

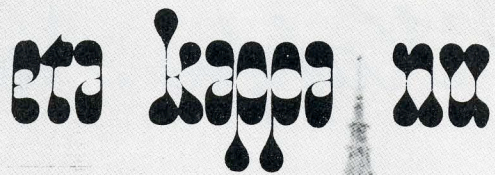
The Bridge of Eta Kappa Nu

may '85

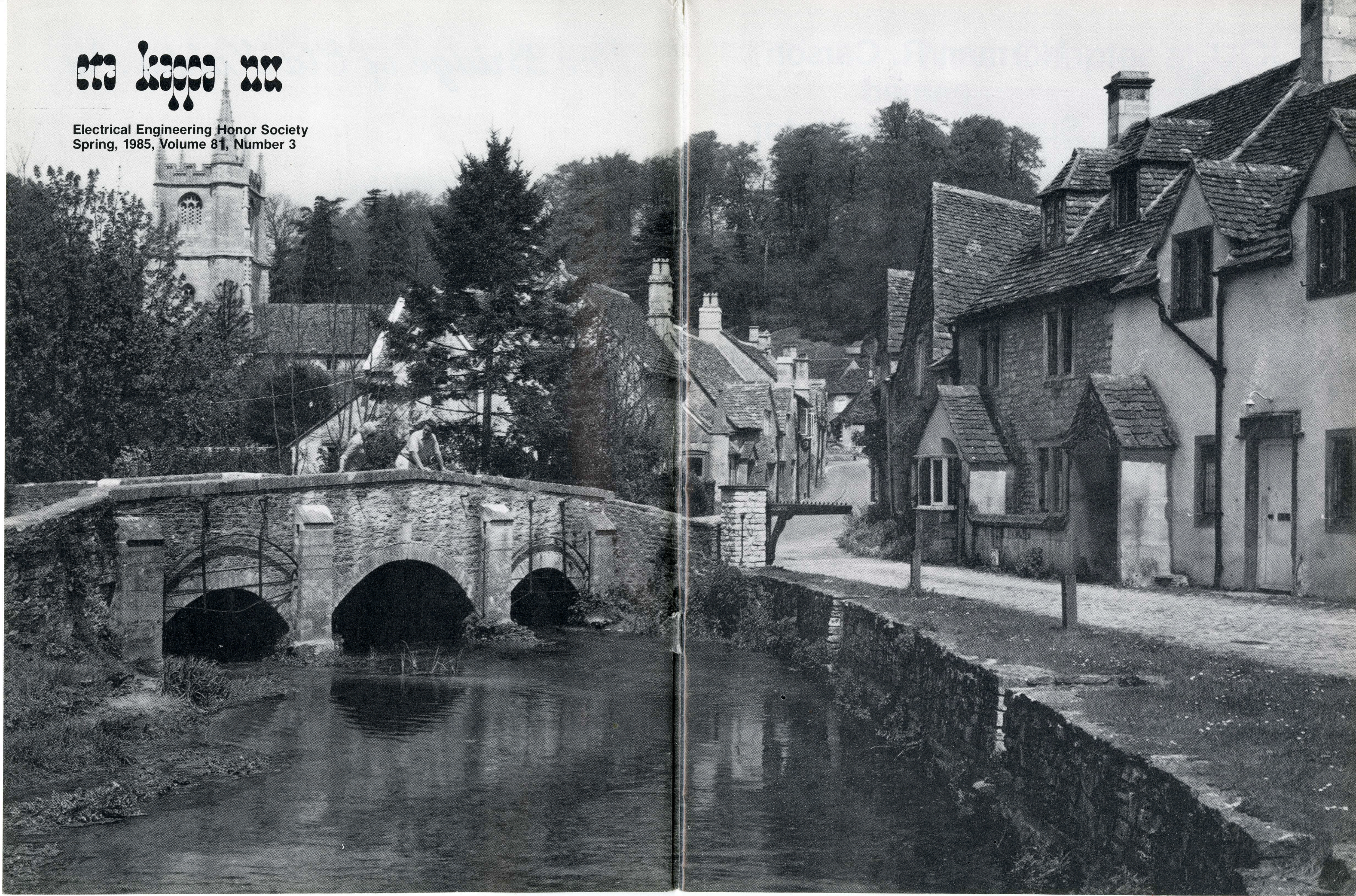
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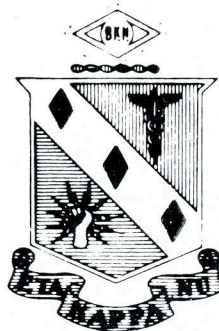


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Electrical Engineering Honor Society
Spring, 1985, Volume 81, Number 3





Norman R. Carson named Supreme Benefactor

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OUR COVER

Art work by
Jeannine Dixon



Norman R. Carson of Seattle, Washington has made a very generous donation to the Eta Kappa Nu Association which has been used to establish a PERPETUAL TRUST. The proceeds of the TRUST will be used to present a monetary gift each year to the winner of the Outstanding Junior E.E. Student competition in the United States. The award the first year will be \$500.00 and will become larger over the years.

Brother Carson was formerly Partnership Chairman and Executive Partner of R. W. Beck and Associates, one of the largest Consulting Engineering firms in America. He is currently serving as an International Director of the Eta Kappa Nu Association. He was recently admitted to membership in the COLLEGE OF BENEFACTORS with the title of SUPREME BENEFactor. Only two other people hold this title.

by Matthew S. Quan

On Friday, April 27, 1984, the Iota Gamma chapter of Eta Kappa Nu, the international electrical engineering honor society, was officially chartered at the University of California at Los Angeles (UCLA). The official ceremony was held at 4 o'clock in Boelter Hall on the campus, and later that evening, a banquet for the new members was held at the Yamato Japanese Restaurant in Century City.

Electrical engineering professor and now chapter advisor Dr. Alan Willson began the drive to charter a chapter of Eta Kappa Nu at UCLA, following the accreditation of an electrical engineering major at the School of Engineering. Previously, UCLA had only offered an engineering major with an electrical engineering emphasis.

In the early months of 1984, Professor Willson and prospective members held several meetings. At the second meeting, the following officers were elected: President, Jimmin Chang; Vice-President, Selene Anttila; Recording Secretary, Jodie Lew; Treasurer, Edward Johnson; Corresponding Secretary, Susan Seto; Bridge Correspondent, Matthew Quan. This cabinet and professor Willson worked long and hard to see the chartering of the Iota Gamma chapter of Eta Kappa Nu at UCLA.

To conduct the ceremony, alumni Eta Kappa Nu members from Headquarters, Mr. Marcus Dodson, Mr. Richard Cockrum, and Mr. Robert Kennerknecht, came to UCLA to charter the new chapter and initiate the new members. Altogether, there were 105 inductees, including 45 undergraduates, 55 graduates, and 5 professors.

At the banquet following the initiation, Mr. Dodson presented the Iota Gamma chapter with the official charter, a large plaque with all the charter members' names, then spoke about Eta Kappa Nu and the new chapter. Also speaking were Dr. Willson and Chairman of the Electrical Engineering department at UCLA, Professor Chand Viswanathan.

New Chapter at UCLA



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

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YOUR OWN CAREER

Larry Dwon, P.E.

Introduction

It is truly a pleasure and privilege to share one's experiences in engineering career planning and control at your Student Professional Awareness Conference (SPAC). It is very satisfying also that young eager minds are willing to listen to an experienced person, somewhat older than themselves, because reinventing the wheel is always an inefficient process.

Since an engineering career is a serious affair, I choose to attract initial attention to the subject by quoting some deep philosophy rather than telling a joke. According to Aristotle:

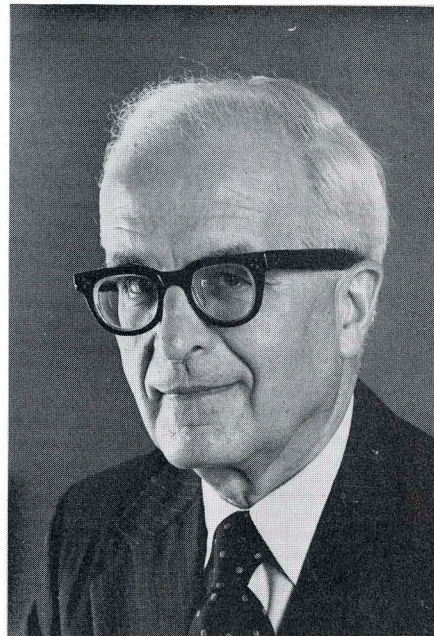
"The reasonable man would avoid extremes in behavior and seek the Golden Mean between extremes."

Each speaker will be what he is; say what he says; by virtue of experiences he encountered. Consequently, the speakers will be offering advice between the extremes in the universe of their own experiences.

My experience suggests that reasonable persons do adapt to the world they find. The unreasonable person is the one who tries to change what he encounters in the world a trifle toward some better goals. Therefore, I conclude that all progress is the result of unreasonable persons. There have been a number of occasions when I have been considered unreasonable by some persons in my work, my voluntary activities and socially. Yet, I have never been fired (came close once); I continue to serve in voluntary activities with some distinction; and I've been married for 42 years. Incidentally, my sons speak to me on occasions; and I do get the feeling that they are beginning to believe that I may be smarter with age, which may justify unreasonableness.

