products and sometimes even new products or devices, though the latter was more within the province of "inventors." In many respects, one may make such a separate classification.

Technological developments of the Second World War which came about as an auxiliary activity, but the number of operations to prove automobile travel safety. It is instructive, however, that include numbers of patents in impact consideration of government R & D funding as one of the many possible means to stimulate creativity. Note that statistics are frequently used to support rather than illuminate (10).

In spite of the tremendous growth of expenditures and obligations for R & D and doubling of engineering BS degrees, quadrupling of MS degrees, and a nearly sixfold increase in the number of engineering PhD’s, the total number of patents granted has not quite doubled in the period under consideration. At the same time, the number of US patents granted to foreign corporation increased eightfold; and those granted to foreign country residents, at least threefold. There could be a number of reasons for this: changes in patent laws and regulations here and abroad; changes in tariffs, etc. At most, however, it is a coincidence, and others. On the other hand, there

In 1974, there were 50,695 engineering degrees conferred at the bachelor level; 15,385 at the master level; and 3,312 at the PhD level. The number of patent applications rose only from about 380,000 in the five year interval 1961-5 to slightly over 540,000 in 1971-5; whereas the number of patents issued, did not even double during the same period (8), as shown in Table II.

Clearly, depending upon a point of view, different statistical inferences can be made, statistics being defined as mendacious truth (9). For instance, in attempting to prove the safety of the various transportation means, one uses passenger-miles to prove air travel safety, and the number of operations to prove automobile travel safety. It is instructive, however, the include number of patents in impact consideration of government R & D funding as one of the possible means to stimulate creativity. Note that statistics are frequently used to support rather than illuminate (10).

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may also be other reasons, less profound but nevertheless no less valid: "We have grown so accustomed to looking for deeper causes of everything that we fail to consider even the possibility of obvious ones (11)."

As pointed out in the introduction, societal trends in contemporary society cannot be explained either by the deterministic terms of one factor alone. There are instances, however, that there is sufficient evidence, pointing to one major factor. This is particularly true when the factor is of economic significance, and contributes to the expansion and growth, used as synonyms for "good," according to the widely accepted myth. Despite the fact that in almost any particular point of view dealing with the impact of government funding of research, an attempt at a reasonably objective assessment of it, if it has at all any semblance of reason and logic, should not be rejected out-of-hand.

With a spirit of the tremendous growth in the number of scientific publications and claims of galloping knowledge, Newcomb (12) and Maxwell's equations are as applicable now on an engineering scale as they ever were, even when one wants to nilptik and apply relativistic corrections to the former. We may use the techniques, but except for hand-held calculators, electronic watches, and copying machines, we have not had substantial engineering developments, e.g., less cumbersome emission controls, simpler automobile safety devices, effective internal combustion engines operating on different fuels, etc.

**Table 1**

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<td>75,986</td>
<td>119,282</td>
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**Table 2**

| Patents | Issued | | |
|---------|--------|---|---|---|---|---|---|
| 1951-6 | 1956-7 | 1961-2 | 268,964 | 251,872 | 275,443 | 342,889 | 396,866 |
| Inventions | 192,651 | 237,469 | 259,971 | 285,124 | 273,532 |
| Corporations: U.S. | 100,278 | 139,948 | 152,537 | 190,616 | 192,911 |
| Foreign | 10,537 | 21,043 | 30,992 | 52,771 | 86,006 |
| U.S. Government | 3,359 | 5,889 | 6,697 | 8,254 | 8,579 |
| Residents | 78,459 | 76,589 | 63,949 | 73,563 | 88,037 |
| U.S. Foreign Country | Not Available | 96,913 | 48,322 | 75,986 | 119,282 |

