Journal of Tau Alpha Pi
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Journal of Tau Alpha Pi

Executive Director/Secretary
Editor Frederick J. Berger

Tau Alpha Pi Journal is the official publication of Tau Alpha Pi, National Honor Society of Engineering Technologies. Write Professor Frederick **J.** Berger (Executive Secretary), Editor, P.O. Box 266, Riverdale, New York 10471. The opinions expressed are those of contributors and do not necessarily reflect those of the editorial staff of Tau Alpha Pi.

Statement from the Executive Secretary

Once again I take pleasure in issuing our annual Journal. For five consecutive years the Journal has published professional and scholarly articles of interest to the members of our society. It has published, also, news items and information concerning activities. Since our chapters are autonomous and, I may say with some pride, increasing in numbers, the Journal is virtually the only publication to be read and shared by all of them.

For news items and information about activities to be included, it is necessary for chapters to forward news to the Executive Secretary. All correspondence should be addressed to me at P.O. Box 266, Riverdale, New York 10471. Names of officers should be included.

The Journal, furthermore, gives me the rare opportunity to greet the members of the Tau Alpha Pi Honor Society and to thank them for all that they have done in helping to upgrade the professional status of the technology students.

This publication provides an opportunity to express my gratitude to sponsors and faculty advisers who assumed these responsibilities and wish them success: Prof. Frederick F. Driscol (Delta Alpha, Wentworth Institute); Prof. Thomas D. Clark (Zeta Alpha, University of Houston); Prof. Merwin L. Weed (Iota Beta, McKeesport Campus, Pennsylvania State University); Prof. James Lagomarsino (Lambda Alpha, Norwalk State Technical College); Dr. Richard Roberds (Mu Beta, Clemson University); Prof. T.M. Yackish (Pi Delta, Purdue University, Calumet Campus); Dr. James Driver (Psi Alpha, Memphis State University); and Dr. David Bostwick, Prof. Gerald L. Arffa, Prof. Michael P. Maxwell, Prof. Robert E. Peale, and Prof. William Seibert (Pi Beta, Indiana - Purdue University).

This is an opportunity, too, to thank those who have served well and to wish them success in their present assignments: Prof. James P. Todd, sponsor of P1 Alpha and now president of Vermont Technical College; Dr. Lawrence **J.** Wolf, sponsor of P1 Delta and now academic dean at University of Houston; Prof. Richard E. Hallowell, former adviser to Rho Alpha; Dr. George Hitt, former adviser to Psi Alpha; and Dr. Stephen Cheshier, sponsor of Pi Alpha and now president of Southern Technical Institute.

Very special thanks are due to Dr. Lillian Gottesman, Professor of English, for her able editorial assistance in the preparation of the Journal and for her accepting the position of adviser to Beta Delta Chapter.

During 1980-81 six new chapters were chartered, and two dormant chapters were reactivated. For his role in reactivating P1 Beta Chapter, my many thanks go to Dr. David Bostwick for a job well done. It was my honor and privilege to participate in the initiation and chartering ceremonies of Beta Mu (State University of New York-Agriculture and Technical College at Canton); Beta Kappa (State University College of Technology); and Alpha Wisconsin (Milwaukee School of Engineering). All of these visits were pleasant and gratifying largely because of the people who helped make them so, such as the officers and advisers of Alpha Wisconsin: Prof. Ray W. Palmer, Dr. Vincent R. Canino, Prof. Pepe Rodriguez, Prof. Thomas W. Davis, Prof. Marvin Heifetz, and Academic Vice-President Ungrodt; John D. Mertens (President), Leland Zook (VicePresident), and Susan Lorenz (Secretary).

In addition, I was honored to attend the inauguration of Dr. Stephen R. Cheshier as the first president of Southern Technical Institute. It was my distinct pleasure to bestow upon him on behalf of Tau Alpha Pi our newly established meritorious certificate. Dr. Cheshier was the first recipient of this award. It is our intention to recognize outstanding service to Tau Alpha P1 and the engineering technology students through the issuance of this certificate, a copy of which is in the center-fold of this Journal.

Many members will recall that last year we designed the engraved charter which we issued to our chapters, and this year we created the certificate of merit. We must remember, however, that it is the emblem of Tau alpha Pi which is the working tool of the society. We must remember that the society stands for the encouragement of outstanding scholarship and qualities of leadership and for the development of exemplary character and conduct. For the society to accomplish these lofty goals, its purposes must be publicized. I have mentioned several times the importance of making Tau Alpha Pi more visible on each campus. In this regard, I commend Prof. Marshall Minter and the officers and members of Upsilon Beta for having made a four-inch replica of the society's key and displaying it in order to accomplish greater visibility. They are in the process of constructing a four-foot key, and we await its completion with eagerness. I look forward to having a replica of the key constructed on each campus where it can serve as a reminder of the society's worthy ideals to which students can aspire.

For me personally this year is likely to be most memorable. It marks over twenty years of my service to Tau Alpha Pi and to my college. In fact, as many of our members know, I was the sponsor of Beta Delta Chapter, and I have been an innovator in the establishment of Tau Alpha Pi chapters. During my several years as Executive Secretary, the number of chapters has increased from about twenty to over a hundred. In recognition of my service, Beta Delta Chapter sponsored a testimonial dinner-dance on May31, 1981, at Leonard's of Great Neck, which was attended by Tau Alpha Pi members, colleagues, friends, and family. Many who would have wished to be present could not be because of geographic limitation. From many of these associates I received

warm letters of congratulations for which I remain forever grateful.
I trust that I shall see many of our members at the A.S.E.E. annual conference on June 22-25 at University of Southern California to discuss items of mutual concern regarding Tau Alpha Pi.

Frederick J. Berger
Executive Secretary
Tau Alpha Pi
P.O. Box 266, Riverdale, N.Y. 10471
1981

AN ACADEMIC DEAN'S TRIBUTE TO PROFESSOR FREDERICK I. BERGER

Greetings Fred:

We sincerely regret that it is not possible to be with you and participate in person in this milestone event. Surely you know though, that our warm regards and best wishes are with you.

Our reference to this event as a milestone emphasizes the long and positive route that you, Fred, have traversed to reach this point where you are about to be honored with the title of Professor Emeritus. Although you may not have thought about it in that sense, Fred, you have been devoting your entire professional career to that achievement. That is to say, you have devoted yourself to your profession with sincerity, dedication, unstinting service, and scholarship for benefit of your own institution and your students and alumni, as well as many others with whom you have become associated in your field of engineering technologies.

In the course of your professional activities, there have been occassional grumbles from some quarters about irrascibility. But those of us who really know you better, recognize and acknowledge an attitude and behavior based upon individuality, independence, self reliance, and integrity which have set positive examples for colleagues and students. With these attributes, you have successfully pursued academic excellence through the development of courses and curricula, insistence upon acquisition and maintenance of appropriate laboratory equipment, establishment of high standards of performance, furtherance of the careers of students and colleagues, and the development of a thriving academic fraternity in engineering technologies. As a result, you have earned the admiration and respect of a great many friends and colleagues.

Now, you are about to engage unfettered in further ventures. And, surely you will contribute even more to the advancement of your profession — and to your own prestige.

Our best wishes go with you for good fortune and happiness in your endeavors.

Sincerely,

Bernard P. Corbman

A STUDENT'S TRIBUTE TO PROFESSOR BERGER ON HIS 20th ANNIVERSARY OF SERVICE

Professor Frederick J. Berger

As one grows older, he sometimes stops and takes the time to reflect upon the people he has encountered along his voyage through life. He knows that of all the people that he has shared some time together with, most are but a vague memory now. He also knows that there were some, but ever so few, acquaintances that gave direction and meaning to his life. These molders of life always retain a place in the memories of the people whose lives they helped shape because they are part of their lives. One of these rare individuals who has always given of himself so that others may benefit is Professor Frederick **J.** Berger of Bronx Community College.

We all know of Professor Berger's ability as a teacher, of his ability to present facts, ideas, skills, and techniques to his students and prepare these students for embarkation into their chosen careers. We all know of Professor Berger's personality that made the learning of the most tedious subjects more enjoyable. We all know how he frequently called upon his vast experience in private industry to make a complex subject more comprehensible. These are just a few of the qualities that Professor Berger had in common with other members of his learned profession. To say that Professor Berger is a good member of a good profession would be enough for him, as modest as he is, but it is not enough for those of us who have benefited from his unselfish devotion to duty.

One way in which Professor Berger's uniqueness becomes evident was in the relentless way he motivated his students. At every meeting the good professor's driving force was evident. When Professor Berger ran a project the project was never finished because one project ran into another, the lessons learned in one project were needed to learn the lessons of the next. Professor Berger's endless prodding made all of his students seekers of knowledge. He also made us realize that our thirst for knowledge should never be quenched because as the clock ticks on there are more lessons to be learned.

Another way in which Professor Berger's teaching skills out-distanced all others was in the way he taught us to analyze a problem. His approach to a problem was similar to Pascals who wrote, "We must know where to doubt, where to feel certain, where to submit. He who does not do so understands not

the force of reason. There are some who offend against these three rules, either by affirming everything as demonstrative, from want of knowing what demonstration is; or by doubting everything, from want of knowing where to submit; or by submitting in everything, from want of knowing where they must judge." Professor Berger stressed the importance of reasoning our problems out and not killing a simple problem with over analysis or underreacting to a major problem. The amount of analysis should be proportional to the complexity of the problem. Professor Berger always stressed common sense. Although much more could be written about Professor Berger's teaching skills and methods, this would be a good place to stop and mention another of Professor Berger's qualities.

The philosophers of old have written of the greatest gifts that one man can give another, If we had ten philosophers here now, one would get ten different opinions, but one can be sure that two of them would put forth knowledge and time as the greatest gifts that one man can give another. We all know how Professor Berger has given all of his students his knowledge, so it is now time to acknowledge Professor Berger for the time he has spent with the students after his duties as a teacher were over. How often has he set us interviews with recruiters from senior colleges! How often has he solicited professionals to come and speak to his students whether it be to write a resume or run a lathe! How often have we seen Professor Berger stay late in behalf of Tau Alpha Pi! And how many years has the professor taken the bull by the horns and run the whole show! He was always willing to spend his time to benefit his students.

Alas, Professor Berger is closing the book on a distinguished career. Like the great artists who have completed their works, Professor Berger can sit back with head held high and savor the work he has done.

Respectfully yours,

Brendan P. McGough
1981

WHAT'S THE DIFFERENCE BETWEEN ENGINEERING AND ENGINEERING TECHNOLOGY?

The need to distinguish clearly between engineering and engineering technology has become a sensitive national issue, particularly in educational circles.

One of the major concerns is that the public may be confused or misled if institutions suggest that their engineering technology programs are really preparing engineers rather than (associate degree) engineering technicians or (baccalaureate degree) engineering technologists. In order to avoid this problem, the Board of Directors of the Accreditation Board for Engineering and Technology (ABET) has approved new policies for the accreditation of both 2 and 4-year engineering technology programs by the Technology Accreditation Commission (TAC) which include the following requirements:

Caution and discretion must be exercised by institutions in all publications and references to avoid ambiguity or confusion between engineering technology and engineering. TAC/ABET will not accredit a program in engineering technology if the administration and/or faculty carelessly use the term engineer or engineering or make the claim that it produces engineers. No program will be approved for accreditation or reaccreditation unless the word technology is used as a final noun in the title. In any promotional media or institutional bulletin, the institution should not use job entry titles which are normally held by graduates from a program in engineering or those who have professional licensure.