Voluntary services to my profession started early in school and continued to increase through college as the virtue of participation became better recognized. Voluntary activity has been an unbroken continuum

with me. I've been a member of many committees (chairman of them) in six professional, technical and industrial associations; as well as, in civic and cultural organizations. In each instance, I gained as much or more, from the voluntary effort as I gave to it. Therefore, my first plea to young readers, especially, is to give a part of yourself without fee to the engineering profession. It is my simple definition of professionalism. You will never regret the contribution.



Larry Dwon is a Consulting Engineer. He was President of HKN in 1959 and is now an Eminent Member. He is our Official Historian, and Assistant Editor of Bridge.

Normally at an SPAC, speakers account for about 100-person years of experience. In IEEE, it is estimated that there are over four million person-years of experience. By joining and being active in IEEE and other similar organizations, a person has the potential of gaining tremendous information from this huge storehouse of experience by listening, reading, questioning and discussing the ideas that are presented in the context of his/her values and career goals. Therefore my first caution as a speaker today is "Don't ever draw a final conclusion from a sample of one; and don't accept a speaker's statement unless it fits your values and your goal." Also, don't ever be afraid to expose your views to the world of dialogue. Actually, this talk is based on a sample of 682.

Many years ago when I was young, more idealistic than experience has taught me not to be; and generally people-inexperienced; I set a goal for myself to rise as high as possible, first as an engineer, and perhaps later as a manager. My preference was a lifetime career in engineering (something that may be an impossible dream in many industrial enterprises); but low salaries, poor assignments and lack of professional recognition and environment drove me to seek the MBA and the management path (15 years after my professional EE degree, and 10 years after I first acquired a P.E.). I entered management the hard way—by announcing to my superior that I was leaving the company for the above-mentioned reasons. After much management small and large wheel spinning (which would not have occurred had my engineering performance been mediocre) I broke into the management area (politics, even less recognition, actual loss of prior engineering recognition, conniving of the worst kind, cliques and other attributes of the management hierarchy that a MBA program did not teach). As Mr. Sporn often stated, "You don't learn management from books." Of course I did not believe him until the pragmatic truth unveiled itself before my own eyes.

I soon concluded that I was not a likely prospect for the officers' club (Assistant V.P. and above). The principal reason being that I wasn't a reasonable person. I seem always to be more satisfied with achieving results in spite of management foot-dragging than being president. In the technical and educational societies' vernacular, I was a "rabble rouser" which means that I wanted to correct a situation faster than the controlling deans wanted. I was told quite a few times that, "We prefer evolution, not revolution." It seems to me all top managers prefer minute changes over a long period of time because then the changes will not become effective within their lifetime. A general observation of all structured hierarchies (IEEE, ASME, ASEE, ECPD, large industrial enterprises, etc.) is that "Yes" persons shall be elected to preserve the system. The so-called "rabble rouser," on the other hand, has fun achieving results. Only Eta Kappa Nu doesn't seem to fit the pattern, because somehow I did become president and chairman of its Board in 1958. Perhaps

that is a clear indication that it truly is an honor society. Maybe Murphy had something to do with the event.

I have focused at some length on this aspect of an engineer's career, because much evidence shows that industry does discriminate with respect to age in employment, thereby, introducing a serious constraint on lifetime careers in engineering. Consequently, management becomes an alternative path for an engineer but not necessarily the correct one nor the only one. It grieves me to report that at least one Chief Executive Officer in a company that employs large numbers of engineers is purported to have told his management group that "An engineer who has reached age 40 and has not become a manager is not worth very much." In my opinion that CEO has reached his highest level of incompetence. By not striving to become a chief executive officer, I am still useful; I have not yet reached my highest level of incompetence; I do not have ulcers; I sleep soundly with my conscience and I am controlling my own career. This is not to say that some of you should not set your goals at being a CEO but please be human at the same time and don't forget that engineers are valuable assets to a technological society and the enterprises for which they work so loyally.

Hopefully, someday a financial statement will be invented that will show the owners of the business the value of human assets. Then it will be more difficult for inhumane managers to discard experienced persons to save a buck. Such managers who only look at short-term objectives simply disregard that the very people they discard for younger inexperienced ones made the buck possible that gave them an enterprise to manage.

My Message

With this introduction, it should be enlightening that planning and controlling a career means more than just finding a job and just working at it. Among many less controllable considerations are those already mentioned. Accepting a management job may not be the correct decision for all engineers. Age discrimination is critical to persons of all ages; because some employers begin to discriminate in employment with respect to age early (under-utilizing engineers as technicians is one indicator); and the practices get progressively worse.

Other more immediately important matters are continuing education, challenging job assignments, quality performance, establishing personal values and avoiding liabilities, maximizing opportunities, acquiring broad experiences, learning job strategies and how to negotiate. Additional considerations should be investigated before, not after, a job is accepted such as, patent rights, pensions, service contract problems, licensure and registration matters and ethical practices. I shall only discuss quite briefly my views on the first group mentioned above.

Continuing Education—If there were only one single bit of advice permitted to be given a young

engineer, it would have to be a continuing education program. As a student, you have developed a system for acquiring skills, knowledge and, perhaps, also some desirable personal traits. However, formal university education is not the only nor necessarily the most desirable method by which to acquire career leverage. A difficult-to-control method is to get good challenging assignments. Between the two, I have to concede to the latter. My definition of continuing education includes listening, reading, thinking, writing, speaking, teaching, working and volunteering. You can learn more about people by volunteering to chair a committee, for instance. There are workers, shirkers, complainers and talkers. You learn management skills by committee participation. The successful chairman (there are many unsuccessful ones) must do himself that which he does not delegate or cannot persuade or lead his committee members into doing. If he is a poor manager, he doesn't get rid of dead wood and recruit higher quality talent. Consequently, the chairman must learn how to manage his own time; because committee work is in addition to and lower in priority than other work for which the chairman is surely responsible. Thus delegation, leadership, persuasion, organization, planning and perseverance don't need definitions as in textbooks—they become realities.

What you gain by this extra effort is the practice of management in an environment that cannot hurt you as much as failures in your employment situation would do. You surely will impress some person with your dedication and achievements, perhaps, a manager in industry or some other employment category who is looking for such a person. A "headhunter" may have a friend on your committee. Therefore, be prepared for such a contact if you are an achiever or a good manager.

My first consulting client came without a search on my part. After months of job searching, directly upon retirement, all I had to show for the effort were many letters that I was over-qualified. Just when I was beginning to display bitterness, my wife said, "If you are so over-qualified, why don't you go into consulting." So I began to update and upgrade myself in my former areas of expertise. While doing so, a client called as a direct result of my formerly published papers and the activities within IEEE and elsewhere.

You better believe that writing and speaking skills are very important (almost necessary) acquisitions for maximum success in both engineering and management. These skills are arts which require practice to improve. Participation in professional and other activities provide the opportunities to practice. Consider the students among you who write and present papers, who lead discussion groups, IEEE branches or Eta Kappa Nu chapters; how much more they will have gained from such participation by the time they graduate. The value of such opportunities are unquestionable. Therefore, it becomes important to ascertain what the policy is in the company of your choice regarding your ability to become involved in such activities. Some companies

are unreasonably restrictive others are more enlightened about the value that accrues to them from such professional participation, as well as, to the participant.

