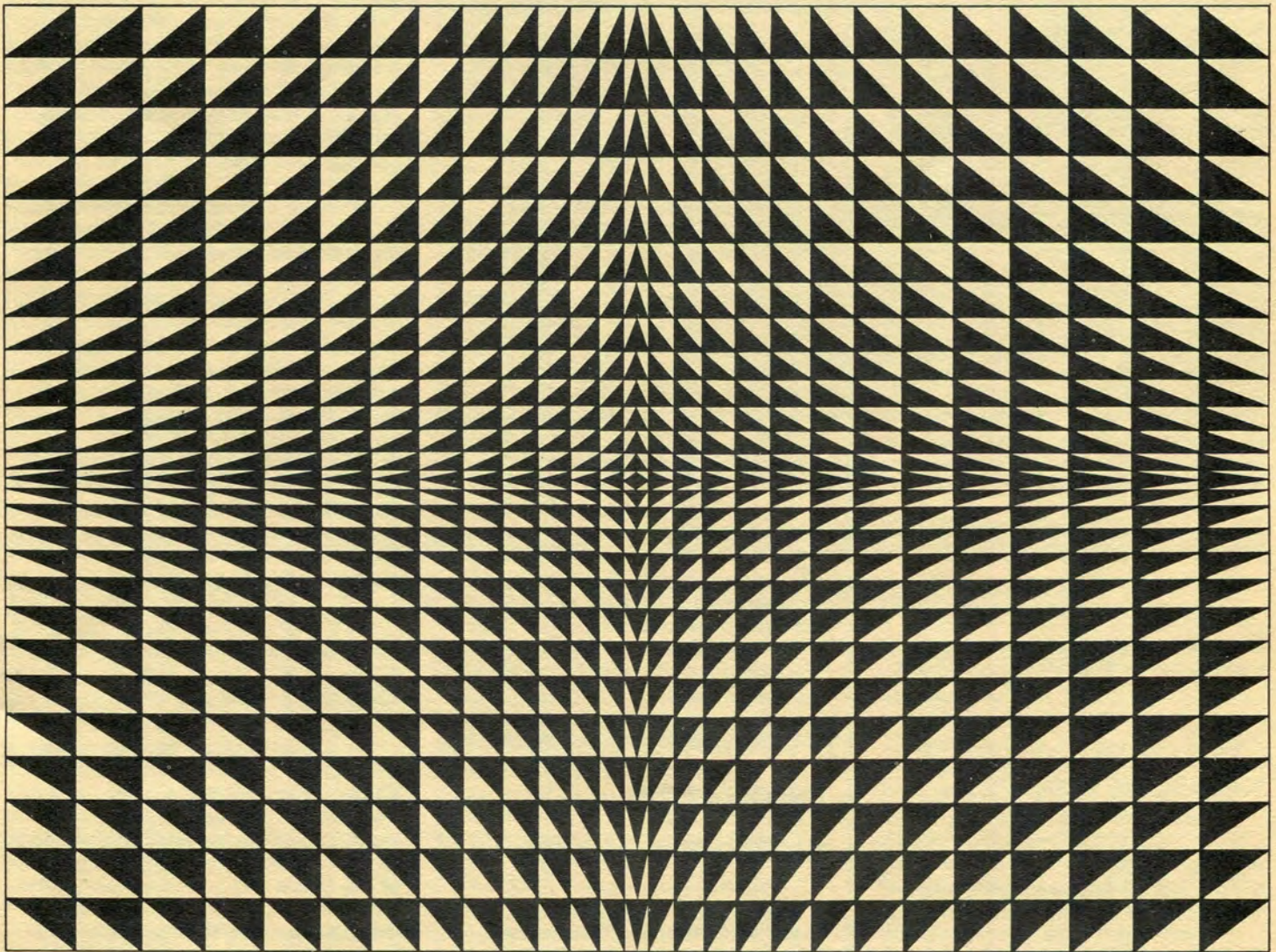


Lawrence

INSTITUTE OF TECHNOLOGY

MAGAZINE



FOCUS ON ENERGY, pg. 11

autumn/winter 1977

ON-CAMPUS

Lawrence INSTITUTE OF TECHNOLOGY MAGAZINE

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Calendar

January 23

Second term evening baccalaureate classes begin (Register in advance!)