"48th Annual Report, Year Ending Sept. 30, 1980", ABET, New York, 1980, P. 94

In addition, the TAC conducts an annual examination of the catalogs/bulletins of all institutions with ABET-accredited engineering technology programs to ensure compliance with TAC/ABET policies. TAC on-campus accreditation visitation teams have been asked to be alert to identification and correction of any confusing use of terminology. These procedures have resulted in improved practices in a substantial number of situations over the last several years. Nevertheless, problems still exist, such as the following. Bachelor graduates in engineering technology (BET) sometimes expect full credit admission to master's programs in engineering or equal access to professional engineering licensure as that given to engineering graduates. Counselors and recruiters for engineering technology programs may give the impression to parents and prospective students that their program is "engineering."
Each of these examples involves some degree of misunderstanding on someone's part. The BET graduate who expects full transfer status in MS engineering programs may not have been properly counseled regarding prerequisites and admission conditions. Such a transfer is somewhat analogous to an associate degree engineering technology (AET) graduate expecting fulljunior-year status in a BS engineering program. Actually, both of these transfers do occur in selected circumstances because specific factors may vary considerably, such as program content, emphasis, rigor, and local conditions—even among those which are ABET-accredited. Note that the decision regarding transfer typically rests with the

receiving institution and normally meets its needs. If such transfers do occur, they are not the usual case. Therefore, the AET grad should not be led to expect full transfer without condition into a BSE program nor should the BET grad be counseled to expect routine entry into an MSE program. If AFT and BET programs were designed for full transfer to the BSE and MSE, respectively, they would not be preparing engineering techs. In some instances, an MSE program may be closed to BET holders in the same way that some upper division BET programs may not accept pre-engineering associate-degree holders. The response to the applicant in both cases is similar: "Please reapply when you have completed the proper prerequisite education."
Issues relating to the BET and professional engineering licensure have been openly debated in journals and professional societies for several years. At present, there is no uniformity among the states regarding eligibility for licensure by BET holders. Many states permit the BET degree to serve as a partial fulfillment of eligibility requirements. Professional engineering licensure usually permits the PE to assume engineering responsibility for major projects and ethically commits the PE to protect the safety and welfare of the public. Some will argue that BET grads have not been educated to accept major engineering responsibility, while others maintain that the same is true for BSE grads. Still, the BSE is considered by most licensing boards as the normal

path to the PE license, although the consensus favors holding open alternative paths, such as the BET, when a suitable combination of education and appropriate engineering experience is present. BET holders considering applying for PE licensure should investigate the specific requirements in their states and not be surprised if their degrees are not equated with the BSE.

Some engineering technology counselors and recruiters may make unwitting mistakes in referring to ET programs as engineering; they may never have been informed of the differences or they may feel that parents and prospective students are too naive to deal with such minor distinctions. Unintentional or otherwise, the sloppiness is always in the direction of advertising a program as having a more appealing public image and status than the reality. Thus, they may conveniently omit the word technology when referring to an ET program title or they may emphasize that the curriculum is really engineering or they may point out that most graduates are really engineers. No one denies that engineering technology is part of the spectrum of engineering and engineering-related studies or that graduates of FT programs normally work in support of engineering activities and often advance into engineering titles. Still, it is misleading to present information which is systematically slanted away from the truth— especially to a naive audience. This is unfortunate. Particularly, when reporting what really happens can be a very exciting and factual presentation with no apologies. I'm thinking of the work in tech courses and hands-on labs, of the actual typical job functions, and of the upward mobility of graduates, both financially and socially. Institutions are being held responsible for avoiding problems of misrepresentation, although it is the ET faculty and alumni who need to watchdog such situations and educate those who might be tempted to misuse the terminology.

The fact that employers may use "engineer" job titles for technicians and technologists is nothing new. Employers may have a variety of motivations in establishing their patterns of occupational titles and categories. Thus, some firms use exotic titles which may connote higher responsibility than is really exercised as a means of recruiting, holding, or rewarding certain employees, particularly in

situations involving special skills, short supply, other competitive factors. On the other hand, many industrial organizations will use factual titles to describe the functions and responsibilities which the incumbents are actually performing quite aside from formal qualifications. Therefore, we encounter both AET and BET graduates employed in positions with "engineer" in their titles. Furthermore, it is unlikely that the great variety of titling practices used by employers will become uniform in the near future. As noted earlier, ABET has not attempted to deal with the use of titles by employers but does now prohibit institutional advertising of job entry titles which are normally held by graduates from a program in engineering or those who have professional licensure." This prohibition may not win prizes for "truth in advertising" but it should help minimize confusion between engineering and engineering technology.

What's the difference between engineering and engineering technology? Probably the best answer is that the main difference is in the educational process wherein engineering technology education provides more hands-on laboratory experiences which are related to classroom activities and where classroom work tends to include more practical applications of the theory. Thus, the ET graduate will know and be able to do some things which graduate engineers do not know and cannot do, and vice versa. Occupational differences vary with the discipline and the specific industry as well as the particular kinds of individual experiences and personal qualities. These are very difficult to generalize without oversimplification. Hopefully, all of you who have first-hand experience in FT will help with pride to clarify public understanding of engineering technology and its relationship to engineering.

Dr. Stanley M. Brodsky
Professor
New York City Technical College

TECHNICIANS AND TECHNOLOGISTS
- AN UPDATE –
-

STARTING SALARIES HIGHER FOR NEW GRADUATES

Starting salaries paid to two-year associate-degree graduates of engineering technology programs are about $1105 per month. Four-year graduates start at about $1505 per month. This is $400 per month higher than that paid to two-year graduates. According to the Engineering Manpower Commission Salary Survey of Engineering Technicians and Technologists in 1979, the average technician is thirty years of age and has been working as a technician for 10'/z years.

Starting salaries offered to graduates of two-year associate-degree programs increased 11.6 percent from 1979 to 1980. The salaries of those graduates of four-year B.S. programs in technology increased 8.0 percent over the same period (see Table 1). Since starting salaries of associate-degree holders are increasing at a faster rate than those of bachelor-degree technicians, some salary compression is taking place. Four-year graduates of technology, however, are still earning a healthy 36 percent more than the two-year associate-degree holders.

TABLE 1

AVERAGE MONTHLY STARTING SALARIES

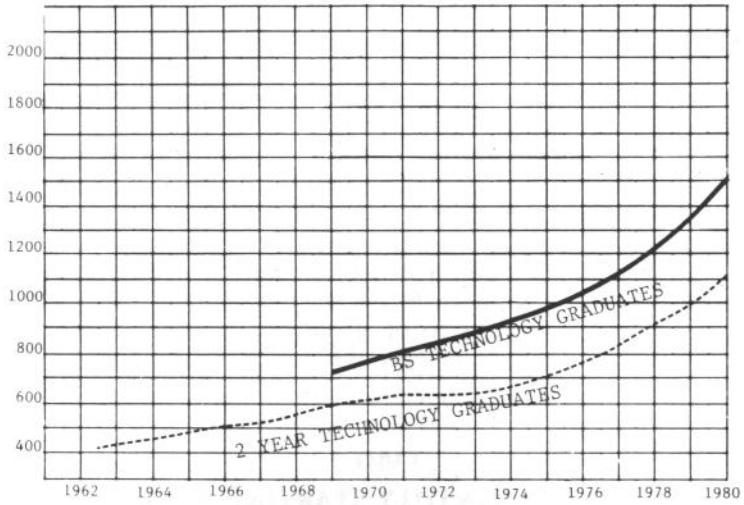
1979 - 1980

	1980	1979	% Incr.
Technology Graduates			
AS	1105	990	11.6
BS	1505	1393	8.0
Consumer Price Index (July)	247.8	218.9	13.2

Sources: Technology starting salaries from the Engineering Manpower Commission placement survey. Consumer Price Index from Monthly Labor Review, U.S. Department of Labor.

The Consumer Price Index increased 13.2 percent from July, 1979 to July, 1980. Therefore, starting rates offered to technicians are not keeping pace with the cost of living. Experienced technicians and beginners alike are falling behind. Figure 1 shows a historical picture of starting salaries offered to technology graduates from 1963 to 1980.

FIGURE 1
Average Monthly Starting Salaries Offered
to Technology Graduates
1963-1980



Job Market Good for Technology Graduates

The job market continued to be favorable for 1980 technology graduates. This opinion is supported by data reported in the Engineering Manpower Commission survey "The Placement of Engineering and Technology Graduates." In the case of the two-year associate graduates, 86 percent had firm plans as of their graduation date. This number includes the 19 percent who were continuing full-time study, but does not include the 4 percent who were still considering job offers. Ten percent of the two-year graduates had no job offers and had no plans. This is up from 7 percent in the previous year. Eighty-two percent of the four-year technology graduates had made commitments as of graduation, down one percent from 1979. This number includes 3 percent who planned to continue full-time study. In addition, one percent were still considering job offers and the remaining 9 percent had no job offers or other plans. A summary of responses to the 1980 placement survey is shown in Table 2. The low percentage of the two year and four-year graduates still considering

job offers is indicative of a weakening job market for qualified graduates. This suggests that the graduates are accepting the first good offer they get. In addition, the fact that 10 percent of the two-year graduates and 9 percent of the four-year graduates had no offers or plans suggests that employers have been selective in making job offers.

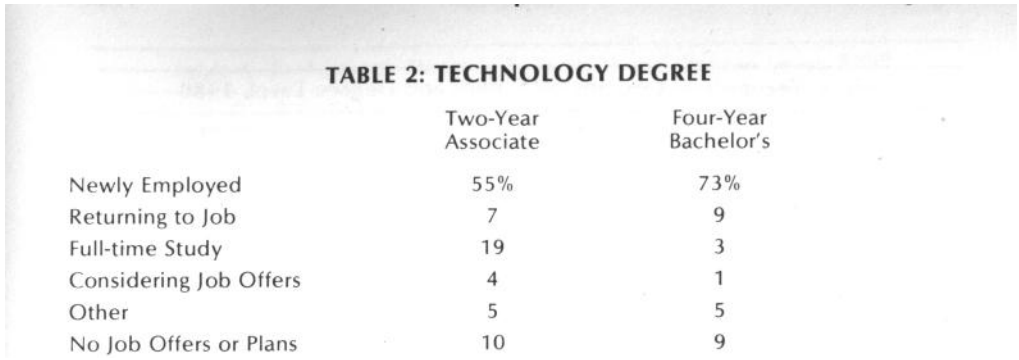


TABLE 2: TECHNOLOGY DEGREE

	Two-Year Associate	Four-Year Bachelor's
Newly Employed	55%	73%
Returning to Job	7	9
Full-time Study	19	3
Considering Job Offers	4	1
Other	5	5
No Job Offers or Plans	10	9

Technology Degrees

The most recent survey of engineering technology degrees reported more than 7,500 bachelor's and more than 15,000 associate degrees awarded in engineering technology in 1980 by more than 200 technology schools, 150 of which have one or more ABET (ECPD) accredited programs. Although these figures are not national totals, they are a meaningful representation of the technology education structure in the United States. Table 3 (Technology Degrees by School and Degree Level, 1980) gives the survey results of technology degrees awarded by individual schools as reported in the 1980 degree survey. The technology disciplines awarding the most degrees in 1980 include electrical, electromechanical, electronics, and related programs. Civil and related technologies such as architecture, construction, drafting, and mechanical follow electronics. The pattern of degrees awarded in industrial technology is similar to that of engineering technology at the associate level. At the bachelor's level, the degree is usually awarded in industrial technology without further indication as to specialty. The number of degrees awarded in industrial technology in 1980 was 5,937 at the associate level and 2,481 at the bachelors level. Table 4 (Technology Degrees by Curriculum and Level, 1980) shows a breakdown of degrees awarded in engineering and industrial technology by field of study.