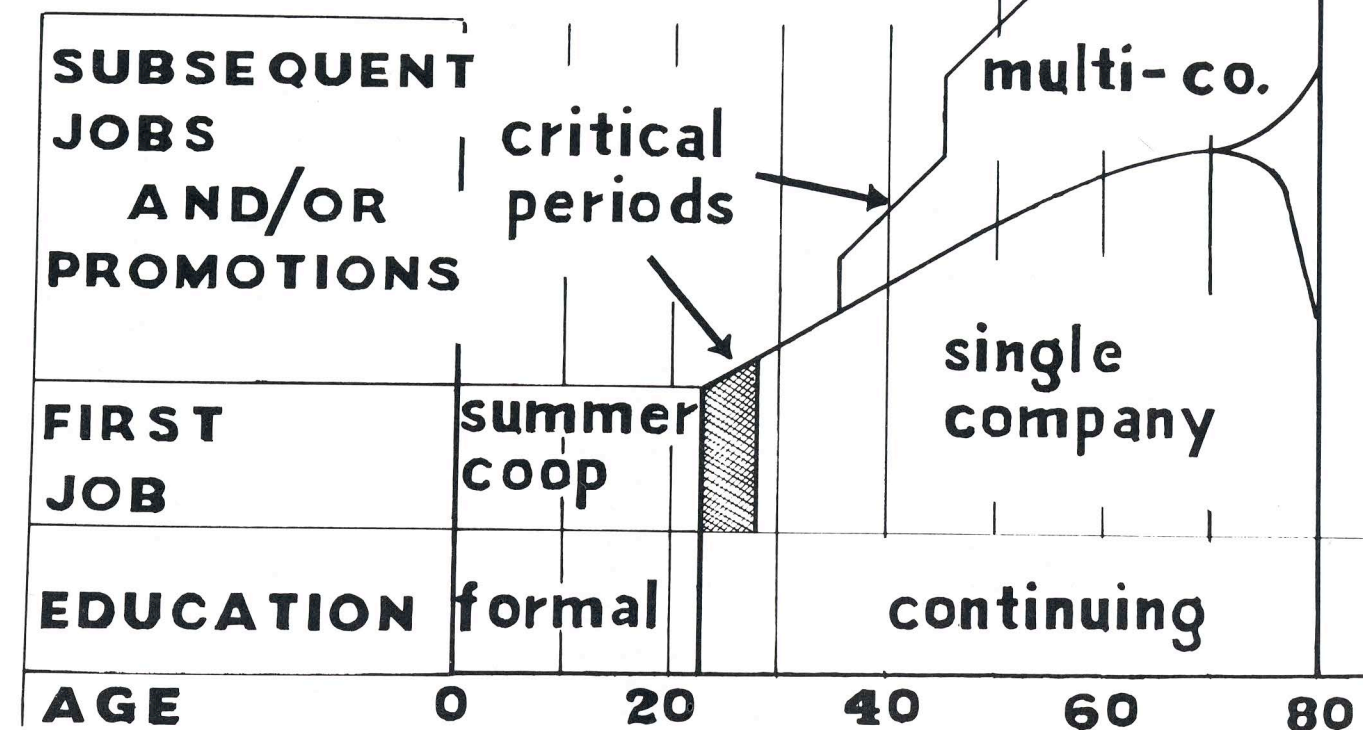
My more recent consulting and teaching activities came as a direct result of the self-motivated continuing education program that I still continue to follow. By updating and upgrading myself in several former areas of engineering expertise and in extension of them, it is literally almost as difficult for me to find enough hours to meet all requests on my time as it was when employed in a structured organization. The library is a peaceful place in which to rejuvenate oneself and to regain the self-confidence that is necessary to perform professionally. The consulting field could have been my path sooner in my career had I not placed so much emphasis on security and fringe benefits; and especially had I done more research as to my worth on the open market compared to what the company's salary structure combined with the appraisals my managers made of the worth of my contributions to the bottom line of the company. Never forget that a manager's job is to keep costs down. Your salary is part of those costs. Many managers are more concerned with their own careers than those of their employees. Your leverage to control such managers are the skills that are to be discussed.

Quality Performance—All wage and salary administration plans devised for industry and administered by managers and personnel departments are supposed to be based on merit. This implication presumes that performance is a key factor in the procedures. It also implies that performance can be measured accurately and that it is properly evaluated by the appraiser. There are a lot of assumptions here.

Suffice it to say that appraisal systems vary among companies, as well as among managers within the same system of wage and salary administration. For one thing, many characteristics and factors are used as measures of merit, including: quantity and quality of work performed, knowledge, judgment, initiative, reliability, attitude, expression, leadership, cooperation and soon. Obviously some of these factors are subject to considerable variation of subjective judgment and manipulation. Consequently the best that can be said for many of these systems is that there is a consistent set of rules put forth to be followed. Whether they are followed is another story. My experience definitely suggests that they are not implemented as truly merit systems equally well by all managers.

Why then do I emphasize quality performance when salary or other rewards may not be based truly on this factor? Voluntary quality performance is recommended primarily to keep the individual's side of the ledger black (clear conscience) and the manager's side red (to morally sensitize him if that is possible). Consistent professional and ethical performance, beyond the call of duty (the norm) should provide a clear advantage to the performer

A CAREER PLAN



over those who slack-off, in the eyes of a fair and objective appraiser, excluding politics. But who says the world is fair all the time? Under these less favorable circumstances, the good performer has the leverage of knowing he/she doesn't owe something to the employer; and whereby possesses the freedom to negotiate from strength for salary adjustments, new challenging assignments, promotions and/or other career paths in a different ball game.

Art of Negotiating—In the industrial world, people who know how to negotiate properly gain more advantage. All negotiations involve three elements—verifiable information, proper timing and a power base. Your verifiable information is your performance record in challenging assignments (most important), continuing education program (important only to some employers) and people-related skills that have value to all employers (but some employers want different skills than others). Your consistent quality performance is your principal marketing factor. Proper timing is not an easy matter to judge correctly, especially, if you are dealing with a manager who tries to keep his employees off balance. In such a situation, it sometimes is wise to force an issue at the least inconvenient time to the manager (to deprive him of his finesse tactics) provided that you have a strong case with an alternative path to follow should you lose in your strategy. Always have an alternative plan—your own ace in the hole. Your power base is the

knowledge that you have performed better than was expected which will be generally recognized by your associates and peers, if not by the manager. That knowledge and good feeling should give any professional person the confidence and courage to negotiate positively, from strength and without fear.

The demonstration of appreciation of my performance has never been equaled in industry as it has been in the last five years working as a consultant. High grade performance does not only spawn new work and clients but it commands better remuneration without a hassle as it often does in an industrial atmosphere. The greatest fault of managers is that they fail to give adequate recognition for service rendered. Therefore, appreciate the boss who values your services and lets you know that he does. Look for such a boss and if you should be so lucky to have one, then support him or her. I have had only two such bosses of the ten I've reported to. Two others were miserable creatures to work for and with. All others were mediocre and only interested in their own well being.

Values and Liabilities—Successful careers require that appropriate values are established which include high personal standards, goals that make a person stretch and work to achieve them and the avoidance of liabilities that would hinder career progress. Consider the following questions and answers:

What is your	Values	My Answer
Best motivator?		Only you can motivate yourself. Incentives by others may help.
Most trustworthy feedback?		Your conscience.
Greatest professional feeling?		A job well done that commands peer group recognition.
Best performance?		Ethical and professional.
Greatest need?		Good judgment and common sense.

Most of these values are gained from experience not learned from books. That is why varied experience through work, social and voluntary opportunities pay off so handsomely.

At the same time, you should avoid the following:

What is your	Liabilities	My Answer
Greatest handicap?		Fear.
Biggest mistake?		Giving up too soon.
Easiest job?		Finding fault.
Poorest attribute?		Not giving the best performance.
Worst obstacle?		Uncontrolled ego.
Contemptible act?		Unethical and unprofessional.

If you have to find fault please first find it within yourself. That would be called self-assessment. Because people soon forget your accomplishments, you should keep a running record of them for use when it seems timely to remind someone of them. Perhaps there is an award that you may be qualified for. Show your record to a friend and let him judge whether he should nominate you. Just don't display your ego too often too prominently. But don't hide your achievements either.

Efficient Use of Time—Eta Kappa Nu members who recall the ritual will remember the reference to "hard and sometimes disagreeable work." A recent Harvard study concluded:

"More than intelligence, family or social class, the willingness and capacity to work, proved most important in predicting a child's well being as an adult."

Work takes time. So what is undeniably the one thing to which everybody is born equal? Well it is obvious that everybody has access to 24 hours in a day in which work and other things may take place. That means that by age 40 (mid-career) a person has had 350,400 hours in which to accomplish something worthwhile. At age 70, I have had 613,200 hours. I believe that some worthwhile accomplishments have been made by me; but not as much as Alva Edison did in the 735,840 hours that were available to him in 84 years.

Efficient use of time affects careers positively.

People Affect Careers—A very involved and important subject is people. I have heard professors say, "Teaching would not be half bad were it not for the students." I suppose students could paraphrase that remark also. By the same token, engineering would be fun if it were not for managers, especially those managers who are incapable in the function and who don't want to learn management skills.

Sometimes they are not to blame for not wanting to learn; because they are aware that the atmosphere in the enterprise is just not conducive to the practice of management as taught at Harvard, M.I.T., Michigan, Ohio State or any other good school of management. Yet companies continue to waste money sending their hand-picked employees to these edifices of learning... Just so they can say they do.

Actually, anyone could get along with perfect people; but your task will be to get along with imperfect people, like engineers turned managers who forgot their feelings when they were engineers. Wise managers don't encourage mistakes; but they expect them. They also realize that without freedom to fail most people would not try new things. There would be no progress.

Therefore, one of your objectives should be to find a manager who would permit you a mistake, once in awhile, and who had the skill to show you the better approach in a way that would make you feel thankful. Show me a manager who himself never makes a mistake, and I will show you one who never:

- tried new procedures
- set his goals too low
- never stretched himself because it meant extra work, and who surrounded himself with mediocrity—a place you should not want to occupy.

People affect careers so don't ever forget it.

In his book "The Gamesman," Michael Macoby identifies four types of engineers in the technological world of industry:

Craftsman A job worth doing is worth doing well.
Company Man. He has taken vows of organization life.
Jungle fighter Power over people is his main goal.
Gamesman Winning is his main goal.

I have met and worked for each of these characters. In spite of that, I have had a successful, interesting and satisfying career in industry; but not necessarily because my bosses helped me have such an experience. Any good feeling that I have about my career is the result of self-motivated action. I worked happily and well under my two excellent bosses under difficult situations. I was miserable under two miserable characters who did no one any good but themselves. The others ranged from poor to good (generally mediocre) during which periods I felt myself getting into a rut and I was forced to resign or otherwise seek new opportunities. Each time, I had to initiate the change, otherwise, I would have remained in the rut. Do not remain in an unchallenging job for too long; because such a rut is a demoralizing experience.