**References**

6. Ibid., p. 569.
7. Ibid., pp. 146 and 147.

**Conclusions and Recommendations**

Quite obviously, the foregoing barely scratches the surface of the problem. I think, however, that the authors have provided a careful rethinking of the place of government supported research in engineering education. We may take it as our criteria in the future that mind again we are beginning to find out that what may have seemed beneficial initially, either had inestimable long range consequences.
CALIFORNIA AWARD DINNER

by Herbert Summers

Photos by Ada Dodson and Colleen Hamilton

About 80, of which 25 were students, attended the awards dinner on August 5, 1977 at the Disneyland Hotel in Anaheim, California. The event was sponsored by the Los Angeles Alumni Chapter whose president, Walter Williams, was chairman and Master of Ceremonies. Other distinguished guests were Marcus Dodson, National President; Albert Hauser, V.P.; Paul Hudson, Executive Secretary and Earl Eyman, immediate past president. These comprised the National Executive Council. The National Board of Directors, Robert Betten, William Johnson, Sidney Parker, Ronald Phillips, Willard Rusch and Alan Stoudinger were also present. In addition, Larry Hamilton, chairman of the award committee, Carl Koerner, Past President of H.K.N. and a number of other notables were there.

All six “honorable mention” students came from eastern universities to the meeting. These were: Peter Berntson, U. of N. Dakota; William Mervin, N. Carolina State; Neil Midkiff, U. of Missouri-Columbia; Maureen Quirk, Lehigh U.; Michael Reed, U. of Texas, Arlington and Linda Sims, Purdue. All are members of Eta Kappa Nu.

A social hour preceded an excellent dinner, after which came the award ceremonies, introductions and speeches. Principal speakers, other than the chairman were Larry Hamilton, Marc Dodson, David Welter, the award winner and Carl Koerner.

Mr. Welter, of the University of New Mexico, is a member of Eta Kappa Nu, Tau Beta Pi, Phi Eta Sigma, the American Nuclear Society and I.E.E.E. He has been president of the Delta Omicron Chapter of HKN at the U. of N.M. He was much involved in University activities and has worked with physically handicapped children. He has presented his research papers at IEEE meetings.

As a member of the Naval ROTC program he served aboard a nuclear submarine. He received a UNM mathematics scholarship and a citation for academic excellence from the Society of American Military Engineers.

David Welter gave a short speech of appreciation for the honor bestowed by HKN, also recounting academic and other experiences. The award was presented by Marcus Dodson, our National President.

IDENTIFICATION: Past President Carl Koerner, President Marc Dodson presenting award to David Welter of the University of New Mexico.

Opposite page: First column, Sally and Sue McCullough; Lawrence Hamilton; Reception. Second column, Norman and Ellen Nise; Bob Konnerknecht and Bill Rusch; Beverly and Dick Hermsen and Clay Stevens.

Following page: A good time was had by all.
MERRY MOMENTS WITH MARCIA

Customer: Look here, waiter, is this peach or apple pie?
Waiter: Can't you tell from the taste?
Customer: No, I can't.
Waiter: Well, then, what difference does it make?

A 80-year old man visited his doctor.
"I don't have any new complaints, doc," he said. "I just wanted to ask you something."
"Of course," the doctor invited. "What do you want to know?"
"Well," the old man begun, "you know that arthritis you told me I'd have to learn to live with, and my bad hearing, and my poor eyesight, and my high blood pressure?"
"Believe me, with your courage you'll be able to live with all of your impairments," the doctor assured him.
"Oh, I know that," the oldest said. "I was just wondering if you could add a 22-year old wife to that list."

A man stopped at the cafe and ordered a cup of coffee. When the waitress had delivered the coffee, he tried to make conversation.
"Looks like rain, doesn't it?" he ventured.
"I can't help what it looks like," said the waitress.
"It's still coffee."

A lady was going 93 miles an hour on Route 93. A policeman stopped her and asked why she was going so fast. She said, "Well, the sign said 90."
"Ma'am," exclaimed the policeman. "I'm glad I got you before you got on 234."

It is not always easy to say the right thing on the spur of the moment. We can sympathize with the chap who met an old friend after many years.
"How is your wife?"
"She is in heaven," replied the friend.
"Oh, I'm sorry," stammered the chap. Then he realized this was not the thing to say. "I mean," he stammered, "I'm glad." That seemed even worse so he blurted, "Well, what I really mean is I'm surprised."

The couple was shopping for wedding bands. "I don't want too wide or too tight a band; it might cut off circulation," said he.
"It's going to do that anyway," said she.