January 28

Tau Beta Pi LIT Chapter installation
Contact School of Engineering

January 31

Second term evening associate classes begin (Register in advance!)

April 22

Alumni Association Dinner Dance
Special honors, Class of 1953

April 22 and 23

LIT Annual all-campus Open House
Special exhibits, demonstrations



4,754 students pace record enrollment

The largest enrollment in the 45-year history of Lawrence Institute of Technology—4,754 students—has paced the opening of the autumn term at the College. The enrollment record is the latest of several successive years of increases and breaks the previous record of 4,584 set in September 1976.

"Naturally we're pleased," said Dr. Richard E. Marburger, LIT's newly-appointed president, who credited much of the College's growth to a strong job market in engineering, computer science and business—long popular academic programs at LIT. He also credits the opening of the College's \$4 million 142-unit student apartment building (LIT's first) with making LIT a more attractive alternative for students from outstate and out of state.

Women's numbers jump

Women have come into their own at Lawrence Institute of Technology. Their numbers have gained one percentage point of total enrollment in each of the last five years—an increase of nearly 100 women on campus each year, Dr. Richard E. Marburger, president, points out. This

year they comprise 9.8% of the total 4,754 student body.

"More and more women," Marburger continued, "are discovering the fine job opportunities in architecture and engineering that did not previously exist, are seeking to increase their skills leading to better jobs in business and industrial management and feel the need to round out their liberal education." He attributed LIT's continuous gain to "a commitment by our College to recognize both women's and industry's needs, and working to get the message to women that they can succeed in the technical world."

He also noted that "women can take their LIT educations and be immediately in demand by industry." He projected women's enrollment to increase at the College at the present rate until it reaches 20-30% of total College enrollment.

This year, LIT has 110 women in its School of Architecture, (the largest undergraduate architectural school in the country) and 56 women in its School of Engineering (in disciplines offered, one of the ten largest engineering schools in the United States). There are 54 in its School of Arts and Science, predominately in the fields of mathematics and chemistry, 142 in its School of Business and Industrial Management, and 74 in the School for Associate Studies. Additionally, 27 women are "special" students not enrolled in specific disciplines and six are guest students from nearby colleges.

LIT's womens enrollment during the past five-year period has jumped from 137 in 1973 to 190 in 1974; 263 in 1975; 377 in 1976; and 469 in 1977.

LIT graduated its first woman electrical engineer in 1949—Therese Shepard Tierney. In the early years of the College, founded in 1932, there were just a "few women," according to Dr. Wayne H. Buell, LIT chairman of the board and a student during the 30's, professor, and later president of the College from 1964 to 1977. Women were noted on the enrollment analysis in 1953 when there were five, but throughout the 1960's there were never more than 20. By 1972, their numbers had increased significantly to 122.

Tau Beta Pi installation set; alumni invited back

Alumni members of Sigma Pi engineering fraternity at LIT will have the opportunity January 28 to become members of Tau Beta Pi—the “Phi Beta Kappa” of the engineering world. Michigan Eta Chapter of the national engineering honorary will be installed on campus as a result of a vote of acceptance by representatives of its 174 active collegiate chapters and alumni affiliates in 48 cities in convention at Purdue University October 6.

Sigma Pi's credentials were presented there by President Debbie Dohring, Dearborn senior in mechanical engineering, Professor Richard S. Maslowski, faculty sponsor, and Dean Stephen R. Davis (the latter are both collegiate initiates of the organization). The national vote followed an inspection visit in the spring of 1976, when a national team including representatives from five of Michigan's six collegiate chapters spent a day on campus to review the School's curricula and the qualifications of Sigma Pi members.

Returning to campus to install the new chapter and speak at the installation banquet in January will be Robert

H. Nagel, secretary-treasurer at Tau Beta Pi's national headquarters in Knoxville, TN. Also present for the formal ceremonies will be Dr. Edward T. Misiaszek, national president and associate dean of engineering at Clarkson College of Technology, Potsdam, NY.