Therefore, start studying people. You can do this best by getting involved with them in voluntary activities about which so much has been said already. Career success requires the following:

- Technical qualifications.
- People relations astuteness.
- High standards of performance.
- Ability to write and speak.
- Confidence in yourself and what you are capable of doing.
- An ethical and professional attitude.

Maximize Opportunities—By taking advantage of the many opportunities that are available, you can improve your worth to the engineering profession, to your employer and to yourself. Your career horizons will expand well beyond those you may have set as a student. So take advantage of what your employer has to offer that would improve you. It is part of the remuneration for being an employee, so don't cheat yourself. There may be contractual considerations involved. Make sure the benefits to you exceed the cost to you. There is nothing unethical about this statement. It is exactly the way your employer set up the program in the first place—to get the benefit advantage over the cost. Just be sure that all the forces acting on you and your career (self-generated or externally generated) are vectorially positive in the direction of the road you want to travel.

Take advantage of the school offerings in your location. First make sure there are schools in the locale of your prospective employment before not after you accept the job.

Take advantage of activities in IEEE, Eta Kappa Nu and other organizations. Again make sure before you take the job that your future employer will encourage your participation and pay the expenses of such participation. Some employers do encourage but others discourage participation in professional activities.

Take advantage of other voluntary activities in the community. They all will benefit you as much or more than you will benefit them. Such broad experiences will principally benefit you in the people relationship category of your learning requirement.

Job Strategies—There is more to a career than finding a job. That is strategy number one. The equally important strategies are doing the job; and leaving the job. They are equally important. You will need these strategies more than once.

So in summary, I repeat with emphasis, "Plan and Control Your Own Career." Very few people will care about you and your career. Only you can be trusted with such an important consideration. Don't let Murphy take charge.

Be realistic about your aspirations; but be positive and confident because of:

1. Who you are.
2. What you can do.
3. How well you are prepared to perform what you can do.

Career Plan—You now have the basis of a career plan. A general plan is illustrated in the figure. It is general enough to fit some of you, but not specific enough to fit each of your values and or goals. The important elements are highlighted below:

Education Continuum—
Pre-industry
Within industry
Outside of industry

Challenging work—
1st year most crucial
1st five years very important to stay out of technician rut
Remember that an under-utilized engineer is a technician

Remaining a technician too long depreciates your market value

Age 35—

Check the market place to determine your true value
Your employer's salary structure is based on a restricted sample of the market and probably age-based.

Besides, your manager may not be appraising you according to your market value.

There is no law preventing you to check your worth.

Age 45—

Determine how you fit into the internal hierarchy structure.

Have younger persons by-passed you? Why?

What progress remains for you?

Are you satisfied with what is in store for you?

If you are, then don't gripe just do your best work and hope that age discrimination practices in employment will not become your unjust due.

If you are not satisfied with what is in store for you, don't gripe, plan your move but don't until you have a firm offer

Age 55—

Don't seek outside positions unless the Headhunter approaches you, then be very careful.

This may be your last chance to make a step function jump, to a higher salary and more risk. Be sure you want and can afford the risk. Your chances of success are at best fifty percent.

Age 70—

Under the present law involuntary retirement is still permitted at this age.

Don't retire if you still can be useful in your expertise areas.

The world needs experienced people who are willing to continue working.

The world may surprise you how much more you are worth than your employer thought.

Retirement is a depressing state to a person not ready to throw in the towel.

Now is the time when you really can plan and control your own career. So do it and you will be better off for having done so.

Planning Guidelines—Here I would refer you to two very excellent books: "Where Do I Go With My Life From Here," J. Crystal and R.N. Bolles; and "What Color Is Your Parachute," R.N. Bolles. The more important competencies you should develop are:

- **Self-Assessment** which was referred to previously. If you don't know yourself, how will you know what would satisfy your goals? How can you sell yourself? How can you improve yourself? These are vital questions in your career planning strategy. Therefore, determine your personal and technical strong and weak assets as soon as possible through self-assessment and then prepare yourself to sell from strength.

- **Opportunity Assessment** means a determination of what they are, where they are, and how

they fit your plans and goals? What industry? What company in that industry? What location? These are not simple matters to resolve but the information is available in the libraries in many forms. Another question must be, "Are there educational facilities in the area that fit your continuing needs? Does the employer have an education plan that will apply to you? Will you have the voluntary opportunities that have been enumerated previously? Do you want a risk in a new enterprise or security in a more established enterprise? Would you rather be free to do as you wish with a chancey income situation at the beginning? What are the costs and the benefits to you and your family?

Objectives and goals should be formulated early in life and revised as new information presents itself that would cause you to change your plans. Objectives should be fitted to a time scale so your progress toward your goal is more easily evaluated. Consider these additional questions; If you do not know where you are going how will you be sure that you will get there and when you have arrived? The chances are that in such a quandary Murphy will take over and you will be disappointed in the end. Set realistic goals that will make you work and stretch enough but not so much as to exceed your physical and mental capacity. Always have alternative plans should your primary ones flounder. There is no such thing as a single solution to pragmatic problems of life.

The Matter Of Loyalty—In the engineering profession there are three groups of people:

1. A small group who is more loyal to the employer and their own personal missions in life than to the engineering profession.
2. Another small group who is more loyal to the engineering profession than to the employer and/or their own mission.
3. A very large group of apathetic engineers who have no strong feelings or positions until some catastrophe occurs that affects their careers and life. Every person has many other loyalties (country, family, friends, etc.) in differing degrees. Nevertheless, speakers from industry often expound to young students of engineering about what industry looks for in the graduates they hire. These talks are fine and sometimes they are useful and informative. However, employment is a two-way street. Engineers have needs also and they should seek employers who provide them with their needs as well. IEEE has defined them as follows in a position statement:
 - Lifetime careers in engineering with adequate rewards.
 - Public support in solving social problems.
 - Qualification enhancement to enter the profession.
 - Positive incentives for individual contributions.
 - Positive work environment, challenging assignments and educational opportunities to

maintain proficiency.

• Enhancement of IEEE's technical preeminence. Yes, a career is an uphill climb which demands self-motivated sustained effort, useful and challenging experience, continuing education, hard and sometimes disagreeable work, astute people relationships and voluntary professional contributions. Writing and speaking skills are most valuable for ultimate success.

Conclusion

As I promised early in this article, what I have written is not from a sample of one but from a sample of 682. Until 1978 the writer had the privilege of reading 681 dossiers to the Eta Kappa Nu Outstanding Young Electrical Engineers Award. As a matter of fact he may have been the only one on the Award Organization Committee to have done so. Nevertheless, an analysis of these documents produced the following observations about the recipients of awards as well as all nominees (remember, they only had ten years or 87,600 hours):

1. They possessed a large capacity for and a genuine willingness to *work hard*.
2. They had a strong desire to obtain *as much education as possible* in a wide spectrum of accumulated knowledge.
3. They developed an ability to *set goals early in life* and pursue them diligently.
4. They developed working and living habits which *maximized their innate abilities* in the time available to perform.
5. They were *not selfish* because their contributions toward other peoples' welfare stand out sharply.
6. They had the *faculty of getting cooperation*, especially from their families, otherwise it would be difficult to account for their having accomplished so much through the effort of a single person.
7. They developed *broad interests*.

The message is clear. Professional attitude and self-motivated contribution to fellowman, beyond the call of self-interest is the essence of career success.

Remember, you don't have to be perfect to be excellent.

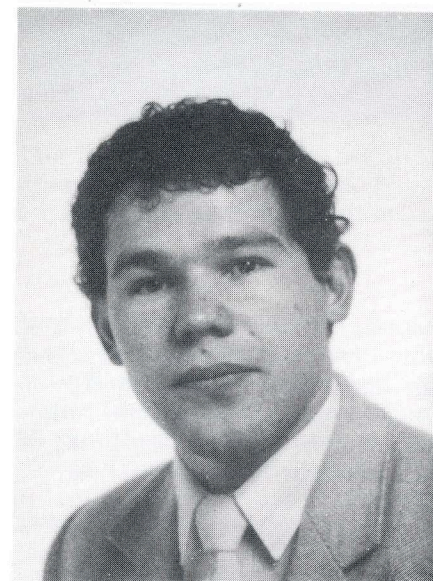
A YOUNG SALESMAN was disappointed. He had lost an important sale. In discussing the matter with the sales manager, the young man shrugged. "I guess," he said, "it just proves you can lead a horse to water, but you can't make him drink."

"Son," said the sales manager, "let me give you a piece of advice: Your job is not to make him drink. It's to make him *thirsty*."