Joe: "Does your friend ever talk to himself?"
Moe thought for a moment and then replied: "I can't say for sure. I've never been with him when he was alone."

Teacher: "Why are you late for school every day?"
Boy: "Everytime I come to the corner, a sign says 'School - Slow Down'."

Next year, let's name the first hurricane Zahrina and get the season over with in a hurry.

A successful man is one who makes more money than his wife can spend.
A successful woman is one who can find such a man.

The obituary editor of an Eastern newspaper was not one to readily admit his mistakes.
One day, he got a phone call from an irate subscriber who told him he had printed his name in the obituary column.
"Really," was the editor's calm reply. "Where are you calling from?"

by Marcia Peterman
The Road to Ani

Armies marched through Ani for thousands of years; their history is writ in the stones of a dead city

by Charles E. Adelsen

Ani, the ghost capital of medieval Armenia, stands balanced on the cliffs over the Arpa Cay where the river marks the Turco-Soviet frontier. The land around it is as magnificently forbidding, and about as bare of the mechanized aspects of civilization, as it was when Persians, Romans, Byzantines, Arabs, Seljuk Turks, Georgians, Ottomans, and Russians first tramped across its rugged hills and cold upland plains on their way to conquest and settlement.

Three and a half miles of walls and towers surrounded what was once the fortress city of Ani. Little is left inside except churches.
Arches supported by coupled pillars lead the eye to where a dome once capped the cathedral. The style has a Gothic flavor, but the church was built 100 years before the Gothic style appeared in Europe.

The Jeep's motor was quiet at last, and the silence, accentuated by the twitting of a bird in the grass, was the silence of a wilderness. Yet we know that a hundred thousand souls lived here once and that Ani boasted—doubtless with Eastern hyperbole—that Mass was said in a thousand and one churches.

Where the relief figure of a lion vigorously strides across the middle gate, we entered Ani through what were once double walls, strongest defenses of a city also protected by the confluence of the ravines of the Arra Cay ("Barley Stream") and the Alaca Cay ("Many-colored Stream"). These walls defended Ani's only really vulnerable feature, its frontage on the rolling plain of Kars, the logistical area for attack by the land armies of medieval times.

A close look at what from a distance seemed to be wholly preserved walls reveals the sad truth. The decay of Ani has been accelerated by its exposure to earthquakes, war, or the slow attrition of ice and frost—although the touch of all of these seems evident—but by the hand of man to whom Ani is only a gigantic stone heap for the building of his rude farmhouses and fences. The lower courses of superbly worked stone have been pieced away and carted off, revealing the inner fill of conglomerate. Within the city, churches, mosques, even the castle all show the same desolation.

A nineteenth-century visitor remarked how the facade of the so-called palace was even at that time being stripped of its stone mosaics, not by the ignorant, nor by the malicious, but by what he termed—no doubt with conscious irony—"patriotic Armenians." Photographs taken at the time, compared with our own pictures, show what seven or eight decades, a blinking of the eye in Ani's long history, have done to both Christian and Islamic structures.

Within Ani's tremendous walls and the gorges of its protecting streams, we found ourselves in the precincts of a once teeming city where today the loneliness is utterly palpable. Man and nature, especially the latter, have swept away every feature of the humble dwellings of Ani's vanished population. Horses were undoubtedly built of the same fragile stuff—stone and mud—that the plainsman and highlander build with today. The effect has been to isolate the more durable public buildings, making their inspection all the easier.

There is no such thing as a simple recapitulation of Ani's history, just as a simple resume of the whole history of Armenia itself is impossible. Stability in the broad land existed, whenever it did, under the aegis of tyranny. Interregnum periods were typically chaotic. The Armenians had chosen, fatedly, to build their house in the middle of a busy highway. The consequences form the stuff of their Jeremiah-like chronicles.

Speaking an Indo-European language, the Armenians were thought by Herodotus and others to have migrated from Thrace with the Phrygians. These proto-Armenians supposedly settled in the ancient lands of Urartu sometime early in the seventh century B.C. The latter-day conflict of Turks and Armenians was only episodic in the history of their confrontations in which the Armenian native found himself, at best, the citizen of a buffer state wedged between superpowers. In worse times, he was at the line of march of resolute conquerors. Perpetually, the most eloquent outpourings of Armenian wrath were at first directed not at the Moslems but at the heads of the "Greek" Byzantines, whom the Armenians accused on the one hand of usurping their freedom and on the other, of ultimately emasculating them and leaving them to their fate.