All 180 former members of Sigma Pi initiated during its seven year history on LIT's campus are invited to become alumni members of Tau Beta Pi. Other alumni of the School of Engineering prior to 1970 who were in the upper fifth of their graduating

class and who can demonstrate exemplary qualities as required for membership are invited to make known their qualifications by calling Professor Maslowski's office, (313) 356-0200, ext. 58.

“We would like to induct all of our eminently qualified graduates who are practicing engineers,” President Dohring said. She also indicates that along with this year's 27 Sigma Pi members, last year's officers of Sigma Pi, who initiated the petition for Tau Beta Pi, would be inducted as charter members of Michigan Eta.



Officers of Sigma Pi, LIT engineering society, who will be initiated into Tau Beta Pi January 28 are (L to R): Jim Webster, exec sec.; Mike Sweeney, rec. sec.; Claudette Buck, vice pres.; Prof. Richard S. Maslowski, advisor; Deborah Dohring, pres.; Tim Leporowski, treas.; and Linda Kent, corres. sec.

Design is focus of new freshman architecture series

Exposing beginning architectural students to many different design applications is the objective of a newly created Freshman Design Lecture Series at Lawrence Institute of Technology's School of Architecture. The innovative program is believed to be the first of its kind among Michigan architectural colleges. The noon-time series is open to the public.

“The lectures,” says Assistant Professor of Architecture Harold Linton, coordinator of the series, “do not relate specifically to architecture but to visual and formal training in design and drawing that support the later years in college.” He indicates that

such an enrichment series for freshmen may be a unique concept.

Participating in the new freshman series this year are local artists and designers whose intention is to broaden the background of new students. They speak in the College's architecture auditorium at 12:30 p.m. for approximately one and a half hours.

The 1977-78 series has already hosted Lothar Hoffmann, graphic designer for the Center of Creative Studies, Detroit; Lloyd and Renee Radell, a husband-wife team who instruct at Mercy College and who are a figurative bronze sculptor and painter/printmaker, respectively; Bill Frcka, industrial designer at the Center for

Creative Studies; and John Berry, environmental graphic designer for the architectural firm, Smith Hinchman & Grylls Associates, Inc.

Yet to visit are Pat Quinlan, artist and instructor at Wayne State, “Painting and Composition” (January 10); David Barr, artist and instructor at Macomb County Community College, “Nature as a Source” (January 24); Kathy and Micheal McCoy, designers at Cranbrook, “Recent Projects and Observations of the Profession” (February 7); Lester Johnson, artist at the Center for Creative Studies, “Thoughts on my Work” (March 14); and Aleksis Lahti, free lance designer, “Many Areas of Involvement” (April 11).

“Madcap” cartoonist John Moga

Commander Don has been launched into space via Lawrence Institute of Technology's student newspaper, *Tech News*. The cartoon creation of architecture senior John Moga, the science fiction character is Moga's first venture at “strip” comics and, if time permits, will continue as a weekly newspaper feature throughout the remainder of the academic year.

While it is too early to tell where Moga's imagination will lead Commander Don in the quest for adventure, it is highly likely he will hover over LIT with whimsical humor. Previous Moga cartoons, appearing in *Tech News* and other LIT publications, also focus “on campus.”

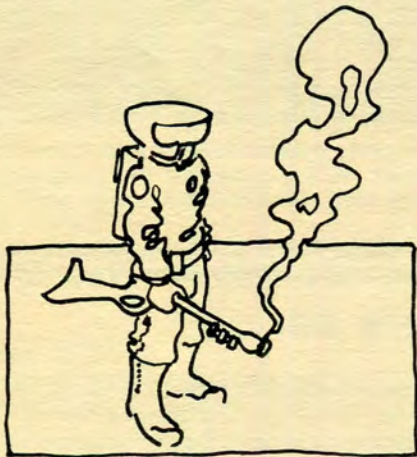
Where this avocation will lead Moga is a matter of momentary decision as he looks forward to graduation after the fall semester of '78. His

ambitions thus far focus on his drawing and painting ability and he may seek a masters degree in fine arts, then teach or illustrate as a career. Or, he may satisfy his curiosity about life by “doing something completely different.” Very likely, his cartooning will continue but he admits that “a cartoonist must sell to live.”