Technology Enrollments 1980-1981

It is still difficult to distinguish some engineering technology programs from those in industrial technology without going into a detailed evaluation of each program. Schools themselves may be unclear as to the distinction. Therefore, for the purpose of collecting enrollment data, curricula were grouped according to basic technical fields such as chemical, electronic, etc.

The 1980 enrollment survey of technology students included 66 schools with at least one program accredited by the Accreditation Board of Engineering and Technology (ABET) who reported almost 47,000 full-time technology students. Some 35,000 were reported in the first two years, most of whom are associate degree students, and nearly 11,500 third-and fourth-year bachelor-degree students. Electronic, mechanical, drafting, and computer technology are the more popular programs with associate-degree candidates. In the four-year bachelor programs, electronic, industrial, mechanical, and electrical are

the more popular courses of study. A summary showing 1980 enrollment by curriculum can be found in Table 5.

The reports here duplicated are available from the Publications Dept., Engineers Joint Council, 345 E. 47 St., N.Y.C. 10017

Patrick J. Sheridan, Manager Manpower Activities of the American Association of Engineering Societies

Table 3. Technology Degrees by School and Degree Level, 1980

State and School	Engineering Technology				Industrial Technology			
	Cert.	ASET	BSET	MSET	Cert.	ASIT	BSIT	MSIT
ALABAMA			25					
ALABAMA A&M			135				12	
JEFFERSON JC AL		35						
REID ST TECH	41	20						
ALABAMA	41	55	160				12	
ARIZONA ST			64				59	6
DEVRY PHOENIX		209	112					
GLENDALE CC		1						
NORTHRN ARIZONA			40					
PHOENIX		16						
PIMA CC ARIZONA					54	127		
ARIZONA		226	216		54	127	59	6
ARKANSAS						9		
ARKANSAS LTL RK		4	10					
STHN ARK U TECH						54		
ARKANSAS		4	10			63		
CAL POLY ST SLO			110				28	
CAL ST POLY POM			149					
CAL ST SACRAMEN			30					
CALIF MARITIME			49				72	
COSUMELL		58	35					
CTY COLL SAN FR		36				19		
MERCED		8				37		
NORTHROP		20	33					
CALIFORNIA		122	406			56	100	
COLORADO TECH		105	29					
MESA COLORADO		20						
METROPOLITAN ST		36	58					
STHN COLORADO		28	81				18	
USAF ACAD COLO		272						
COLORADO		461	168				18	
CONN U			9					
GTR N HAVEN TC		16			12	2		
HARTFORD TECH		182						
NORWALK ST TECH		118						
THAMES VALLEY		107				55		
WARD TC HARTFRD		89						
WATERBURY ST		123				97		
CONNECTICUT		635	9		12	154		
DEL TECH DOVER		12						
DELAWARE		12						

Table 3. Technology Degrees by School and Degree Level, 1980

State and School	Engineering Technology				Industrial Technology			
	Cert.	ASET	BSET	MSET	Cert.	ASIT	BSIT	MSIT
CENTRAL FLA U			74					
EMERY RIDDLE			10					
FL INTERNATIONL			74				72	
FLORIDA			1					
FLORIDA A&M			49					
MIAMI DADE CC		488						
MIAMI DADE NOR		384						
MIAMI DADE NWC		10						
NORTH FLORIDA U							27	
OKALOOSA WALTON		36						
SOUTH FLORIDA			31					
ST PETERSBRG JC		163						
FLORIDA		1,081	239				99	
BERRY							7	
DEVRY ATLANTA		40						
FORT VALLEY ST		9						
GEORGIA SOUTHRN			49				39	
SAVANNAH			40					
SOUTH GEORGIA		5						
SOUTHERN TECH		99	286					
WALKER TECH		63						
GEORGIA		216	375				46	
RICKS		78						
IDAHO		78						
BELLEVILLE		12				78		
BRADLEY			71					
DEVRY CHICAGO		200	211					
DUPAGE					12			
EASTRN ILLINOIS							20	
ELGIN CC					10	44		
ILLINOIS ST							143	
LAKE LAND		21				12		
LINCOLN LAND CC						33		
MORRISON		72						
OAKTON CC IL		28						
OLIVE HARVEY		17				35		
PARKLAND		11						
PARKS ST LOUIS		15	3					
RICHLAND CC IL						16		
ROCK VALLEY						141		
STHN ILL CARBON			70				333	

Table 3. Technology Degrees by School and Degree Level, 1980

State and School	Engineering Technology Cert.	ASET	BSET	MSET	Industrial Technology Cert.	ASIT	BSIT	MSIT
ILLINOIS	3	403	355		63	428	549	1
INDIANA ST						18	160	
INDIANA ST EVAN		24	9					
PURDUE		193	135					
PURDUE CALUMET	6	94	93					
PURDUE FT WAYNE		75	56					
PURDUE INDNPLS		105	43			128	82	
PURDUE N CENTRL		31						
PURDUE OTHER		151						
INDIANA	6	673	336			146	242	
CLINTON CC IOWA						23		
HAWKEYE		55						
INDIAN HILLS IA						255		
IOWA WESTERN		9				91		
KIRKWOOD CC IA		25						
WESTERN IOWA TC		52						
IOWA		141				369		
BUTLER CTY J KS						31		
EMPORIA KS ST							8	
KANSAS ST			59					
KANSAS TECH		60						
PITTSBURG ST U			39			8	109	15
SCHWEITER TECH		17						
WICHITA			12					
KANSAS		77	110			39	117	15
LEXINGTON TI KY		63						
LOUISVILLE		59						
MOREHEAD ST KY						71	23	
MURRAY ST			35			1		
NORTRN KENTUCKY						17		
WESTERN KY			59			18	49	
KENTUCKY		122	94			107	72	
LOUISIANA TECH		44	37					
LSU			14					
LSU EUNICE						1		
NORTHSTRN ST LA		1	6			5	10	
SOUTHERN			17					
LOUISIANA		45	74			6	10	
E ME VOC TECH I		5						
MAINE		84	44					
MAINE		89	44					

Table 3. Technology Degrees by School and Degree Level, 1980

State and School	Engineering Technology Cert.	ASET	BSET	MSET	Industrial Technology Cert.	ASIT	BSIT	MSIT
ESSEX CC MD		10						
MARYLAND		9				29		
PRINCE GEO CC		143						
MARYLAND	37	201	107			29		
BLUE HILLS TECH						133		
CAPE COD CC		2						
CENTRAL NEW ENG			139					
FRANKLIN INST		68						
GREENFIELD CC		14						
LINCOLN NTHESTN		42	101					
LOWELL		5	40				37	
MASSASOIT CC		31						
MOUNT WACHUSETT		30						
NORTH SHORE CC						66		
QUINSIGAMOND CC		28						
SE MASS			38					
SPRINGFIELD TEC		15						
WENTWORTH		522	78		90			
MASSACHUSETTS		757	396		90	199	37	
BAY DE NOC MI		40				24		
DELTA		54			27	65		
EASTRN MICHIGAN							13	
GOGEBIC CC		32			15			
GRAND RAPIDS CC						57		
HENRY FORD CC		266						
KELLOGG CC		23						
KIRKLAND CC MI		6						
LAKE MICH CC						15		
LAKE SUPERIOR		50	35				8	
LAWRENCE TECH		40						
MICHIGAN TECH		82						
MONTCALM CC		5				5		
NORTHWESTERN MI		34				95		
OAKLAND CC		20				28		
SOUTHWESTERN MI					4	37		
ST CLAIR CO CC		11			9	13		
WAYNE ST U			58					
WESTERN MICH			113				9	
MICHIGAN		663	206		55	339	30	
ANOKA RAMSEY CC		29						
BEMIDJI ST							25	
MOORHEAD ST MN							10	

Table 3. Technology Degrees by School and Degree Level, 1980

State and School	Engineering Technology				Industrial Technology			
	Cert.	ASET	BSET	MSET	Cert.	ASIT	BSIT	MSIT
NTHWSTN ELE INS						153		
ROCHESTER CC MN		31						
SOUTHWEST ST MN		6	26					
MINNESOTA		66	26			153	35	
COAHOMA JC						12		
COPIAH LINCOLN					40			
ITAWAMBA JR COL						31		
JACKSON ST MS						25		
JONES CTY JC MS						66		
SOUTHERN MISS			16				40	
MISSISSIPPI			16		40	134	40	
CENTRAL MO ST						35	100	36
JEFFERSON MO	42	41						
LONGVIEW CC MO		24						
MO INST TECH		6	80					
MO WESTERN ST		2	13					
NORTHEAST MO ST							26	
NORTHWEST MO ST					13		21	
SOUTHWEST MO ST						3	77	
ST L CC FOR PK		87						
ST LOUIS CC FLO	9	94						
MISSOURI	51	254	93		13	38	224	36
MONTANA ST			70					
MONTANA			70					
KEARNEY ST							11	
NEBRASKA OMAHA		27	35				7	
NEBRASKA		27	35				18	
NEVADA		16						
NEVADA		16						
NEW HAMPSHIRE		15						
NH TECH INST		75						
NEW HAMPSHIRE		90						
ATLANTIC CC NJ		10						
BROOKDALE CC NJ						86		
KEAN							27	
MERCER CO CC		38				24		
MIDDLESEX CO C		163				1		
NJ TECH			104					
OCEAN CO NJ		26						
TRENTON ST			78					
UNION TECH NJ		89						