In the tenth century A.D., Armenians were able to assert their sovereignty, at least nominally, as the whirlpool of Armenian history skilled itself for a while. Both the emperor at Constantinople and the caliph at Baghdad sent crowns, emblems of self-government, to Ashtot I the Iron, called "king of kings" and the country entered a brief and precarious Golden Age. The great monuments of Ani belong to that time. The reigns of Ashtot III the Merciful (951-977) and Sembat II (977-989) were the apex of that age.
With the coronation of Abshar III, Ani stepped up from its position as a strategically placed fort, becoming the real capital of the Armenians. Her fortifications were strengthened, and the people's talent in architecture expressed itself in magnificent royal structures.

By the command of Smbat II, the outer defenses were built and the foundations of the cathedral were laid. The great church was only completed, however, under Smbat's brother, Gagik I (989-1019), and then largely as a result of the efforts of Gagik's queen. Under Smbat, the Armenian patriarchs moved their seat to the city on the Arpa Cay.

With the death of Gagik's sons plunged the land into civil war. Unity suffered a blow from which it would never recover as the all-important feudatories of the no longer solid state showed themselves increasingly independent. At last, rule of Armenia was divided among four kings, including one at Ani. Faced by the irresistible mounted archers of the Seljuk Turks, Armenia compromised her independence, and in 1065 John Smbat, king at Ani, was persuaded by the Byzantines to will his country to the Emperor Basil II.

Fierce resistance by at least some of the Armenians to this Byzantineization followed the death of Basil, but at last a Greek-speaking governor sat at Ani in the name of a distant emperor. Even that symbol of strength was short-lived. Oppressed by their own difficulties, and with a wasted treasury, the Byzantines left Ani to its own wits, as act for which Armenians down the ages have labeled their fellow Christians perfidious.

In the short, flowery summer of the year 1066, Alp Arslan (Alp the Lion), a figure known to Turks for his chivalry and bravery, attacked Ani from the plain. After twenty-five days of siege, the city saw the horse-tailed tug of the Seljuk sultan brought ceremoniously into the capital. Ani's Golden Age was over. Ahead of the Seljuk Turks lay the road to Malatia, where in 1071 they defeated the Emperor Romanus IV Diogenes and a huge Christian army in one of the world's decisive battles.

In bewildering succession, Ani was ruled by a dynasty of Kures — who acquired the city as a fief from the Seljuks — then by a Bagratid dynasty of Georgian kings; the Kurdish dynasty was restored; the Georgians came back; Moslems again ruled Ani; and at last the Mongols galloped through Ani's gates in 1239. The search for traces of all these peoples in these highlands may be left to the physical anthropologist. A fascinating, if endless, assignment!

The architecture of Ani provides a more accessible record of so many successive rules by such disparate peoples as Armenians and Mongols.

The importance of the cathedral, paramount structure at Ani, lies as much in its identity as a milestone on the way toward the later development of the Gothic style in the West, as does in its own near perfection of execution and form. When the first Mass was celebrated in Ani's cathedral in 1010, Gothic architecture had not evolved in the world. The Romanesque style reigned supreme in the West. Yet entering the cathedral today, anyone with even the slightest acquaintance with the great Gothic churches of Europe encounters something strangely familiar: the narrow aisles beneath the soaring roof lead one forward to the apse as the eye discovers the powerful columns with their coupled piers rising to the new-vanished dome. Similar piers rise at opposite ends of the church. Seeing the painted arches overhead, the ribbed vaults, one automatically thinks "Gothic."