Student Awards

in the

World Region



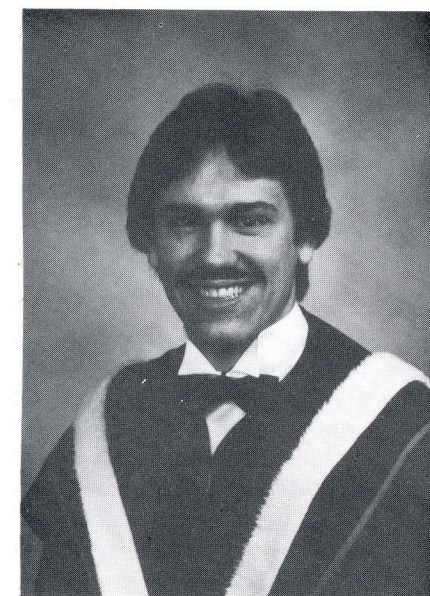
Thierry Bomer

Two students in the WORLD REGION of Eta Kappa Nu were recently honored with the OUTSTANDING STUDENT AWARD of the Association. The establishment of these awards was accomplished during the seventy-fifth anniversary celebration of Eta Kappa Nu in 1979. The monetary gifts are made possible from the proceeds of the Paul K. Hudson Perpetual Trust Fund, established within the Eta Kappa Nu Association.

Mr. Thierry Bomer of Paris, France, has been recognized as an OUTSTANDING STUDENT at the ECOLE SUPERIEURE d'ELECTRICITE, Gif-Sur-Yvette (Paris) France. This college ad-

ministers one of the most prestigious electrical engineering departments in Europe. He was nominated by the Director General, Dr. J. L. Delcroix and his faculty, who have been very cordial and helpful in all ways. When Mr. Bomer matriculated at the college, he placed fourth among the two thousand students who took the entrance examinations. Only the top eighty-five were admitted. He has now placed first in his class during each year of his undergraduate program. One of his primary interests is the theory of Instrumentation. In a recent "thank you" letter from Mr. Bomer he concluded with: "I hope I will soon have the opportunity of visiting your beautiful country and meeting you." We will look forward to the pleasure of that as he is a most outstanding young man. Mr. Bomer was presented with an attractive Recognition Certificate, a substantial monetary gift and a membership in Eta Kappa Nu.

On the recommendation of the Board of Examiners of the IV year, the Department Council of Electrical Engineering of the University of Manitoba, Winnipeg, Manitoba, nominated Mr. David T. Paradis to receive the Outstanding Student Award. The University of Manitoba is one of the foremost universities in North America and their electrical engineering department is truly outstanding. Dr. R. M. Mathur, is Professor and Head of the E.E. Department, and



David Paradis

has been most helpful in the establishment of the award at his school. Mr. Paradis was presented with an Attractive Recognition Certificate, a substantial monetary gift and a membership in Eta Kappa Nu.

Mr. Paradis maintained a perfect academic record, receiving no grade below "A" with most of them indicated as "A+". He was placed on the Dean's Honor list for the entire four years. He is the author of a paper titled "An Undergraduate Core Course: Engineering Law, Organization and Management." We hope that it will be possible to meet and greet Mr. Paradis in the not too distant future.

The First Time I Saw Paris

part four

Love Stories of Paris...2

*Ah, Love! could you and I with Fate conspire
To grasp this Sorry Scheme of Things entire,
Would we not shatter it to bits—and then
Re-mould it nearer to the Heart's Desire!*

*Yon rising Moon that looks for us again—
How oft hereafter will she wax and wane;
How oft hereafter rising look for us
Through this same Garden—and for one in vain.*

From The Rubaiyat

Years ago when my children were in high school, I went to my oldest daughter's room one evening to say good-night to her. She was sitting at her study desk reading. "What are you reading?" I asked.

"My English assignment," she answered.

"Tell me about it."

"I don't think you would know about this, Daddy, and it would take me a very long time to explain it."

"Well, in general, what is it about?"

"It is the letters of Heloise to Abelard."

"Are all of her letters there, or just the ones she wrote from the Paraclete?"

"Daddy!!!!!! How did you happen to know about these people?"

"Oh, I don't know—those two are just about the most famous lovers in the history of the world. That is

why they are teaching you about them in school." She listened with interest as I told her the story, leaving out the parts she had already learned.

I concluded by telling her that when people visit Paris they often go to the Pere Lachaise cemetery where Heloise and Abelard are



by PAUL K. HUDSON
Editor — Bridge

buried. There is a shrine there where one may pay his respects. I told her that she would likely visit Paris some day and that she might want to remember these things as well as her high school English class.

In the twelfth century Abelard was a Professor (Canon) at the Cathedral College of Paris. By middle life he had it made. He was honored, respected and had more students than most others. But then his life went all to pieces. He had so many problems that he finally wrote a book entitled *The History of My Calamities*. The first calamity was a run-in with the Church. Many of his lectures were devoted to making rational interpretations of passages in the Bible that were not clear or reasonable to the average reader. The Church did not approve of this and threw him in jail a couple of times. The real problem was that he was born before his time. It was not so many years later that Thomas Aquinas was made a Saint for doing the thing that got Abelard thrown in jail. Ultimately he started giving his lectures across the river from the Cathedral, in the park area around the church of Saint Julian



The park area around Saint Julian du Pauvre where Abelard lectured. Notre Dame is in the background across the river.

du Pauvre. It is reported that three thousand students went with him, thereby creating what became known as the *Latin Quarter*, that is, the quarter of Latin-speaking clerics. Because of Abelard, St. Julien du Pauvre became the official seat of the newly chartered University of Paris. But this is not the part of the story in which we are most interested.

Abelard had another calamity that was much larger than his problem with the Church. There was another Professor at the Cathedral College who had a beautiful and talented niece. Some historians say that she was his illegitimate daughter, but let's give him the benefit of the doubt. The Professor's name was Fulbert and his niece's name was Heloise. Girls did not go to school in those days and Fulbert asked Abelard if he would move into his home and tutor Heloise in the subjects of the day, for a fee. When Abelard saw Heloise, he accepted. It did not take them long to fall in love. One day Fulbert came home unexpectedly and found them engaged in a biology seminar and he booted Abelard out of the house. But it was too late. Some weeks later Heloise

wrote Abelard a letter telling him that she was with child. Abelard replied that he wanted to marry her, but she refused. Although Professors were not Priests and therefore could marry, the Church did not approve of that and Professors who married, pretty well cancelled out their future. The letter that Heloise wrote to Abelard telling him that she would not marry him because she loved him and did not want to ruin his future at the College, is considered to be one of the most famous love letters ever written.

They were secretly married with only Fulbert and a couple of others present and then Heloise went to live with some relatives until her child was born—a son whom they named Astrolab. A strange name perhaps, but the idea was that he was something from Heaven. She then went to live in a Nunnery. She wore Nun's clothes but took no vows and was not obligated to the church except for the hospitality. Abelard visited her there late at night on a regular basis. However, he made a very serious mistake. He forgot to tell Fulbert any of the details of this arrangement, and Fulbert did not ask. He just



The location of Fulbert's home on the Quay of Flowers, where Heloise and Abelard lived. The large plaque above the window reads: ANCIENNE HABITATION D'HELOISE ET D'ABELARD 1118. REBATIE EN 1849

presumed that Abelard had put Heloise in a Nunnery (with vows) to get rid of an unwanted wife. He got a gang of thugs together one night, broke down Abelard's door and chopped him up a bit in a way that he did not want to be chopped up.

So—the marriage was over. Abelard built a Nunnery for Heloise where she could be the Mother Superior. They named it Paraclete. Abelard became a Priest and came to Paraclete to see Heloise and say Mass, once in a while. When they died they were buried at the Paraclete.

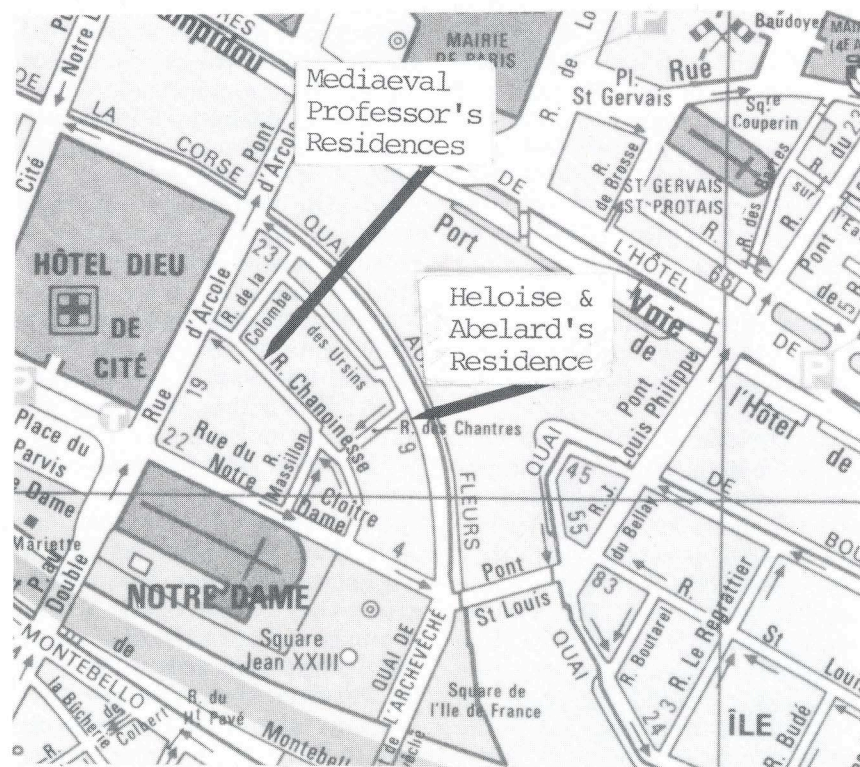
The world will never know how much I lost when I lost you, began one of Heloise's letters to Abelard, written at the Paraclete. She was not entirely correct. A short while after they were dead, a great groundswell of national sympathy and compassion arose. Their bodies were removed from the Paraclete and taken in a funeral procession to Paris, with Masses sung in all the churches along the way, and at Paris when they arrived. They were buried with honors in the Pere Lachaise cemetery, where they remain today.