Table 3. Technology Degrees by School and Degree Level, 1980

State and School	Engineering Technology				Industrial Technology			
	Cert.	ASET	BSET	MSET	Cert.	ASIT	BSIT	MSIT
ESTN NEW MEXICO		12						
NEW MEXICO ST		41	42					
NEW MEXICO		53	42					
ACAD AERONAUTIC		160				103		
BRONX COMM COLL		68						
BROOME		133				22		
CAYUGA CC		31						
ERIE CC	22	392						
FASHION INST NY		21						
HUDSON VALLEY		244				149		
MOHAWK VALLEY		127				101		
MONROE CC NY		258						
NASSAU CC		110						
NY CITY CC		302	129			129		
NY INST TECH NY		1	9					
NY INST TECH OW		6	33					
ORANGE CO CC		69						
QUEENSBORO CC		314						
ROCH NATL DEAF		20						
ROCHESTER TECH		20	172			25		
SCHENECTADY CC		50						
SUNY A&T ALFRED		333				258		
SUNY A&T CANTON		153				18		
SUNY A&T FARMIN		470				428		
SUNY C BUFFALO			37				67	
SUNY UTICA-ROME		14						
TECH CAREER INS		61						
ULSTER CTY CC		14						
WESTCHESTER CC		150						
NEW YORK	22	3,531	380			1,233	67	
ALAMANCE		11				23		
ANSON TECH NC						10		
BEAUFORT C.C.C.						3		
BLUE RIDGE T NC		4						
CAPE FEAR		45						
CENTRL CAROLINA		23						
COLL ALBEMARLE		4						
EDGECOMBE TI NC						18		
FAYETTEVIL TECH		22						
FORSYTH		52						
GASTON		40				5		
GUILFORD TECH I		35				27		

Table 3. Technology Degrees by School and Degree Level, 1980

State and School	Engineering Technology				Industrial Technology			
	Cert.	ASET	BSET	MSET	Cert.	ASIT	BSIT	MSIT
JOHNSTON TI NC						9		
LENOIR CC		13				6		
MARTIN CC NC						30		
NC CHARLOTTE			72					
PITT TECH NC		23				19		
RANDOLPH TECH		10						
RICHMOND TECH		15						
ROANOKE CHOWAN		4						
ROWAN TECH NC		28						
SANDHILLS CC		18						
SURRY CC NC		19						
WAKE TECH INST		51						
WESTRN CAROLINA							51	
WILKES CC NC						38		
NORTH CAROLINA		417	72			188	51	
ND ST SCHL SCI						351		
NORTH DAKOTA							14	
NORTH DAKOTA						351	14	
AKRON		132	58					
BELMONT TECH OH						31		
CINCINNATI TECH		208						
COLUMBUS TECH	10	68			33	46		
DAYTON		12	116					
EDISON ST OH		22						
FRANKLIN OHIO	3	26	31					
HOCKING		96						
JEFFERSON CO OH		28						
KENT ST TRUMBUL		35						
KENT ST TUSCAR		18						
LAKELAND CC		54						
MIAMI OHIO		12	156					
NTHWST TECH OH		35						
OHIO							30	
OHIO APPLIED SC		129	58			8		
OHIO INST TECH		206	168					
OWENS TECH OH		67						
SHAWNEE ST OH		33						
SINCLAIR CC		90						
STARK TECH OH		82						
TOLEDO		90	99					

Table 3. Technology Degrees by School and Degree Level, 1980

State and School	Engineering Technology				Industrial Technology			
	Cert.	ASET	BSET	MSET	Cert.	ASIT	BSIT	MSIT
YOUNGSTOWN		98	83					
OHIO	26	1,572	769		33	86	30	
NTHESTN A&M						68		
NTHESTN OK ST							45	
OK ST TECH CITY		66						
OKLAHOMA ST		148	264					
OKLAHOMA		214	264			68	45	
BLUE MOUNT CC		19						
MT HOOD CC	9	51			15	40		
OREGON INST TEC		132	92			78	32	
OREGON ST			32					
OREGON	9	202	124		15	118	32	
LEHIGH CO CC		5				110		
PA ST CAPITOL			213					
PENN ST		699						
PENN TECH						239		
PITT JOHNSTOWN			93					
SCRANTON		1	1					
SPRING GARDEN		44	94					
TEMPLE		25	150					
WILKES	3							
PENNSYLVANIA	3	774	551			349		
RHODE IS JC		40						
ROGER WILL COLL		69	96					
RHODE ISLAND		109	96					
AIKEN TECH SC		15						
CLEMSON			55					
DENMARK TECH		7						
FLORENCE DARLGT		41						
FRANCIS MARION			6					
GREENVILLE INST		56						
MIDLANDS TECH		60						
PIEDMONT TEC SC		19				16		
S CAROLINA ST			29					
SPARTANBURG		17				2		
SUMTER TECH		9						
TRI COUNTY TECH		39				14		
TRIDENT TECH SC		54						
SOUTH CAROLINA		317	90			32		
LAKE TECH SD						122		

Table 3. Technology Degrees by School and Degree Level, 1980

State and School	Engineering Technology				Industrial Technology			
	Cert.	ASET	BSET	MSET	Cert.	ASIT	BSIT	MSIT
SOUTH DAKOTA ST		19						
SOUTH DAKOTA	143	172	25			122		
AUSTIN PEAY ST							16	
CHATTANOOGA ST	19	53						
EAST TENN ST		8	63					9
KNOXVILLE TECH		98						
MEMPHIS ST			79					
MIDDLE TENN							10	4
NASHVILLE TECH		121						
ROANE ST CC TN		21						
ST TECH INST TN		168				148		
TENN MARTIN			35					
TENN TECH							28	
TENNESSEE	19	469	177			148	54	13
AMARILLO		50						
DELMAR		21				7		
DEVRY TEXAS	158	50	45					
HOUSTON			213				220	
HOUSTON CC		13						
KILGORE						68		
LE TOURNEAU		56	64					
MAINLAND						9		
SAN ANTONIO		19				58		
TEXAS A&M			177				127	4
TEXAS SOUTHERN			124					
TEXAS TECH			80					
TX ST TECH HARL						153		
TX ST TECH WACO						313		
TEXAS	158	209	703			608	347	4
BRIGHAM YOUNG		7	45	2		3	21	
UTAH ST					2		25	
WEBER ST		20	74					
UTAH		27	119	2	2	3	46	
VERMONT TECH		162						
VERMONT		162						
DABNEY S LANCTR		15						
LORD FAIRFAX VA		15						
OLD DOMINION			117					
PAUL D CAMP CC		28						
SOUTHWEST VA CC		44						

Table 3. Technology Degrees by School and Degree Level, 1980

State and School	Engineering Technology Cert.	ASET	BSET	MSET	Industrial Technology Cert.	ASIT	BSIT	MSIT
VPI			61					
VIRGINIA		150	178					
SHORELINE CC WA		81						
WASHINGTON		81						
BLUEFIELD ST		57	45					
FAIRMONT ST		47	39					
PARKERSBURG		4				23		
WV TECH		112	35					
WEST VIRGINIA		220	119			23		
MILWAUKEE ENG		196	118					
MORAINE PARK						36		
WISC PLATTEVILL							60	
WSTN WIS TECH						74		
WISCONSIN		196	118			110	60	
WESTERN WYOMING		14			29			
WYOMING		14			29			
DEGREE TOTAL	533	15,817	7,567	4	406	5,937	2,481	75

Table 4. Technology Degrees by Curriculum and Level, 1980

	ENGINEERING TECHNOLOGY*			INDUSTRIAL**		
	Certificate	Associate	Bachelor	Certificate	Associate	Bachelor
Air Conditioning	56	172	20	33	242	0
Aircraft	0	469	136	55	378	81
Architectural	26	778	171	24	250	24
Automotive	40	318	83	66	600	104
Chemical, Ceramic	0	319	38	3	30	2
Civil	19	1307	756	0	151	0
Construction & Structural	17	464	441	28	294	121
Computer	11	884	120	25	687	30
Drafting, Design, Graphics	15	563	116	33	518	52
Electrical	59	1905	1090	3	549	12
Electromechanical	3	380	91	0	160	2
Electronic	242	3355	1645	63	978	88
Engineering Science	16	1625	98	0	0	1
General	3	184	540	0	2	0
Industrial Technology	0	599	521	33	384	1681
Marine	0	0	49	0	0	72
Mechanical	16	1899	1215	18	202	43
Mining	0	173	93	0	7	12
Materials, Metallurgical	9	87	45	21	29	13
Nuclear	0	18	13	0	11	0
Other	1	318	286	1	465	143
TOTAL	533	15817	7567	406	5937	2481

Table 5. Enrollments in Engineering Technology Programs in Fall 1980, by Program — All Students

ALL SCHOOLS	ASSOCIATE DEGREE AND PRE-ENGINEERING PROGRAMS: 1ST YEAR	2ND YEAR	OTHER YEARS	TOTAL FULL TIME	TOTAL PART TIME	BACHELOR OF TECHNOLOGY PROGRAMS: 1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR	TOTAL FULL TIME	POST BACC	ALL PART TIME
AEROSPACE	2181	1330	28	3539	616	262	215	187	185	849	-	66
AGRICULTURAL	71	75	-	146	6	4	1	3	3	11	-	-
AIR CONDITIONING	1257	787	9	2053	1426	-	-	-	-	-	-	-
ARCHITECTURAL	3677	2034	29	5740	2457	408	192	273	228	1101	-	224
AUTOMOTIVE	3011	1429	73	4513	1865	130	99	132	116	477	2	22
BIOENGINEERING	153	85	-	238	71	44	27	25	24	120	-	29
CHEMICAL	733	460	-	1193	404	26	15	14	15	70	1	6
CIVIL	2925	1845	36	4806	2142	473	405	704	749	2331	37	718
COMPUTER	8289	2955	24	11268	10060	357	196	256	237	1046	44	357
CONSTRUCTION	2546	1540	43	4129	2919	643	537	760	747	2687	10	471
DESIGN	60	30	-	90	98	-	-	-	-	-	-	-
DRAFTING & DESIGN	4804	2410	51	7265	2783	226	282	296	259	1063	5	190
ELECTRICAL	6441	3833	11	10285	4944	998	749	1549	1320	4616	69	2289
ELECTROMECHANIC	28	25	-	53	-	-	-	-	-	-	-	-
ELECTROMECHANICAL	1232	714	12	1958	1090	163	94	201	123	581	-	250
ELECTRONIC	15272	7719	760	23751	9462	1334	990	1911	1976	6211	60	1816
ENG SCIENCE	3789	1870	-	5659	1257	781	150	57	30	1018	5	7
ENVIRONMENTAL	589	232	-	821	621	63	63	82	90	298	4	70
GENERAL	932	457	-	1389	725	452	363	713	959	2487	-	467
INDUSTRIAL	1547	870	10	2427	2721	2343	2019	2341	2259	8962	153	2351
MANUFACTURING	831	378	11	1220	974	265	307	404	453	1429	7	518
MARINE	55	30	-	85	14	252	168	150	155	725	-	-
MECHANICAL	5651	3501	32	9184	5666	1248	1081	1657	1574	5560	73	2259
METALLURGICAL	418	162	7	587	505	12	17	38	58	125	1	9
MINING	254	268	4	526	673	19	11	32	53	115	1	38
NUCLEAR	134	33	-	167	57	-	-	4	6	10	-	-
OTHER	994	320	36	1350	951	283	307	312	366	1268	84	599
PETROLEUM	97	42	12	151	42	51	69	64	55	239	-	-
SYSTEMS	-	-	-	-	-	161	186	106	92	545	-	11
TOTAL U.S.	67971	35434	1188	104593	54549	10998	8543	12271	12132	43944	556	12767
CURRICULA ACCREDITED BY ABET	18029	10001	784	28814	12778	4098	3301	5679	5755	18833	108	4617
CURRICULA NOT ACCREDITED BY ABET	49942	25433	404	75779	41771	6900	5242	6592	6377	25111	448	8150
SCHOOL ON ABET LIST	36044	18722	922	55688	26815	7219	5480	8753	9034	30486	353	9310
SCHOOL NOT ON ABET LIST	31927	16712	266	48905	27734	3779	3063	3518	3098	13458	203	3457

CIVIL ENGINEERING, PRODUCTIVITY, AND ZEN

Sitting quietly, doing nothing,
Spring comes, and the grass grows by itself.