Armenian architects were well enough thought of in the West that one of them (in fact, Tiridates, who designed the cathedral of Ani) was summoned to Constantinople to repair major damage done to the dome of Hagia Sophia by an earthquake. Whatever influences must have flowed mutually between Byzantium and Armenia, one characteristic, so highly evident at Ani, hardly showed itself in the Byzantine art of building. The structures of Ani delight the modern eye with their sophistication of exterior design — a polished symmetry carried almost to the point of the predictable, if exalted, stylization. The typical stone and brickwork of a Byzantine facade seldom achieves such an effect. Perhaps the difference in execution was philosophical: to the Byzantines, a shell of the structure was to serve the interior what the coruscating body was to the soul, a temporary housing for the mysteries of the spirit. Hagia Sophia at Istanbul astounds first with the marvel of its engineering, but one discovers the beauty of its art, Ani's cathedral, however, impresses with its loneliness, its symmetry within and without, before one wonders about the details of its construction.

Nearby stands the Church of St. Gregory, named for the "Illuminator" who converted the Armenian nation to Christianity more than a century before Theodosius I forbade pagan devotions in his realms. The church sits high on the eastward-facing bluffs of Ani, with the gloomy, turbid stream of the Arpa rolling far below.

From St. Gregory's, we see peasants of the Soviet Republic of Armenia at work in the fields overlooking the Arpa's eastern banks. Their voices, and now and then a drift of song, were blown by the wind across the gorge. A soldier wearing a beret and carrying what looked like a Sten gun patrolled while the peasants worked amid the grain.

The tableau of the Turks and the Russians facing each other across the Arpa Cay is the essence of history in the making. Georgian script, along with elongated figures of El Greco-like saints decor-
massive as a fortress — the syon house. As the center of church architecture, carrying on the practical business, it would have seen convocations of black-cowled bishops presided over by the patriarch. Huge, lichen-covered, double-headed capitals must have surmounted twin enormous piers. The syon house, like so many Armenian structures, is apparently round. It was added to by the princes of the church gathered in a circular seating arrangement.

What has been called "the palace (simply a barracks buildings)" is situated up against the north-west defenses of the city. It is the same rugged structure that was being robbed of its star-shaped mosaics by its admirers in the last century. Inspired by the palace folklore, local inhabitants tell travelers that it was, in fact, the "sultan's snare" or "sultan's palace." A French Souvenir d'Ani, printed in 1904, identifies it simply as the Palais des Vicaires, with pictures of the edifice entitled conscience (followed by a question mark), indicating that it might have been the barracks of the supposed palace. There are no inscriptions at all, and no clear tradition of belief — or wishful thinking — asserting itself.

The ruin of a single-span bridge that once joined the banks of the Arpa Cay is the most prominent reminder of Moslem rule at Ani. A mosque upon whose minaret is encrusted, brick upon stone, in the name of Ishtillo, "In God's Name."

If Ani is a veritable mausoleum of human interminglings in the flood tide of movement across Anatolia, its cosmopolitan character expresses itself most completely in the Church of the Apostles. Once a three-story domed structure covered by the easternmost dome remains. But it is an elegant ruin. One visita intricately arched windows carved elaborately upon its pink marble, notes that this monolith is seen in a remaining entrance, and even its whole plan, would proclaim, if it were not known otherwise, to be of purely Moslem inspiration. Since its earliest inscriptions date from the time of the Armenian kings, it would seem that, in detail at least, it was altered under Moslem rule. Other inscriptions recall the government of the Georgians or the overlordship of the Mongol suzerains.

Of the popular dwellings of Ani, nothing, as has been remarked, remains. But the canyons of the Alaca and the lesser canyons leading to the gorge of the Arpa Cay have been extensively and anciently ridged by caves that were once human habitations. Since the hundred thousand citizens of Ani can scarcely have all resided within the walls, and since houses at least partly subterranean are still, out of fear of the winter and for scarcity of building materials, inhabited in parts of eastern Anatolia, it is possible that some of the Anians normally lived in such caves.

The dramatic history of Ani is given a final lurid touch by a traditional belief that the innumerable caves are visited by the unquiet souls — the voice of the murmuring river — of those who centuries ago were the flesh and blood of Ani.