The courtyard of the home at 22 Rue Chanoinesse—one of the two remaining homes of the Mediaeval Professors.



Neat little town-houses on a cute little street, but they are for the dead not the living. However, for a time in 1871 they were for both. These are burial kiosks in the Pere Lachaise Cemetery.

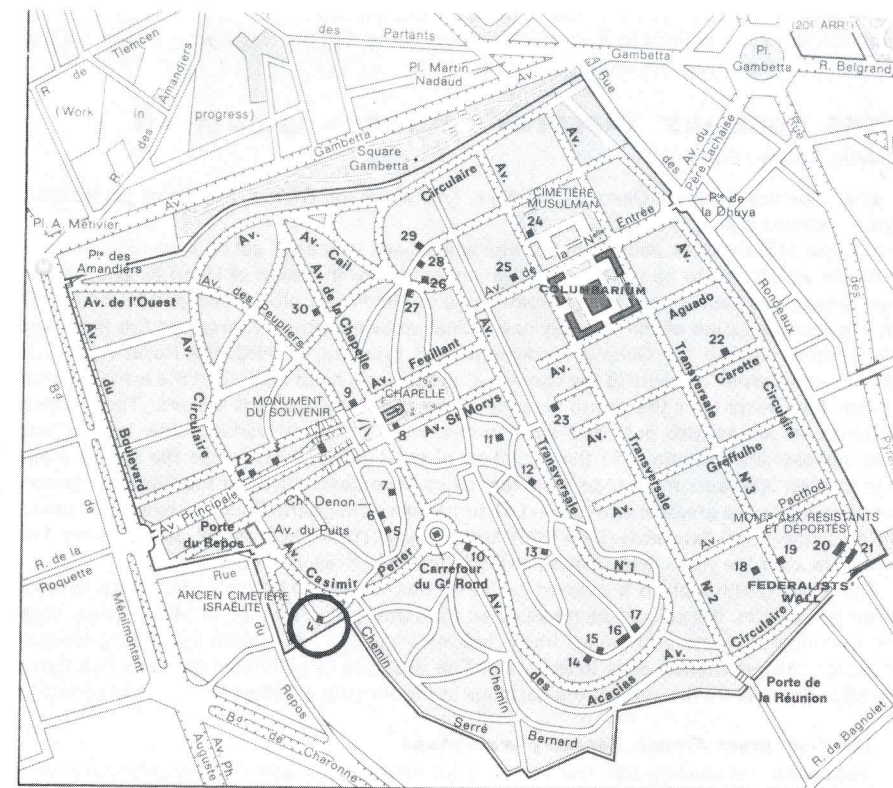


Map of Paris in the area of Notre Dame showing the location of the two remaining homes of the Mediaeval Professors on the Rue Chanoinesse and the location of the home of Heloise and Abelard on the Quai of Flowers.

In coming out of the Cathedral of Notre Dame, if you turn right (north) go one block and turn right again, you are on the Rue Chanoinesse. A little way down the street and on the left are numbers 22 and 24. They were built hundreds of years ago and are the last of the Mediaeval Professor's homes. I do not know if records were kept of the people who lived there but it is not likely that Abelard lived in either of those houses because I am sure they were built after he was gone. However, he may have lived at the location of either of them.

Farther on down the street, we turn left on the Rue des Chantres. Follow this street a short way and we come out on the Quay of Flowers. Turn right and about three houses down is the former location of Fulbert's house where Heloise and Abelard lived. A large plaque has been mounted on the front wall stating that this is the ancient home of Heloise and Abelard in 1118.

The Pere Lachaise cemetery was one of the many things in Paris for which I was utterly unprepared. It is the largest in Paris but I had a



- | | | |
|------------------------|-------------------------------|---------------------------|
| 1) Colette | 11) Corot | 21) 1871 Commune victims |
| 2) Rossini (cenotaph) | 12) Molière and La Fontaine | 22) Oscar Wilde |
| 3) Baron Haussmann | 13) Hugo family | 23) Sarah Bernhardt |
| 4) Abelard and Heloise | 14) Marshal Ney | 24) Marcel Proust |
| 5) Chopin | 15) Beaumarchais | 25) Guillaume Apollinaire |
| 6) Cherubini | 16) Marshal Masséna | 26) Delacroix |
| 7) Bellini | 17) Murat and C. Bonaparte | 27) Michelet |
| 8) Thiers | 18) Modigliani | 28) Gérard de Nerval |
| 9) David | 19) Edith Piaf | 29) Balzac |
| 10) Auguste Comte | 20) Paul Eluard and M. Thorez | 30) Bizet |

good map and thought that I could just drift in and out. How wrong I was. I hired a cab and told the driver to take me to the places I had marked on the map. At the main gate we were stopped to allow a funeral procession to enter the cemetery. The hearse that led the long parade of cars was a most interesting vehicle and I would have liked to take a better look at it. I felt like I was getting the full "Paris treatment" even at the cemetery. After the procession had gone by, we entered the main gate and immediately became paralyzed. The streets are very narrow and winding, being wide enough for only one car. There was no way to move over a little to let another car pass. Where we were, there were no tombstones as in American cemeteries, but instead, rather tall and slender Kiosks, side by side. You can see only a few feet ahead of you in most directions. We

drove a short way and then decided that we had no idea where we were. The cab driver tried very hard to be helpful but he finally said, with a completely defeated look on his face, "I think the grave you want is somewhere over in there." He pointed to a wilderness of kiosks that seemed to extend clear to Spain. To me it looked somewhat like a vast Amazon jungle. I replied, "Let's go home." I realized then that when American authors like Mark Twain visited the grave of Heloise and Abelard they engaged a cemetery guide ahead of time. The only other thing to do is just wander around on foot for many hours. A few days later, on the train back to London, we met a young American co-ed who had visited Paris for a month or two. She said that she had wandered in the cemetery all afternoon for four days before she felt that she knew the place.

The Pere Lachaise Cemetery in Paris. It is located a mile east of Notre Dame and is the largest cemetery in Paris.

As shown by the small circle, the grave of Heloise and Abelard is at number 4 near the south-west edge of the cemetery.

The Federalists Wall is at the south-east edge.

Many of the most famous people in the history of France are buried in this cemetery.

It was a disappointment that we never found the Heloise and Abelard grave, and a double disappointment that we did not get to see the Federalist Wall. In 1871 there was a revolution in Paris that was called the Paris Commune. It failed and the last battle took place in the Pere Lachaise cemetery. Fierce fighting took place among the graves during the night of May 27th. The final stand took place the next morning when 147 survivors were captured, stood up against the cemetery wall and shot. However, there were quite a number of others who hid in the burial kiosks and were not captured. They stayed in the tombs in the daytime and then went into town each night to forage for food in the garbage cans. During the short time I was in the cemetery I saw a number of kiosks that would be ideal to hide in, if you had that need.

Iota Delta Chapter installed at Stevens Institute of Technology

by Alan Lefkow

Directly opposite the imposing skyline of New York City, on the other side of the Hudson River in Hoboken, New Jersey, is the Stevens Institute of Technology. From its beginning in 1870 as a small mechanical engineering college, Stevens Institute has grown to serve a student body of 3000. It offers graduate and undergraduate degree programs in electrical, chemical, civil, mechanical, and ocean engineering, the sciences, data management and industrial management.