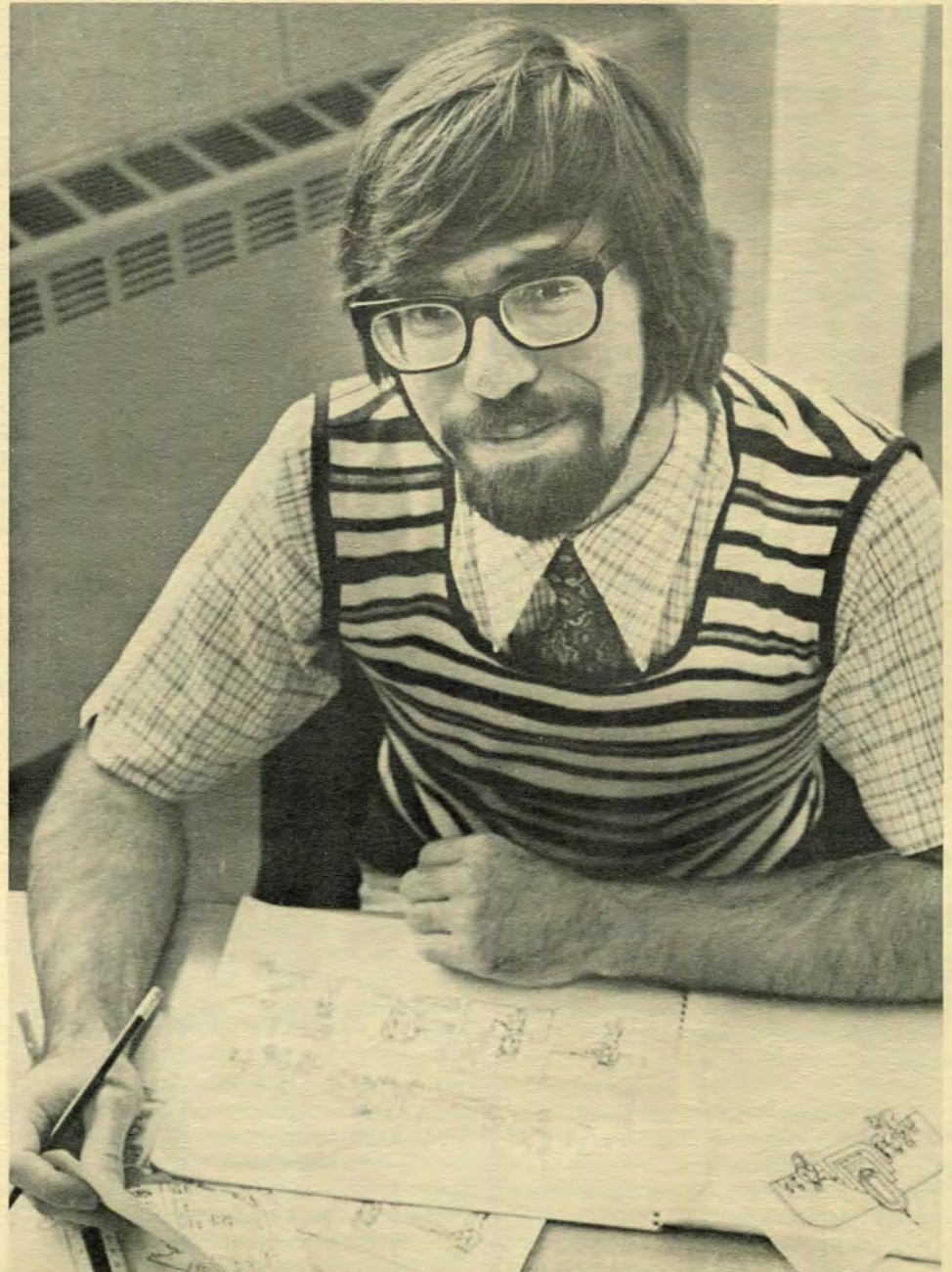
Within the School of Architecture at LIT, Moga finds creating a total structural environment “exciting.” He decided on architecture, he says, “at

a very early age,” but believes that his drawing ability is only adaptable up to a point. If he opts for architecture as a career, it will be as a designer.