Where the palace of Ani might have been, on a mound containing a clear view of the Russian bank of the Arpa Cay, the flag of the Turkish Republic, small as it is, even here itself appears small in so vast a landscape, flies in a strong east wind. As we left Ani, shafts of sunlight poured from a sky of dark or indescribably edged storm clouds, shade and light alternately sweeping across the city and giving it the apocalyptic look of a Dore engraving. Behind that Turkish flag marched the whole procession of kings of kings, emirs, sulevans, and Mongol overlords who once held the scepter of Ani in their hands. At few other sites on earth is the impression of man on the land so multiform.


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I Married One... Engineers Are Special People
by Kim Wilson

On this weird wintry night following a surprise yesterday springtime, I cleaned wet, sticky snow off my car in the driveway after dark. Intermittently, all the city's power went off and each time left me for a second or two ininky blackness. Total absence of light produces an eerie sensation. Without candles or a well-functioning flashlight, you're absolutely sunk into oblivion.

There's something busily alive about electricity. It hums, it whirs small motors, it clicks thermostats. Turn off all switches, and you blink out sound as well as sight. For the humming, Waller says some harnessed electrical current is a beautiful, vibrant thing. Out of power, even a university can be lifeless. Someone must know and understand this force's properties. I never make for granted a cozy electrical blanket on a snowy, subzero night such as this, for I know its service rots without an electrical engineer. Electrical engineers must endure. There's no such thing as inheriting a profession into drawing room. Engineering is a profession where you have to do it yourself.

Being married to an engineer, whether you're the husband or the wife, is a unique and different experience. My husband died before he reached fifty, we packed up the house, and we moved our family into our twenty years together. Through George, I became personally acquainted with hundreds of students from the length and breadth of this land and overseas.

Engineers always are special people. Sometimes you make a lot of money, and sometimes you don't, but your contributions to humanity are recognized, and sometimes they aren't.

Take the old joke about Cape Kennedy, for example. If all goes well, it's a scientific achievement. If anything goes wrong, it's an engineering failure. Then, there's the story frequently shared by engineers' spouses at conventions. Yes, you have Achilles' heel. Nothing bugs you more than having people think you drive a train.

I remember the countless times I patiently explained to family members and friends who a Professional Engineer has to go through in order to get his seal. "How many tests do engineers have?" "Surely PE exams don't take as much study and work," they said. It does require a bit of patience to be an engineer's husband or wife. I think I've learned, really understand, what your spouse does for a living. In retrospect, I might have done, for I now understand how my husband is one of the virtues my husband taught me.

I need to have a maddening personal trait. My filing system consisted of toss-and-forget important papers. What George asked for a paper such as the car title, my predictable reply was, "Oh, I put it in the drawer." With a sigh, he'd quietly ask, "Where's the drawer?" I usually had about 50 of them. Well, the search would begin. A couple of hours or so of agony, George would finally locate the target of his search in the back of the closet hidden from view which to choose — imagination, beloved interest in the arts (we had fun with that one), ability to control computer-specific terms, humor, sociability, stability, compassion.

He or she who's lucky enough to marry an engineer can anticipate a most unusual life. Engineers are indeed special people.

CHAPTER NEWS

XI CHAPTER, Auburn University — A major accomplishment of the Xth annual student Engineering Fair was the revision of the chapter's bylaws. Formerly the bylaws were not written to be utilized by this engineering group; they had been left to the discretion of officers. The new bylaws are written to standardize and simplify the methods by which students may meet. The new bylaws are a product of J. J. O'Neill, former chapter president, and Mr. G. O. Coles, former chairman of the student council. The new bylaws provide a more organized procedure for student officers to follow, and it is hoped that these bylaws will be of great benefit to the chapter in the future.

The AIEE Student Branch at Auburn University has established a new student chapter. The new chapter is a result of a great deal of hard work and dedication by the members of the old chapter. The new chapter will operate under the leadership of the new chapter president, J. J. O'Neill. The new chapter will be known as the XI Auburn University Student Branch of AIEE.

ZETA KAPPA, Tennessee State University — The first activity that led to the establishment of Zeta Kappa chapter at Tennessee State University was the formation of a student chapter of AIEE at Tennessee State University. The chapter was organized in 1958 under the leadership of John R. Williams, a student member of the Tennessee State University Engineering Society. The chapter was chartered in 1959.