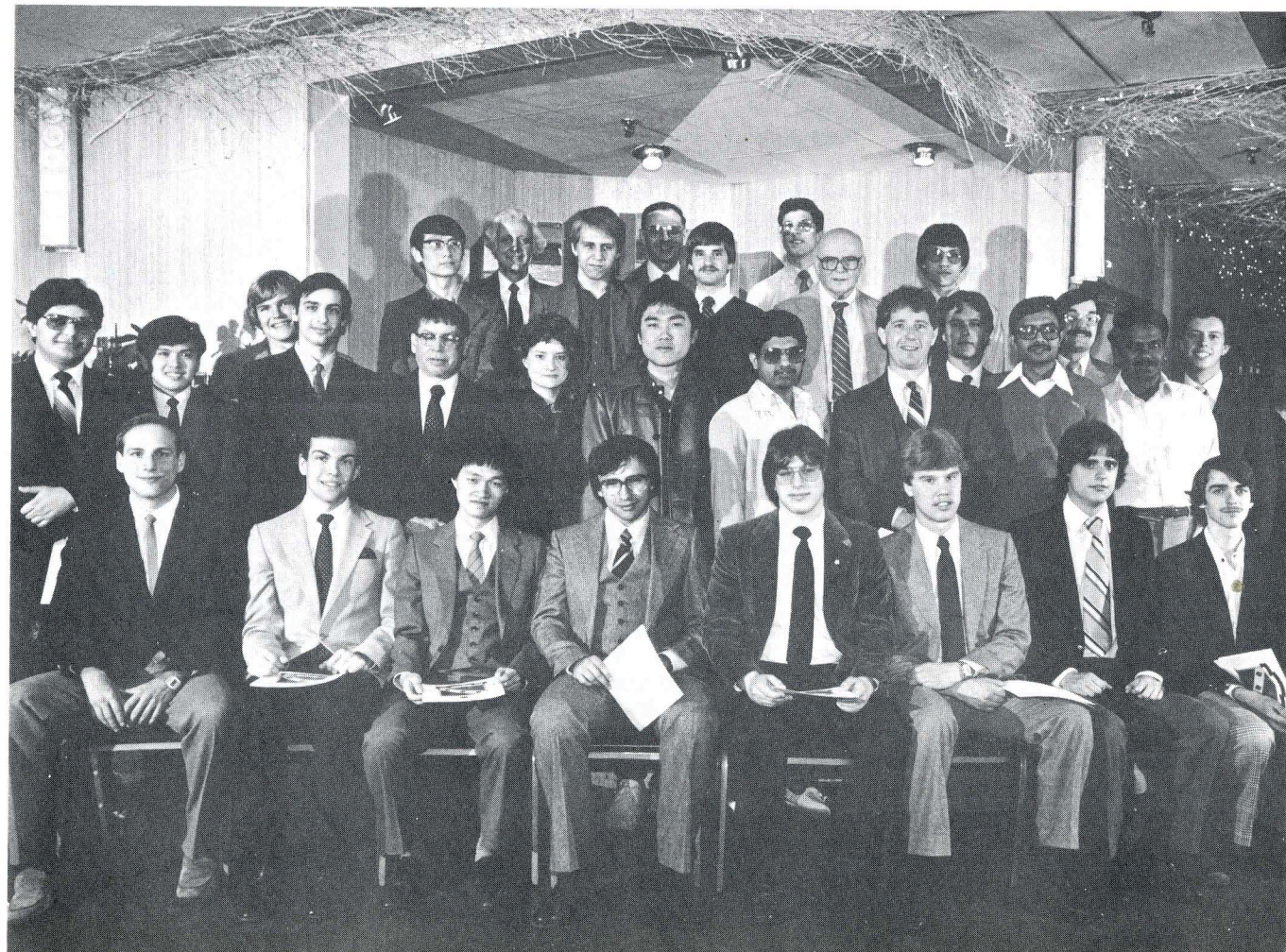
One of the departments at the college is the Department of Electrical Engineering and Computer Science. Although the Stevens Institute has been a pioneer in engineering education, and offers

electrical engineering students just about anything they could want, there was still one thing lacking: an Eta Kappa Nu chapter. That was "corrected" on May 6, 1984, when Iota Delta Chapter was installed at the Institute.

The new chapter was the result of an effort spearheaded and carried to fruition by department chairman Francis Boesch. Past-Eta Kappa Nu Director, Alan Lefkow, had the privilege of installing the new chapter, ably assisted by Dr. Boesch and other Eta Kappa Nu members of the E.E. faculty. Twenty-nine prospective candidates, consisting of graduate, undergraduate, and faculty members, were the first inductees. Among them was faculty member Dr. Charles Giardina, who will be

the new Faculty Advisor of Iota Delta. At the end of the induction, Mr. Lefkow presented the chapter's new charter to Dr. Kenneth Rogers, President of the Institute. President Rogers praised the high ideals and goals of Eta Kappa Nu and offered the full support of his office to the newly created chapter.

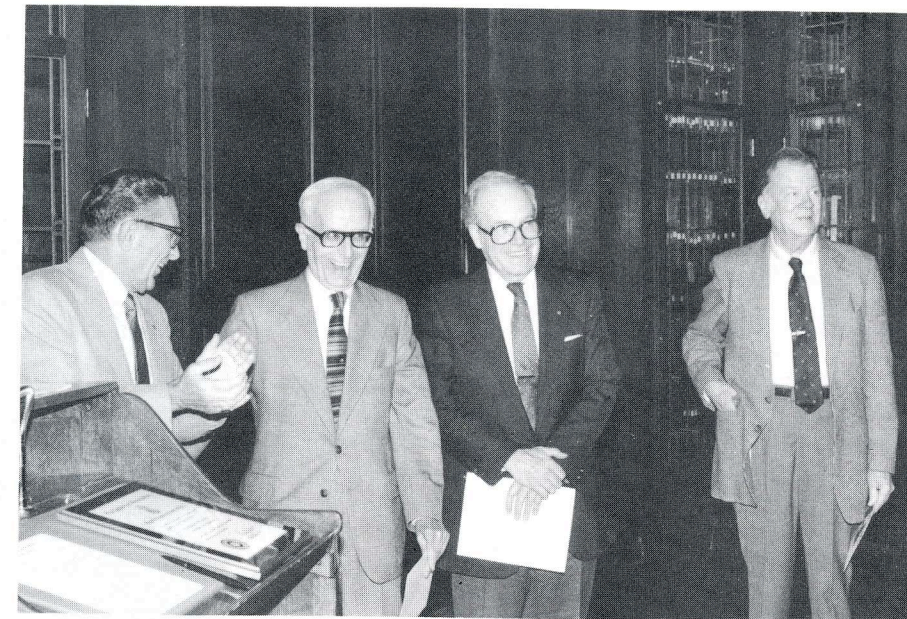
The installation, and the dinner that followed, were held at the Hoboken Manor, located directly across the street from the college. Student Bob Garbowsky will be the first President of the chapter. During dinner with Bob and other student members of Iota Delta, it was clear that the future of the new chapter is indeed very bright. All of Eta Kappa Nu wishes Iota Delta the best of luck and welcomes the new chapter into the Association.



NEW EMINENT MEMBERS

Eminent Membership in Eta Kappa Nu is awarded at an average rate of not more than one each year. However, it had been several years since the last initiation and so three new Eminent Members were selected for 1984. They were Larry Dwon, Howard Sheppard and S. Reid Warren. All are past Presidents of Eta Kappa Nu. Eminent Membership is reserved for distinguished senior electrical engineers. Larry Dwon was formerly Director of Engineering Manpower for the American Electric Power Co., and is now a Consulting Engineer. Howard Sheppard was formerly Vice President of the Rumsey Electric Co., and now owns his own company, the Relay Associates. S. Reid Warren was formerly Vice President for Engineering of the University of Pennsylvania.

The Initiation was conducted by the Executive Council, President Paul Jacob, Vice President Earl Steele, and Executive Secretary Paul Hudson, at the Union League of Philadelphia in connection with the Spring Board Meetings. Since all three initiates were already members of Eta Kappa Nu, the regular initiation ritual was not used. Instead, each member of the Executive Council gave a short inspirational talk. The initiation was preceded by a lovely luncheon attended by 50 people.



From left—Eta Kappa Nu President Paul Jacob introduces the three new Eminent Members, Larry Dwon, Howard Sheppard and S. Reid Warren.

The initiation was done by the International Executive Council. From left—Professor Paul K. Hudson, Executive Secretary; Professor Earl Steele, Vice President; Professor Paul Jacob, President.



and part of which I was

George H. Brown

Assistant BRIDGE Editor Dr. George H. Brown was formerly Executive Vice President for Research and Engineering of the entire RCA Corporation. He has received many honors including Eminent Membership in Eta Kappa Nu.



One morning in the spring of 1944 I awakened to find my eyes blood red and feeling very hot. The burning sensation was on the verge of being intolerable. I easily succumbed to urging by my wife to hasten to our family doctor.

After one brief look, he said, "George, you have only one pair of eyes which you should not entrust to me. Get to a good ophthalmologist as soon as possible."

So off I went to Philadelphia for a consultation with the man who had often fitted me with spectacles. He examined my eyes very carefully, looked solemn, and said, "Hmm. Hmm."

After a suitable time had passed to indicate that he was concentrating on my problem, he gave me a tube of ointment to be applied every four hours and told me to return in two days.

I followed his instructions and returned after two days of misery. On this visit, he apparently spied cigars in my coat pocket and informed me that I was extremely allergic to tobacco smoke and that I must give up cigars.

This startled me and I said, "But, doctor, I have pus in my eyes.

Doesn't that indicate an infection?" to which he replied, "Don't you think I know my business?"

His proposal to relinquish cigars was horrifying so on the following morning, in my continuing pain, I decided to make an experiment. My first step was to go to my favorite cigar store to replenish my supply of cigars. Then to my laboratory where I lay flat on a bench and had one of my colleagues pour generous amounts of penicillin solution into each eye. This radical step was possible because we were in the middle of our experiments to find a simple method of drying the wonder drug. At that time, penicillin solution was so loaded with impurities that it had all the appearance and consistency of used engine oil. We were told by the producers that the cost of producing one liter was about one-thousand dollars. With this expensive material running down my cheeks and with a large splotch on my shirt, I hastened to the railroad station to take a train to New York, accompanied by my burning eyes.