An artist of recognized talent (if first prizes are a criteria), he is best known for his 1977 calendar cover for the City of Detroit in which he depicts numerous people pulling together to get the city back on line in the world. A pen and ink drawing with water-color wash, this entry earned him a \$300 first prize in a contest spon-



Commander Don



sored by the Junior League of Detroit. The previous year, his entry in the same contest placed third and was the 1976 calendar picture for January.

In 1972, his mixed media drawing in the annual high school Scholastic Arts Competition, when he was a senior at Southfield Senior High, won first prize for the Michigan region and was entered in national competition. He has also sold drawings at local art fairs and has been commissioned to do several special works.

Moga actually began his illustration career at Lederle Junior High School, where, as at Southfield Senior High, he did concert and play program designs while participating with these groups. His first cartooning ideas began to take shape at Southfield Senior High and then and now reflect the influence of "Grin and Bear It" and "The Lockhorns," appearing in the local funnies.

This year, a new technique is affecting his cartoon style as he admires the satirical drawings of Moebius, a French cartoonist appearing monthly in a new publication, *Heavy Metal*. The new technique does not necessarily provide cartoons in blocked squares but allows the cartoon to float on a page without the barriers of horizons, floors, etc.

For continuity, however, Commander Don and his space cadettes must be blocked in. Episodes are predicted eventually to contain "some humor," because that is what Moga

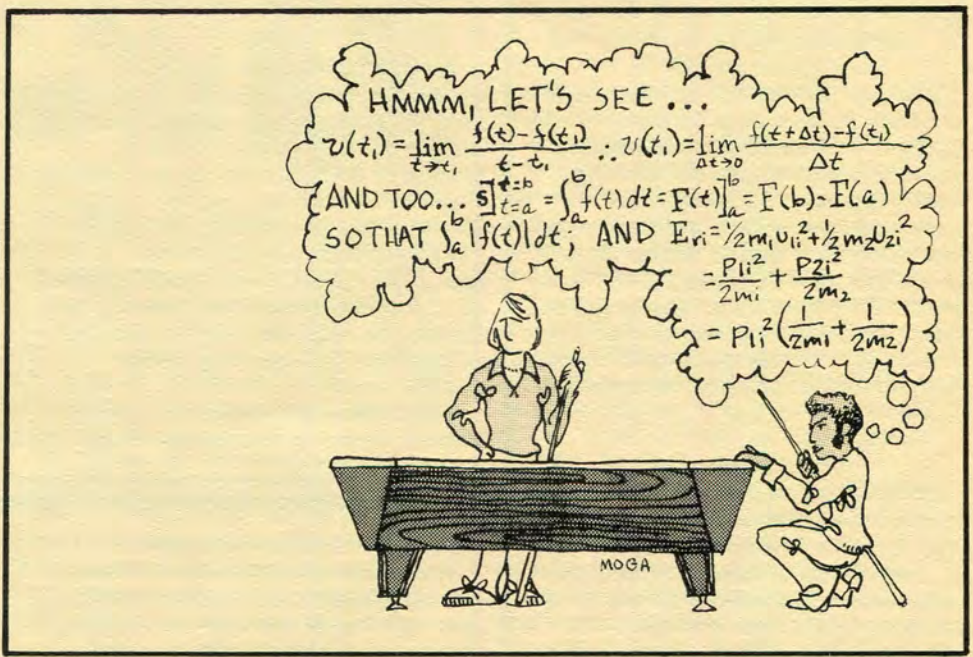
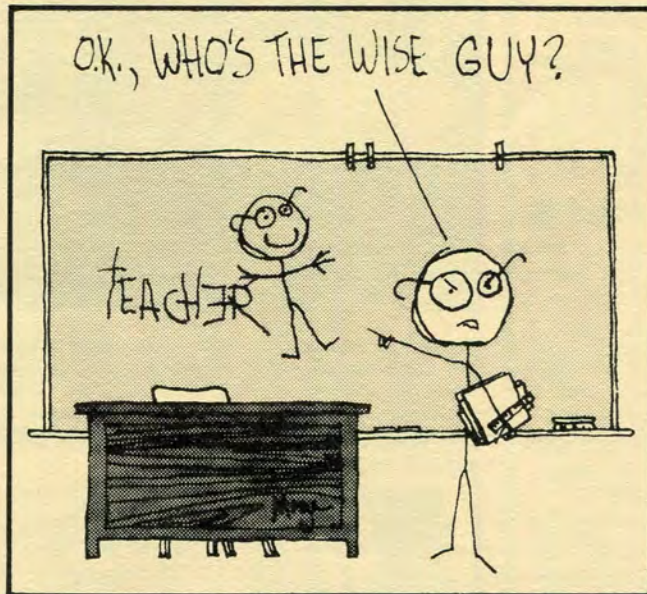
believes his cartooning is all about.