The chapter is divided into two sections: the Electrical Engineering section and the Mechanical Engineering section. The chapter is active in various projects, including the annual AIEE Student Branch Symposium, the annual AIEE Student Branch Conference, and the annual AIEE Student Branch Banquet.

The chapter has a membership of approximately 50 students, consisting of both engineering and non-engineering students. The chapter is open to all students interested in engineering and who wish to participate in the activities of the chapter.

The chapter is affiliated with the AIEE Student Branch at Vanderbilt University, and the chapter officers serve on the executive committee of the AIEE Student Branch at Vanderbilt University.

The chapter is supported by the Tennessee State University Engineering Society and the AIEE Student Branch at Vanderbilt University.

The chapter is also supported by the AIEE Student Branch at the University of Tennessee and the AIEE Student Branch at the University of Alabama.

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GAMMA EPSILON CHAPTER, Rutgers College of Engineering — The Gamma Epsilon Chapter had an active semester this year. Various projects, which had been started in the fall, were wrapped up or progressing nicely. The Graduate School Catalog Library which we had planned has become a reality. We have gathered together the catalogs of over 150 different schools of electrical engineering. The catalogs are stored in a cabinet in the lab wing of the Engineering School and are available for all engineering students use. In the same lab as the catalog library, we established a small reading room with various magazines related to electrical engineering.

The construction of a Smith Chart by the Chapter is about half completed. Our members are constructing several charts of different sizes. They are using an analog computer and plotter to design them. Special thanks must go to Professor Donald A. Molony for his assistance to the project.

Our Chapter By-Laws were revised for a second time this year. This was due to an effort by us to bring the By-Laws in line with the regulations of Rutgers University. As of this writing, they are still under consideration.

This semester, joint meetings of Eta Kappa Nu and the I.E.E.E. were held at Rutgers. They were extremely successful and I hope that this policy will continue in the future. Together, these two organizations can perform a great deal of good at Rutgers.

Elections for Chapter officers were held this spring. Those elected were as follows: President, Hugh Martin, Jr.; Vice President, Dominick Regina; Treasurer, Peter Tufano; Corresponding Secretary, Paul Ruthowski; Recording Secretary, Peter Thompson; Bridge Correspondent, Richard Traubin.

All of this past year's officers from the Gamma Epsilon Chapter have now embarked on new careers of one sort or another. It might be of interest to Chapter members, both past and present, to see what their fellow engineers are doing.

President, Mark Carey; Hughes Aircraft Company, Masters Program at U.S.C. Vice President, James Kraminski; Westinghouse. Treasurer, Michael Baum, Graduate School at Carnegie-Mellon. Corresponding Secretary, David Krozier; Singer Company, marriage (congratulations). Recording Secretary, Mark Silvester; IBM. Bridge Correspondent Thomas Murakami; Graduate School at R.P.I., Troy, New York.

This spring, 7 new members were inducted into the Gamma Epsilon Chapter at Rutgers. One of the most deserving of those new members was George Goehrig. He is a member of the United States Army and is 37 years old. He returned under aegis of the Army to complete his education after a gap of some 15 years. In addition to school work, he had a family to support and a career in the Army. It was an honor to induct him into the membership of our Chapter.

After our induction ceremonies, there was a party at the home of Dr. John P. Newton, a former professor at Rutgers College of Engineering. Members and faculty both enjoyed themselves tremendously.

This year, for the first time, the Gamma Epsilon Chapter presented Outstanding Electrical Engineer Awards to the members of the Sophomore, Junior and Senior classes. The winners were: Sophomore Award, Edward Schultz; Junior Award, Hugh Martin, Jr.; Senior Award, Mark Carey and David Scheir. The Chapter also nominated Mark Carey for the Outstanding Electrical Engineering Student award which is a National competition.

Finally, I would like to extend my personal appreciation and the Chapter's to three very important people, without whom the Gamma Epsilon Chapter could not have functioned as well as it did. The Department of Electrical Engineering secretaries, Connie and Dorothy, whose unstinting efforts made the paperwork for the Chapter vanish so quickly and Professor Louis A. Rosenthal, the Chapter Advisor. His assistance and counseling were invaluable. by Mark Carey.