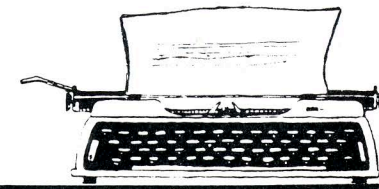
After a long day and evening of meetings and many cigars which I puffed defiantly, I finally col-

lapsed on a seat on the ten-forty evening train to Princeton. Suddenly I realized that my eyes were no longer burning but actually felt cool for the first time in over a week. I rushed to the men's toilet at the end of the car and tried to look in the mirror. But who ever heard of a clean mirror on the Pennsylvania Railroad? So for over an hour I sat hoping and wondering.

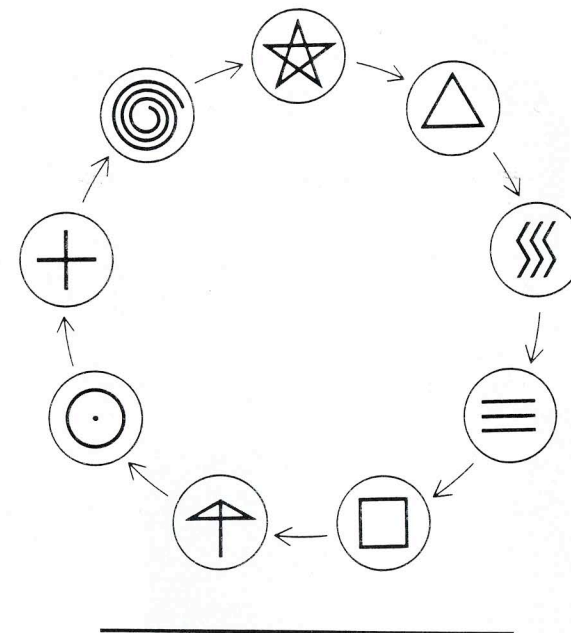
On reaching home, I hurried to the nearest mirror and was overjoyed to see my beautiful clear eyes. I was cured by that dirty old penicillin and I could continue to demolish at least six cigars each day.

Not only was the cure permanent but when I received a bill of thirty dollars from the Philadelphia doctor, I was delighted to be able to tell him of my method of cure. I knew it was very unlikely that he could find any penicillin solution for his patients and I did not tell him of my source of supply. Nevertheless I returned the unpaid bill to him with the remark that the knowledge which I had passed on to him must be worth at least thirty dollars.

High Five



Jot down your telephone number. Scramble the order of the digits in any way you please to form a new number, then subtract the smaller number from the larger. Add all of the digits in the answer. Now place your finger on the star in the circle of mysterious symbols and count them clockwise around the circle, calling the star 1, the triangle 2, and so on until you reach the number that was the final step in the procedure given above (the sum of the digits). Your count will always end on the spiral no matter what your phone number is.



Four be the things I am wiser to know:
Idleness, sorrow, a friend, and a foe.

Four be the things I'd been better without:
Love, curiosity, freckles, and doubt.

Three be the things I shall never attain:
Envy, content, and sufficient champagne.

Three be the things I shall have till I die:
Laughter and hope and a sock in the eye.
Dorothy Parker

Personally I am always eager to learn, but I do not much like to be taught. *Winston Churchill.*

When Kevin Ross graduated from the eighth grade at Chicago's Westside Prep School his classmates selected him to deliver the commencement address. In his address, Kevin spoke of the need to find excellence inside each individual. He told of Michelangelo holding a piece of marble and knowing that inside the stone was an angel yearning to be free.

What makes this unusual is that Kevin is 24 years old and has already attended college for four years. A year ago he wasn't even sure who Michelangelo was.

Kevin played on a championship basketball team in college—and that's about all he did. When he left college without graduating he realized that he lacked even basic educational skills. He read at a seventh-grade level and had the language skills of a fourth grader.

A semiprofessional basketball team offered him a contract, but Kevin had other priorities. He enrolled in Westside Prep, where he towered two feet above his classmates, and buckled down to work. By the time he graduated, Kevin had the reading and language skills of a student entering his sophomore year in college.

Kevin would like to play in the National Basketball Association. He's also thinking about a career in acting or radio work. But first, he's going back to college to continue his education. "You can't conquer the world in a pair of gym shoes," he says. "I'll never stop learning."

Millions long for immortality who cannot seem to find anything to do on a Sunday afternoon.

A statesman is a politician who is held upright by equal pressure from all directions. *Eric Johnson.*

No man would listen to you talk if he didn't know that it was his turn next. *Edgar Howe*

If a man could have half his wishes, he would double his troubles. *Ben. Franklin.*

Don't be afraid to take a big step if one is indicated. You can't cross a chasm in two small jumps. *David Lloyd George.*

From birth to eighteen, a girl needs good parents. From eighteen to thirty-five, she needs good looks. From thirty-five to fifty-five a woman needs personality. From fifty-five on, the lady needs cash. *Kathleen Norris.*

Student Award Winners

Text by
Marcus Dodson

THE
ALTON B. ZERBY
OUTSTANDING ELECTRICAL
ENGINEERING STUDENT
AWARD



Michael Joseph Hargraves
WINNER 1984

Wins an expense paid trip to the Marriott Resort at Lincolnshire, Illinois, and an Award Dinner in his honor, from the Alton B. Zerby Perpetual Memorial Trust established by the Eta Kappa Nu Official Family, and a gift of \$500 from the Carl T. Koerner Perpetual Memorial Trust established by Edith Ann Koerner.

MICHAEL JOSEPH HARGRAVES with a G.P.A. of 3.8, ranking in the upper ten percent of his class, was nominated by the Delta Epsilon HKN Chapter at Ohio University. He was honored with membership in Tau Beta Pi, Phi Kappa Phi and Eta Kappa Nu.

After a ten-year career as a high school instructor, teaching physics and mathematics and coaching football, and being honored as "Outstanding Teacher," Lt. Hargraves joined the U.S. Air Force in 1982, thus starting a second career. As an officer on active duty he attended Ohio University under the special program offered by the U.S. Air Force. He intends to pursue his MSEE at Ohio University, continuing in the same program.

Lt. Hargraves is active in his church and enjoys painting and jogging.

HONORABLE MENTION 1984

JOHN ANDREW GREGG with a G.P.A. of 3.6, ranking in the upper five percent of his class, was nominated by Epsilon HKN Chapter at Pennsylvania State University. He was honored with membership in Tau Beta Pi and was president of his Eta Kappa Nu Chapter. Mr. Gregg was part of an Electrical Engineering Co-Op with IBM where he updated and wrote computer programs. He also worked as a laboratory assistant while at PSU and was a member of a committee whose purpose was to raise the standards of the EE student body. His hobbies include PC programming and playing the drums.

ERNEST DAVID HAACKKE with a G.P.A. of 3.9 ranked first in his class, was nominated by the Epsilon Mu HKN Chapter at the University of Texas at Arlington. He was honored with membership in Tau Beta Pi and was corresponding secretary for Eta Kappa Nu. Mr. Haacke was instrumental in developing internal computer systems at the University Center at UTA and established a card catalog for the EE Department library. He worked as a computer programmer for UTA and for private business. He enjoys bird watching and technical writing.

HOLLY ANN HEINE with a G.P.A. of 4.0 ranked first in her class, was nominated by the Gamma Gamma HKN Chapter at Clarkston College. She was honored with membership in Tau Beta Pi, Phi Kappa Phi and was president of her Eta Kappa Nu Chapter. Ms. Heine has participated in workshops with the faculty on committees to improve her school, tutored and was speaker at a scholarship dinner. She worked at Kodak as an entry level engineer. She was captain of the Women's Varsity Volleyball team and a one gallon-plus blood donor. She enjoys downhill skiing, running and backpacking.

TERRY GENE KOELBL with a G.P.A. of 4.0 ranked first in his class, was nominated by the Theta Eta HKN Chapter at the University of Alabama — Huntsville. He was honored with membership in Tau Beta Pi and Eta Kappa Nu. One of Mr. Koelbl's most important services to his school was being a member of a committee which selected the first Dean of Engineering when the Department of Electrical and Computer Engineering split from the School of Science and Engineering. He enjoys classic cars and track.

VIRGINIA LEE LESSMANN with a G.P.A. of 3.9 ranked in the upper two percent of her class, was nominated by the Beta Lambda HKN Chapter at Virginia Polytechnic Institute and State University. She was honored with membership in Phi Kappa Phi, Eta Kappa Nu and was president of Tau Beta Pi. Ms. Lessmann tutored in the EE Department and at the local high school. She attended college on a full athletic scholarship, was named first-team Academic All-American by NCAA and was captain of the volleyball team. She worked as an intern at IBM and U.S. Steel Research Center. She enjoys weightlifting, running, canoeing, bicycling, hiking and camping.

FINALISTS 1984

Brian William Curran
 Charles M. Honaker, Jr.
 Russell William Mason
 Clay Eugene Melugin
 Fred John Meyer

U. of Wisconsin — Madison
 Texas A & I University
 Mississippi State University
 U. of Missouri — Rolla
 U. of Massachusetts

Mr. Donald Christiansen, Editor
Inst. of Electronic and Elect. Eng
345 East 47th Street
New York, N.Y. 10017

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