The civil engineering profession takes great pride, and rightfully so, in the remarkable public works and structures it has created through the years. Engineering marvels such as Roebling's Brooklyn Bridge or Eads' bridge spanning the Mississippi River in St. Louis still inspire awe in many people, even more than a century after they were first constructed. The Panama Canal, one of the largest and costliest construction efforts ever undertaken, is an early monument to the technical abilities and accomplishments of civil engineers, and the Golden Gate Bridge, one of the most beautiful structures in the world, is a tribute to the esthetic qualities inherent even in utilitarian public works.

The list of impressive structures and the creative engineers who designed and built them can go on and on: Jervis' Croton Aqueduct, the Empire State Building, the Hoover Dam; it is impossible to note them all here. Even the more common and mundane civil engineering projects are worthy of mention: a storm drainage network which prevents local flooding or a pumping station and piping system which provide wholesome and safe drinking water from a treatment plant are civil engineering accomplishments that are essential to public health and well being.

None of these projects—large and famous or small and un-acclaimed—would ever have been built

if civil engineers adopted the precept expressed in the ancient Zen poem which begins: “Sitting quietly, doing nothing Or would they? I think they would have been, and I believe they were accomplished more in the spirit of Zen than under the compulsion for “productivity” which seems to pervade today’s business and technical community.

The Special Issue of Civil Engineering Magazine (CE, October1980), celebrating that publication’s Golden Anniversary, has as its theme “Boosting productivity:
crucial task for the 1980’s.” Much attention is focused on the questions of how the civil engineering profession can be “improved” and how engineering projects can be designed and built so that “the public gets more for less.” I question the concept that “more for less” is a necessary ingredient of “improvement.” And I also wonder just how “crucial” productivity really is.

We are all aware of the economic realities of engineering practice and construction in our competitive society. Designers and builders need and deserve their profits and, at the same time, the expenditure of tax dollars for public works must be kept within reason, If reducing costs without reducing the profit margins of consulting engineers and contractors is the prime objective, then yes, more efficiency and productivity would be an improvement. But if the quality of the profession and the works it provides for society are the goal and if the “existential pleasures of engineering,” as Samuel Florman phrased it, are valued, then civil engineers should take heed not to place mere “productivity” too high on their list of priorities. Alan Watts expressed a similar concern in stating:

- we cannot proceed with a fully productive technology if it must inevitably Los Angelize the whole earth.. . .Yet this will be the certain result of the technological enterprise conducted in the hostile spirit of a conquest of nature with the main object of making money.

Civil engineering is more of a creative discipline than just a production-oriented activity. Productivity refers to "furnishing results, benefits, or profits" while the word creativity has the added dimension of "imagination" and the quality of "something created rather than imitated." Every building, bridge, or water pollution control plant is unique, requiring the imaginative solution of technical, social and economic problems inherent in the particular locations where they are built. Their design and construction must be achieved within a reasonable time and budgetary framework. But such a framework should be established with the creative nature of the effort in mind, and not merely with the goal of minimizing costs and maximizing profits.

I cannot disagree more strongly with those civil engineers who are advocating standardization of structures such as highway bridges, and the mass production of their components on an assembly line. As it is, the tendency towards the use of "cut-and-paste" specs and slightly modified versions of last year's plan drawings is all too common. Even the EPA has not been entirely successful in its attempt to foster "innovative and alternative" technology in the nation's water pollution control efforts. This trend will continue, I think, if we allow a desire for efficiency to degenerate into a shallow campaign for only the completion of more work in less time.

In our present economic climate, it is not surprising that efficiency and productivity are the focus of attention. But today's civil engineers should take care to retain the element of creativity in their endeavors, and not to strip it down to plain productivity. If we don't, we may be left with an industry and not a profession. It will be a somber era for civil engineering when our physical environment is cluttered with "standardized" public works in the name of "efficiency."

What does Zen have do to with all this? How can we possibly build structures like the Verrazano-Narrows Bridge or even a simple culvert under a country road by" sitting quietly, doing nothing..."? In the context of Zen, "doing nothing" is not to be taken literally. Even the words of Lin-Chi, an ancient Zen master:". . .[in Zen] there is no place for using effort. Just be ordinary and nothing special are not to be understood superficially at face value. Certainly the successful design and construction of public works require considerable human effort, but not necessarily a forced or "put-on" effort with the chief goal of getting "more for less." Perhaps Carlos Castaneda expressed this more directly when he wrote: "Success comes gently, with a lot of hard work, but without stress or compulsion."

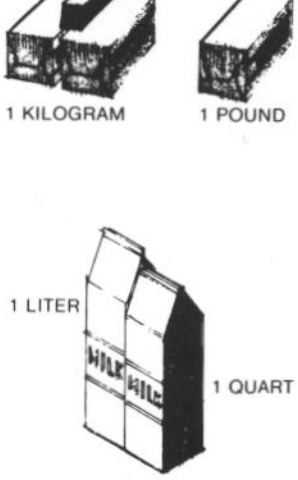
Efficiency and productivity are important, but why the stress on them? The Zen principle of" wu-shih," which roughly translates to "nothing special" or "no fuss," should temper the engineer's traditional pragmatism. Economy and efficiency are already part-and parcel of engineering, by definition! To seek them outside or to try to apply them to engineering is a contradiction. It is much like trying to see our own eyes (without a mirror) or to hear our own ears. It doesn't make sense. When we realize this, then in the words of a Chinese Zen master, "Nothing is left to you at that moment but to have a good laugh."

So many of our extant public works have an esthetic and timeless quality about them. They can last for a century and more and stand as awe-inspiring monuments to human achievement. Civil engineers should cherish this aspect of their profession and be glad for the opportunity to contribute and continue in this tradition. No one would suggest we tell young or would-be civil engineers that this tradition is over and done with and that productivity rather than creativity is now the dominant force in our work. Who would be attracted to such a

THINK METRIC

Following are the few metric units of measurement that will be used in our everyday lives and their approximate sizes. Those for time and electricity are the same units with which you are already familiar.

METRIC UNIT (Length)	APPROXIMATE SIZE OF UNIT	COMPARATIVE SIZES
millimeter	Diameter of a paper clip wire	
centimeter	A little more than the width of a paper clip (about 0.4 inches)	
meter	A little longer than a yard (about 1.1 yards)	1 METER / 1 YARD
kilometer	Somewhat farther than ½ mile (about 0.6 mile)	
(Weight) gram	A little more than the weight of a paper clip	
kilogram	A little more than 2 pounds (about 2.2 pounds)	1 KILOGRAM / 1 POUND
metric ton	A little more than a short ton (about 2200 pounds)	
(Volume) milliliter	Five of them make a teaspoon	
liter	A little larger than a quart (about 1.06 quarts)	1 LITER / 1 QUART
(Area) hectare	About 2.5 acres	
(Pressure) kilopascal	Atmospheric pressure is about 100 kilopascals=29.5 inches of Hg (14.5 psi)	
(Temperature)	°C −40 −20 0 20 37 60 80 100 °F −40 0 32 80 98.6 160 212 ↑ water freezes ↑ body temperature ↑ water boils	



Tau Alpha Pi National Hon

Engineering Technologies

This meritorious award is bestowed i

Dr. Stephen R. Cheshie

for services rendered in furthering
Tau Alpha Pi
and in appreciation of the effort t
professional status of the technolo

Purdue University
12th day of April, 198

CODE OF ETHICS OF ENGINEERS

THE FUNDAMENTAL PRINCIPLES

Engineers uphold and advance the integrity, honor and dignity of the engineering profession by:

using their knowledge and skill for the enhancement of human welfare;

II being honest and impartial, and serving with fidelity the public, their employers and clients;

Ill striving to increase the competence and prestige of the engineering profession; and

IV supporting the professional and technical societies of their disciplines.

THE FUNDAMENTAL CANONS

1 Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional dutieS.

2 Engineers shall perform services only in the areas of their competence.

3 Engineers shall issue public statements only in an objective and truthful manner.

4 Engineers shall act in professional mafters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.

5 Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others

6. Engineers shall act in such a manner as to uphold and enhance the honor, integrity and dignity of the profession.

7. Engineers shall continue their professional development throughout their careers and shall provide opportunities for the professional development of those engineers under their supervision.

Approved by the Board of Directors, October 5, 1977

profession? Yet this will be the message if we continue to stress the so-called “crucial task” of “boosting productivity.”

Let’s allow ourselves the chance to enjoy the creative part of our endeavors and keep economic imperatives in proper perspective. Productivity will come in and of itself as we engineer the

modern public and private works needed to serve society. In a reasoned (rather than corn pulsive) quest for efficiency, we can make more use of up-to-date engineering methods. Applications of computer-aided design and graphics in the office, lasers, EDM's and nuclear density meters in the fields, and participative management programs are all of value in this regard; they have already been noted and discussed by other contributors to this theme. In their own milieu and with the tools available to them atthe time, Roebling,Jervis, and the others succeeded in engineering admirable civil projects. And we can, too, in the 1980's.

Jerry Nathanson
Union County Technical Institute

Request For Publication

The publication committee of Tau Alpha P1 is interested in receiving articles on Engineering Technology for possible publication in the Tau Alpha P1 Journal. Individuals who have articles or ideas on EngineeringTechnology which they feel would be of interest to other Engineering Technology educators and students should call or send two copies of their work to: Professor **Frederick J. Berger, Editor, Tau Alpha Pi Journal, P.O. Box 266, Riverdale, New York 10471, Telephone:**
212-884-41 62.

Papers on new and innovative programs, the employment picture, utilization of technology graduates, instructional innovations, and book reviews will be given priority.

Please pass this request on to other colleagues at your campus so that they too may participate in furthering the professional status of the Engineering Technology students and the profession.

Parts of the Journal will be going to the printer during the first week of April. We need the articles and your news to insure that your chapter's activities will be included and given national recognition when the Journal is published.
If pictures are to included, they should be black and white on glossy paper.

SOME SOCIAI AND PSYCHOLOGICAL ASPECTS OF ENGINEERING TECHNOLOGY AS A SECOND DEGREE

The Department of Industrial Systems Technology of the University of Nebraska at Omaha has experienced an unusually high rate (over 200%) of enrollment growth in the past three years. The number of students enrolled in all programs has increased from 56 in 1978 to 175 in 1981. Most of this increase is due to a planned program of public awareness and recruitment in Omaha and

surrounding high schools. However, a significant portion of the enrollment increase has occurred from an area which was not originally anticipated. Specifically, 37 of the 119 newly enrolled students already possess one or more college degrees. A full spectrum of undergraduate disciplines ranging from library science to civil engineering can be found among these new students who are in the degree-holding category.

As it became clear that this unexpected trend was developing, steps were taken to collect data which could be used to formulate an explanation. An entrance interview is held with each new student. The reasons for enrolling in engineering technology given by the students during these interviews are tabulated in Table 1. The number of degrees held by category is shown in Table 2. The underlying reasons for the majority (78%) of the new enrollees can be summarized as a combined thrust for a higher level of economic power and career satisfaction. These were the reasons stated primarily bythe holders of non-engineering-related degrees. The engineering-related degree holders were unanimously interested in improving present skills or obtaining new skills which can be immediately put to use.

The presence of a significant number of degree-holding students in the classroom has had some beneficial effects. In general, it has tended to raise the level of quality in the classroom. It has been a stimulus to the undergraduate students because they are aware of the increased competition from highly motivated degree students. It has resulted in some valuable classroom exchanges between the students and the faculty. The presence of these students has also helped to change the Industrial Systems Technology department from a relatively small academic unit to the fastest growing department in the three-campus University of Nebraska System.

There are some other issues which must be examined, especially if our recent experience is one which may become applicable to engineering technology programs across the nation. These are hinted at by the student profile data in Table 3.

First, there is the issue of economic cost to the individual degree student. Certainly, the total cost of all education expenses and foregone annual pretax income for the average 3.4 semesters required to obtain another degree is substantial. Even estimated conservatively, this cost will be between $25,000 and $40,000 for the full-time student. This, of course, does not include the psychic cost of deferred personal plans or unrealized career promotions which might have been reasonably expected to occur in the positions which the new students vacated.

Second, there is the cost to society which occurs when a fully educated and functioning productive member drops out of his productive status, even temporarily. The goods and services produced by 37 persons are substantial. The loss of these goods and services is a high cost to society. Fortunately, many of these students attend classes on a part-time arrangement which enables them to continue to work. However, many are full-time students who are in a pure consumer status, thus temporarily shrinking the federal, state, and local economic prod uct.

Finally, there is a psychological issue which must be addressed. During the entrance interviews it was clear that most of these alert, educated individuals viewed a college degree as much more than a diploma. For many of them, it was a major milestone in the path to professional satisfaction. They intended to use the degree as a means to personal freedom, prestige, internal fulfillment, and a host of other somewhat tenuously related personal psychological goals. This, of course, is possible, but the tenacity with which many potential students put their faith in the college degree as a means of therapy leaves an objective observer to speculate that this aspect of education is overemphasized in our society. Perhaps ri~ore experience with the multiple-degree graduate will

clarify this issue.
There are already some highly positive results from our own experience. In one case, a chemistry major who was working as a laboratory technician in another University enrolled here in engineering technology because he was "in a dead-end-job." Three semesters later he was graduated and was offered a position with a major corporation as a quality control engineer at more than double his previous salary. He accepted this position which offers an excellent promotional track and has changed his entire attitude about working. The effect on his life has been very positive.
In another case, an individual with degrees in both science and pharmacy enrolled in engineering technology because he found his work in a hospital pharmacy to be personally "tedious and boring." Three semesters later he was graduated and became a Systems Engineer in the same hospital where he had been previously employed. His first assignment was to study the pharmacy for efficiency improvements. He received a substantial pay increase over his previous position. More important, he now demonstrates a level of renewed energy and vitality toward work which was not previously present.
Enrollment increases through the addition of holding degree-students which led to success stories such as these are satisfying to report. However, the cost of taking persons out of the economic mainstream is potentially enormous in time and money. Society temporarily loses the services of these skilled people during the years required for them to complete their additional education. The temporary psychological effect on a mature individual who reverts to the relatively passive role of student may have at least some short-term adverse effects. Since most of these degree-holding students are married and have families, it can be speculated that these effects are felt within the family unit.
It Lan he concluded, then, that each success story has a short-term cost to the individual, his family, and society. The individuals have demonstrated their willingness to pay the cost by their presence in our classes. They expect to make it up over the long run.

Kenneth C. Merkel
Professor and Chairman
Industrial Systems Technology
University of Nebraska, Omaha

DR. STEPHEN R. CHESHIER
FIRST PRESIDENT OF
SOUTHERN TECHNICAL. INSTITUTE

One of Tau Alpha Pi's strongest supporters at Purdue University is now president of the college with the founding chapter of the honor society— Southern Technical Institute. Dr. Stephen R. Cheshier, head of the Department of Electrical Engineering Technology since 1976 and chapter

sponsor of Tau Alpha Pi at Purdue, became the first president of Southern Technical Institute in Marietta, Georgia, in September, 1980. In July the Board of Regents of the University System of Georgia appointed Dr. Cheshier as president after a year-long national search for the college's first president.

At Purdue Dr. Cheshier was the charter sponsor of the Tau Alpha Pi chapter, and he served as its faculty advisor for four years. He also served as mid-west

Purdue's President (left) congratulating Dr. Cheshier upon his in inauguration.

coordinator for Tau Alpha Pi on a national basis, helping to establish chapters at many schools in the midwest. He has written several articles for the Tau Alpha Pi Journal, both chapter news and articles on engineering technology in general. Dr. Cheshier worked to organize the Pi Alpha Chapter at Purdue because of Tau Alpha Pi's uniqueness as the only national honor society exclusively for engineering technology students. "Before, engineering technology students were only eligible for honorary groups open to a number of fields. I was impressed that Tau Alpha Pi is so selective—I thought it would be meaningful for students to be selected for an honorary that only took four percent of the students in that discipline (engineering technology)," Dr. Cheshier said.

Dr. Cheshier taught in electrical engineering technology at Purdue from 1972 until accepting his position at STI this past fall. He is a graduate of 30 diploma programs in engineering technology and has extensive administrative, educational, and industrial experience. He is currently serving as chairman of the Executive Council of the National Engineering Technology Leadership Institute (ETLI). His educational background includes a B.S. degree in physics and mathematics from Memphis State University in 1970, the M.S.E. degree in electrical engineering from Purdue University in 1972, and the Ph.D. degree in vocational-technical education from the University of Illinois in 1975. At age 41, Dr. Cheshier is the youngest college president in the University System of Georgia.

At formal inauguration ceremonies for STI's first president in April, Tau Alpha Pi Executive Director Frederick Berger presented Dr. Cheshier with the society's Outstanding Service Award in recognition of his dedicated service to the society while at Purdue. Among the projects he helped

the Purdue chapter to initiate was the annual publication of a graduate resume book to distribute to industry. This was one of the first publications of its kind in the nation.
Southern Tech has offered the bachelor of engineering technology degree since 1970, and today it is the largest producer of bachelor of engineering technology graduates from any one campus in the nation. The college has 2600 students and 125 instructors and professors. In the fall of 1980 STI was the fastest growing senior college in the university system, with an 8.5 percent increase in enrollment over the year before. The college offers seven bachelor-degree programs, as well as a number of associate-degree programs. Degree-granting programs include Apparel, Architectural, Civil, Electrical, Industrial, Mechanical, and Textile Engineering Technology. Engineering technology curricula are accredited by the Accrediting Board for Engineering and Technology (ABET). The college is coeducational, residential, and offers day and evening studies. In its first 33 years of operation, STI has sent more than 700 graduates to government, business, and industry.

Patti S. Futrell
Southern Tech Institute

Books of Interest

Peterson's Annual Guide to Careers and Employment for Engineers, Computer Scientists, and Physical Scientists, ed. Sandra Grundfest. Princeton, 1981.

The publisher offers the following observations concerning Peterson's Guide:

The book will be of special interest to those who are seeking employment. It includes detailed profiles of almost 950 companies recruiting technical graduates and provides information on each company's starting salaries, locations, specialties sought, and policies on reinbursement for further study. The companies are recruiting graduates in 91 different technical disciplines. They expect to hire a total of about 80,000 technical graduates at the bachelor's, master's, and doctoral levels. According to this Guid~ computer scientists will be recruited by more firms than graduates in any other specialty. Also in great demand will be mechanical and electrical engineers. Most other engineering specialties will continue to be in demand, e.g., chemical, civil, industrial, nuclear, solar. The Guide assists, in addition, in identifying particular companies, e.g., consulting firms, construction firms, research organizations. Hints on successful job searching and sample resumes are included.

Peterson's Annual Guide to Undergraduate Study ,ed. Joan H. Hunter. Princeton, 1981.

The volume of almost 2,000 pages is a most current and comprehensive guide to two-year and four-year colleges in the United States and Canada. It provides profiles of over 2,600 colleges with information about application requirements and deadlines, SAT and ACT score ranges, major fields of study, expenses, financial aid, special programs, availability of guidance, and campus life features. It covers virtually everything one seeks to know about colleges and is a handy reference for students, parents, and counselors.

Chapter News

ALPHA ALPHA (Southern Technical Institute): The chapter has concentrated on making Tau Alpha Pi more visible. A plaque of the Tau Alpha Pi emblem and a showcase are under construction. Members are encouraged to wear their Tau Alpha P1 sweaters. The chapter holds quarterly initiations. Recently, the chapter revised its constitution and streamlined the functions of its officers. It began, with the aid of the Registrar's office, a membership drive designed to recruit eligible students. It provided ushering at the inauguration of the Institute's new president Dr. Stephen R. Cheshier. Future plans call for a showcase and large replica of the Tau Alpha Pi emblem. The chapter intends taking an active role in the rapid growth that is expected for both Southern Tech and Georgia Tech. Officers: Paul Jabaley (President); Don Flowers (Vice-President); Ken Thompson (Secretary); Mitch Stattum (Treasurer).

ALPHA BETA (DeVry Institute of Technology, Atlanta): The chapter sponsored a Presidential Honors Banquet. Its members ushered at graduation, held two raffles, and participated in school social functions. The chapter plans to continue these activities and work also on the forming of a technician honor society.
Officers: Jeff Hyson (President); Randy Traylor (Vice-President); Scott Oatley (Secretary-Treasurer).

BETA ALPHA (Academy of Aeronautics, New York): The chapter initiated a record number of 56 new members in 1980-81. The members continued to provide tutoring and advisory assistance to freshmen. They served also as guides during annual Career DayandAlumni Homecoming Day. Theycontinued also to present. the Tau Alpha P1 certificates and keys to newly elected members at June graduation ceremonies and described the honors society as one dedicated to the promotion of scholarship and academic excellence. In order to make the society's existence more visible, the members purchased sweatshirts with the Tau Alpha Pi emblem. Officers: Gene J. Cundelon (President); Sardar Durrani (Vice-President); Roseanne Vaughan (Secretary).

BETA GAMMA (Queensborough Community College): The chapter has continued its tutoring assistance in electrical, mechanical, and pre-engineering disciplines, and it now includes tutoring in computer technology. Officers: Jessica S. Lund (President); Phyllis Mickie Lee (Vice-President).

BETA DELTA (Bronx Community College, City University of New York): The chapter initiated eight new members on March 31, 1981. The Tau Alpha Pi medallion in recognition of scholarship and leadership qualities was presented to Mr. Brendan P. McGough (Electrical Engineering Technology) by Professor FrederickJ. Berger, Executive Secretary. Beta Delta members have continued to serve as ushers at commencement exercises. This spring, also, on May 31, 1981, Beta Delta chapter, faculty members of Bronx Community College, Tau Alpha Pi associates, friends, and family honored Prof. Frederick J. Berger at a testimonial dinner-dance held at Leonard's of Great Neck. Prof. Berger was honored for his more than twenty years of dedicated and devoted service to Beta Delta Chapter (as its founder and faculty adviser) and to the college. Officers: Joel

K. Popelsky (President); Neville Barrington Morris (Vice-President); Courtney 0. Lackard (Secretary); Juan Larrazabal (Treasurer); Denzil G. A. Grange (Committee Chairman).

BETA EPSILON (Hudson Valley Community College, Troy, New York): The chapter established a tutorial assistance program to help students in various subjects in all curricula. In the near future, the chapter plans to purchase a banner bearing the Tau Alpha Pi emblem. Officers:Joseph F. Styczynski (President); Mark T. Forth (Vice-President); Sharon Gioeni (Secretary); Timothy J. Larson (Public Relations).

BETA ZETA (College of Staten Island): The chapter stressed guest lectures by representatives of appropriate industries, such as Consolidated Edison, Power Mate Corporation, Electro, AAT Communications, Motorola, Loral Electronics, Narda Microwave, Muirhead, Pickering, RFL Industries, Edo Corporation, and Bell Laboratories. At the chapter's fall '80 initiation ceremonies, Professor Frederick J. Berger, Executive Secretary of Tau Alpha Pi, delivered the principal address. Future plans call for tours to Bell Labs and IBM. They include also the acquisition of a large banner bearing the emblem of the society. Officers: Barbara Smith (President); France Cipollone (Vice-President); John Liano (Secretary); Dennis Cascio (Treasurer).

BETA IOTA (Rochester Institute of Technology): The chapter inducted new members on February 17, 1981. Its members plan to expand and improve the tutoring program for students in the School of Engineering Technology. Officers:
Richard Giraulo (President); Thomas A. Guerin (Vice-President); Thomas G. Peaslee (Secretary); Wayne B. Pickering (Treasurer).

BETA KAPPA (SUNY College of Technology, Utica-Rome): The chapter held a banquet commemorating its chartering and the induction of charter members on November 7, 1980. The banquet was attended by the initiates and their guests. Also in attendance were Frederick J. Berger, national Executive Secretary of Tau Alpha Pi; William Kunsela, President of the College of Technology; and Edward Zacaroli and Lou Augumas, two members of the Technology Division Advisory Board. Professor Berger was the principal speaker. The first project undertaken by the chapter was to assist in the organization of the Mechanical-Industrial Engineerirg Technology Club. The second project was to organize a student assistance program to the Mohawk Valley Engineering Executive Council for
Left to right: Prof F.J. Berger, Prof. Vizp (FacoltyAdvisor), John Gymhurch, William Merrick, Daniel Stohel.

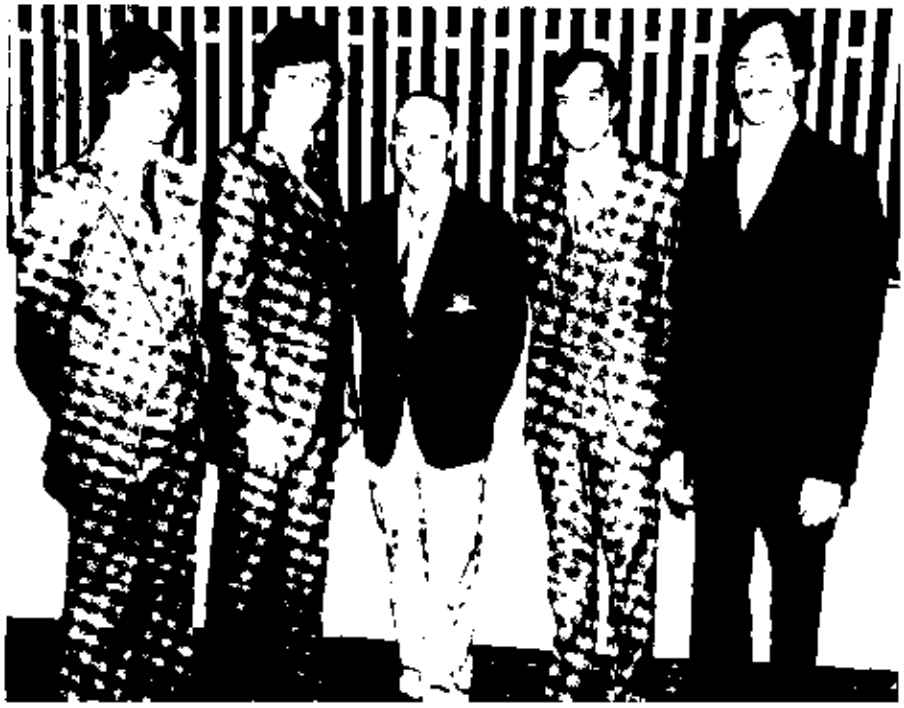
Project SITE (Student Introduction to Engineering), the purpose of which is to inform high-school students about engineering and engineering-technology career opportunities. Officers: Daniel Strohel (President); John Gymburch (Vice-President); William Merrick (Secretary-Treasurer).

BETA LAMBDA (Technical Career Institutes): Charter members were inducted on October 16, 1980. The ceremonies were conducted by President Steinman and faculty adviser Prof. Ben Zeines. Officers: Brian Larson (President); Lance Schmelz (Vice-President); Lincoln Wright (Secretary); Stanley Calitri (Treasurer).
Left t right: Brian Larson, Lincoln Wright, Pres. Steinman, Lance Schmelz
GAMMA BETA (University of Dayton): The chapter's activities included a bowling league and an annual banquet at which new members and recipients of awards were recognized. Future plans call for the construction of a replica of the Tau Alpha Pi key for display at the entrance of the Charles Kettering Engineering Building. Officers: Dave Jacobaski (President); Dan Harmeyer (Vice-President); John Buehrle (Secretary-Treasurer); Bob Gerung (Public Relations).

GAMMA EPSILON (Ohio Institute of Technology): The chapter celebrated its second anniversary with a dinner party on November 20, 1980. On April 15, 1981, the chapter held initiation ceremonies, with various administrators and faculty in attendance. Officers were elected, including the first woman officer of the chapter—Vice-President Susan M. Fetsic. New members were initiated. The chapter is planning to display a plaque to honor graduating members of the chapter and its faculty advisers. Officers, in addition to the Vice-President:
Christopher M. Reisig (President); Kurt F. Simala (Secretary); Kelly A. Anderson (Treasurer).

DELTA BETA (Northeastern University, Lincoln College): The chapter made it possible for the first time for eligible evening students to be inducted. In the future the chapter plans to merge student activities with other honor societies on campus tofurther service tothe college community. Professor FrederickJ. Berger, Executive Secretary, was present at the initiation ceremonies and banquet in May, 1980. The initiation ceremonies and dinner for new inductees in the spring of 1981 were held on May 29. For the first time, a female student was eligible and was inducted into the chapter. Officers: Daniel J. Mescuri (President); Keneth J. Donovan (Vice-President); Louis V. Cornaro (Secretary); DonatoVisco (Treasurer).
EPSILON ALPHA (Missouri Institute of Technology): The chapter will hold initiation ceremonies twice a year instead of just once. Future plans include also holding a study hints seminar at the beginning of each trimester. Officers: Charles
A. Dade (President); C. Richard Schneider (Vice-President); Ronald L. Glass (Secretary).

EPSILON BETA (Florissant Valley Community College): The chapter held its initiation ceremonies, business meeting, and annual elections. In the future the chapter plans to visit the Union Electric Nuclear Power Plant under construction in Callaway, Missouri, to learn the construction techniques and operating procedures and their effects on the local community. Officers: Steven F. Ehler (President); Paul Pruett (Vice-President); Peggy Becker (Secretary); Carl Dietz (Treasurer).
May 16, 1980 initiation
North Eastern University “Delta Beta chapter” Initiation Spril 1980 initiation.



UPSILON BETA (Arizona State University): On February 7, 1981, the chapter inducted 26

initiates. The guest speaker was C.R. Haden, Dean of the College of Engineering and Applied Sciences at A.S.U. A banquet followed, with 80 guests attending. In order to give the society greater visibility, the chapter made a four-inch replica of the key for use at initiations and for display in the division office. The chapter plans to have a thirty-six-inch key to be placed on the lawn in front of the Technology building and personalized stationery. A social gathering is planned to promote the opportunity for members to be better acquainted. Chapter members will also provide tutoring sessions on Wednesday evenings. Officers: Clinton B. Eckard (Co-chairman); Julian Betoney (Co-chairman); Michael Stroobandt (Secretary-Treasurer).

Left to right: Co-Chairman Julian Betoney, clinton B. Eckard

UPSILON DELTA (DeVry Institute of Technology): The chapter held its installation of new officers, initiation of 23 new members, and celebration of these events. Spring initiation took place in May, 1981. Officers: Thomas D. Boe (President); J. Matthew Verner (Vice-President); Larry Rahn (Secretary); Gregg A. Syrovatka (Treasurer).

ZETA ALPHA (University of Houston, College of Technology): The chapter has instituted an improved procedure whereby to select the outstanding teacher from the College of Technology faculty to whom an award is presented at the spring banquet. During the spring, also, construction will begin on the Tau Alpha Pi key in front of the College of Technology building. Officers: J.H. Power (President); Keith Burton (Vice-President); Linda Alchter (Secretary-Treasurer).

IOTA GAMMA (Spring Garden College): The chapter developed procedures for Academic Student Due Process which were accepted by the college and are published in the Student Handbook. Selected members of the society serve on a committee to advise a student informally or formally of his or her rights and responsibilities and may advise a student in the appeal of a case through appropriate channels. On Saturday, May 2, chapter members participated in spring cleaning day and helped beautify the college grounds. Officers: David A. VanOcker (President); Andrew W. Brandt (Vice-President); Elizabeth Sprague (Secretary); Mary L. Rodi (Treasurer).

MU BETA (Clemson university): The chapter held initiation ceremonies in the

spring of 1981. Its members continue to serve the society and the university. Officers: Donald M. Padgett (President); Brian J. Kauer (Secretary-Treasurer).

XI BETA (Northrop University): The chapter held its first annual banquet on January 26, 1981, in honor of the seven members who were inducted and the officers who were installed. Dean Daugherty of the College of Technology arid Professor Thornton, faculty adviser to the chapter, delivered talks. Officers: Adnan Khan (President); Joseph Yu (Vice-President); Cheung Huhg-Fat (Secretary-Treasurer).

Xl DELTA (California Polytechnic State University): The chapter initiated fourteen new members on April 14,1981. On April 18,1981, a reception was held for the new initiates and their guests and other members of the chapter. One of the members Mr. Jerold Peek was named outstanding senior engineering technology student for 1980-81 and was honored at the annual Engineers' Week Banquet.
Officers: Robert Rudd (President); John Pettit (Vice-President); Ronald Russell (Secretary-Treasurer).

OMICRON DELTA (Stevens Institute of Technology): The chapter held initiation ceremonies in the Spring of 1981. Members will continue to hold discussions in order to exchange ideas regarding their electronic technicians' positions.
Officers: Richard Wickler (President); Gary Juleivicz (Secretary-Treasurer).

P1 GAMMA (Indiana University, Purdue at Fort Wayne): The chapter held initiation ceremonies. Future plans call for holding technical seminars. Officers: Mark Masenthin (President); Mary Ann Might (Vice-President); Stephen Clem (Secretary-Treasurer).
Front Row (left to right>: Nicholas Skochinsky, Calvin Neidrauer, Dan Zierten, Douglas Farlow.
Second Row: Howard Martin, David Keith, Professor Lloyd Smith, Professor Ron Emery (Faculty Avisor),
John Beuchel, Mary Ann Might (vice-President), Everett Sykes, Jr..
Third Row: Stephen Clem (Secretary-Treasuror), Thomas Maloney, Mark Masenthin (President), Jon
Smith, Kelvin Quinn.
Absent from picture: Albert Andreas, Mark Landis, Doyle Miller, ProfessorJack Quinn, DeanJohn Daiphin.

PI EPSILON (Indiana State University, Evansville): The chapter plans to offer tutoring services next fall. In 1981 the chapter initiated six new members. Officers: Carl Lested (President); Michael A. Niehaus (Vice-President); Jeffrey S. Snow (Secretary-Treasurer).

RHO ALPHA (Colorado Technical College): Chapter members have almost completed construction of the school clock. One member, Kirt Bailey, made a wooden candle-holder to be used at initiation ceremonies. Officers: Joe Subda (President); Bryce Case (Vice-President); Rod McCoy (Secretary-Treasurer).

RHO BETA (University of Southern Colorado): The chapter held its annual initiation and banquet. The guest speaker was Dr. Dowty, Special Projects Manager, Solar Energy Research Institute. A plaque designating ASET will be made by chapter members and presented to the Dean of ASET for the ASET building to be completed in the Fall of 1981. Officers: Gregory Phillips (President); Peter Psaras (Vice-President); Walter Fry (Secretary-Treasurer).

SIGMA BETA (Central University, Florida): The chapter held initiation ceremonies on January 30, 1981. A banquet followed. The guest speakers were Dr. Richard Denning, Chairman of Engineering Technology, and Mr. GarnerJones of Western Electric. Officers: Robert Gustavson (President); Kevin Mason (Vice-President); Jack Fritz (Treasurer).

PHI ALPHA (University of Nebraska at Omaha): The chapter has recently been established. It held its first formal induction of five members on February 27, 1981. The chapter will meet once each semester to plan induction ceremonies for new members. This newly created chapter received its charter which the chapter presented to the Dean for display in his office. In this way the chapter immediately promoted the visibility of Phi Alpha Chapter of Tau Alpha Pi. Future plans calls for assisting students academically and increasing the number of students who can qualify for membership in the chapter. Phi Alpha stands as an incentive toward the achievement of these

goals.

PSI DELTA (State Technical Institute at Knoxville): The newly created chapter received its charter on March 20, 1981. The initiation and chartering ceremonies took place on April 4, 1981, and immediately after the ceremonies a luncheon followed in honor of the charter members. The charter members plan initiating approximately twenty-five new members during the spring quarter of 1981. Officers: James Barger (President); Jerome A. Prahl (Vice-President); Thomas A. Dyer (Secretary).

CHI ALPHA (Vernont Technical College): The chapter welcomes PresidentJames P. Todd, formerly the adviser to Xl Alpha at California State Polytechnic University at Pomona. President Todd hopes to establish a BET program at Vermont Technical College. The chapter initiated four new members on December 4, 1980. Officers: Donald Stein Ill (President); John Murray (Vice-President); Mark Sarabia (Secretary).

OMEGA ALPHA (New Mexico State University): The chapter held its initiation ceremonies and banquet on November 9, 1980. As one of its services, the chapter offers tutoring assistance. Future plans include fund-raising activities. Officers: Roy Martin (President); Bill Loos (Vice-President); Kent Peay (Secretary); Bill Loos (Treasurer).

ALPHA-ALABAMA (University of Alabama): The chapter held initiation ceremonies on March 20,1981 .A reception followed. Dean of Engineering, WilliamJ. Hatcher was the guest speaker. His presentation reviewed the history of engineering education at the university with discussion of current problems and future concerns.

ALPHA OKLAHOMA (Oklahoma State University): The chapter initiated fourteen new

members on November 13, 1980. Dean Kenneth McCollom of the Division of Engineering, Technology, and Architecture conducted the ceremonies. A banquet followed, at which Dr. Charles Evans, Assistant Vice-President ~ Academic Affairs, was the speaker. Officers: David Porter (President); Brent Meadows (Secretary-Treasurer); Randy Black (Membership Chairman); Bob Coyle (Publicity Chairman).
Left to right: Dr. John Antrim (Director of Technology), larry Reid,) im Barnes, Tim Taylor, William Davis, Tony Sheffield, Edie Manning, Kathy Gaynor and Dr. William Byers (Sponsor).
Dr Kenneth McCollom, Dean of the Division of Engineering, Technology and Architecture.

ALPHA-WISCONSIN (Milwaukee School of Engineering):Alpha-Wisconsin is the first Wisconsin chapter of Tau Alpha Pi. Chartering and initiation ceremonies were conducted on December 6, 1980. Professor Frederick J. Berger, Executive
Secretary of Tau Alpha Pi, presented the charter and initiated the members. The guest speakers at the event were Professor Berger and Mr. Cass Hure, Executive Secretary Emeritus, Wisconsin State Examining Board of Architects, Professional Engineer's Designers and Land Surveyors. Perhaps germaine toTau Alpha Pi is the establishment of the Sitzwohl Memorial Laboratory. It maybe noted that the late Professor Sitzwohl was one of the earliest proponents of Tau Alpha Pi. The Sitzwohl Laboratory has gained a high degree of popularity among engineering technology students, and many senior projects have been conducted using its equipment. Officers: John Mertens (President); Leland Zook (Vice-President); Susan Larenz (Secretary-Treasurer).
Left to right: Marlin Peterson, Hubert Zettel, Susan Lorenz, Leland Zook, John Mertens

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Honor Roll

The officers and members of Tau Alpha Pi National Honor Society hail and greet the following affiliate chapters newly elected during the year of 1980-1981. We congratulate the institutions for having the foresight to. initiate affiliate chapters of Tau Alpha Pi at their respective campuses. We congratulate these charter members and say to them that they should be proud of their designation, forTau Alpha Pi National Honor Society for students in EngineeringTechnologyis the most selective of all honor societies, acceptingonlythe top 4% ofalltechnical students enrolled at a college or university.

We hope that the charter members will establish a solid and firm foundation so that those who follow them will be able to build upon it. Our best wishes for success in the endeavors of Tau Alpha Pi.

Frederick J. Berger
Executive Secretary
Tau Alpha Pi

BETA LAMBDA CHAPTER
Chartered October 8, 1980. Technical Career Institutes:

President Samuel Steinman, Sponsor; Prof. Ben Zeines, Faculty Advisor.

Charter Members
Stanly Calitri Ronald Fung
Rian A. Carson Lance P. Schmelz
Lincoln Wright

BETA MU CHAPTER
Chartered April 24, 1981. State University of New York Agricultural and Technical College: Prof. Richard W. Miller, Sponsor.

Charter Members
Chris Ford Rock Nadeau
Tom Lamb Russ Keefe
John Tyo

P1 EPSILON CHAPTER
Chartered July 7, 1980. Indiana State University, Evansville: Prof. Paul E. Bennett, Sponsor.

Charter Members
Michael R. Bates Matthew E. Conkling
Jeffrey S. Snow Carl Lester
John S. Mears Michael A. Niehaus
Jeffrey L. Saffles Norman W. Wendholt

PHI Alpha CHAPTER
Chartered November 15, 1980. University of Nebraska: Prof. Kenneth C. Merkel, Sponsor.

Charter Members
Tom J. Anderson
Edward E. Chevalier
Scott B. Peterson

PSI DELTA CHAPTER
Chartered March 20, 1981. State Technical Institute at Knoxville:
Dean Jan R. Sonner, Sponsor.
Charter Members
James Alan Barger
Thomas A. Dyer
D. Lee Robbins

CHI BETA CHAPTER
Chartered April 29, 1981. Norwich University: Prof. Eugene A. Sevi, Sponsor:
Prof. Gregory D. Wight, Faculty Advisor.

Charter Members
Kim Bryant
Albert Fagan
John Wrobel
Janet Cowan
Robert D. Fladby
Preston E. Sargent
Mark Bishop
Jerome A. Prahi
Richard Sokal
Stephen Cullinane
Anthony LaChance
Alvert Wilder

Collegiate Chapters of Tau Alpha Pi National Honor Society for Engineering Technology

ALPHA ALPHA CHAPTER
Southern Technical Institute
Clay Street
Marietta, Georgia 30060
Prof. Paul Wojnowiak

ALPHA BETA CHAPTER
DeVry Institute of Technology
2858 Woodcock Blvd.
Atlanta, Georgia 30341
Prof. John Blankenship

BETA ALPHA CHAPTER
Academy of Aeronautics
La Guardia Airport
Flushing, New York 11371
Mr. Joseph J. Scalise

BETA GAMMA CHAPTER
Queensborough Community College
of the City University of N.Y.
Bayside, New York 11364
Dr. Nathan Chao

BETA DELTA CHAPTER

Bronx Community College
of the City University of N.Y.
West 181 St. & University Avenue
Bronx, New York 10453
Dr. Lillian Gottesman

BETA EPSILON CHAPTER
Hudson Valley Community College
80 Vandenburgh Avenue
Troy, New York 12180
Dr. Leonard Spiegel

BETA ZETA CHAPTER
College of Staten Island
of the City University of N.Y.
715 Ocean Terrace
Staten Island, N.Y. 10301
Prof. Sol Lapatine

BETA THETA CHAPTER
Broome Community College
Binghamton, N.Y. 13902
Prof. Robert L. Reid

BETA IOTA CHAPTER
Rochester Intitute of Technology
One Lamb Memorial Drive
Rochester, New York 14623
Prof. Robert McGrath, Jr.

BETA KAPPA CHAPTER
State University of New York
College of Technology
811 Court Street
Utica, New York 13502
Dr. Louis J. Galbiati, Jr.
Prof. Nicola Berardi
Prof. James F. Vize

BETA LAMBDA CHAPTER
Technical Career Institutes
320 W. 31 Street
New York, New York 10001
Dr. Samuel Steinman
Prof. Ben Zeines

BETA MU CHAPTER
State University of New York
Agricultural & Technical College
Canton, N.Y. 13617
Prof. Richard W. Miller

GAMMA BETA CHAPTER
University of Dayton
Dayton, Ohio 45469
Prof. Robert L. Mott

GAMMA DELTA CHAPTER
Franklin University
201 S. Grant Ave.
Columbus, Ohio 43215
Dr. James D. McBrayer

GAMMA EPSILON CHAPTER
Ohio Institute of Technology
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