"I take something real, keep it simple and then try to make it funny," he says. "Making a real situation ridiculous, idiotic, absurd or whatever is required is what takes the most thought in cartooning," he continued. "Generally, once the idea for a cartoon has jelled, it takes only about 15 minutes to put it on paper."

Attending LIT is a family tradition

for Moga. His father, Traian, a section supervisor at Ford Motor Co., is a former student in LIT's School of Associate Studies. His mother, Anna, an academic secretary, has worked on campus for three years.

It is the LIT campus that is foremost in John Moga's perspective now. But, who knows what doors Commander Don may zap open for him in the future!



High school students learn computer skills "at sea"

Take a simple game—"Battleship." Program it on the computer in 350 steps. Couple it with eager mathematics-oriented high school students. And, you have the ingredients for a tournament of skill plus an effective method for teaching computer search procedures and the more sophisticated challenges that come with the desire to sink your opponent's ships, with logical precision.

It is all part of the Detroit Metropolitan High School Mathematics Club (DMHSMC) program sponsored by Lawrence Institute of Technology's School of Arts and Science. Special Sunday "Battleship Tournament" meetings began on campus in November using the LIT computer. The competition between individuals and schools will continue on the second Sunday of each month until June, Larry C. McCollister, lecturer in mathematics and club sponsor says.

DMHSMC, which for several years has been inviting high school students interested in mathematics and mathematical careers and their faculty members to campus for lectures, demonstrations and field trips, meets regularly during the school year on the first Thursday of the month. Dr. Lawrence D. Favro, professor of physics at Wayne State University, recently discussed "How Mathematics Is Used to Describe Our Universe".

In December, during the Christmas school break, club members are invited by their first speaker of the year, Dr. Jack Elliott of Bendix Research Laboratories in Southfield, to tour his company's facilities. His talk in October highlighted career opportunities in mathematics in the areas of computer science and numerical and statistical analysis as utilized by his



Richard Chute, second from right, chief research engineer for Eaton Research Labs, points out components on an engine test stand prior to his campus lecture November 29 on problems new pollution standards pose for engineers. 1977-78 officers are (L to R): Richard Woroniec, pres.; Paul Sabol, treas.; William Olsen, sec.; and, at far right, Peter Lang, vice pres. In September, the officers accepted an unprecedented third consecutive "outstanding student chapter" award.

LIT/SAE encores—again!

An unprecedented third consecutive "outstanding student chapter award" has been won by Lawrence Institute of Technology's student branch of SAE (Society of Automotive Engineers), setting in action a target membership goal of 250 for the 1977-78 school year. LIT's 160 member chapter is the second largest of 116 student branches in the United States, Canada and Mexico, ranking only behind Indiana/Purdue-Fort Wayne.

The chapter received the coveted Bendix Award at the annual dinner

meeting of the SAE Detroit Section September 20. The award is given yearly by the parent organization in cooperation with the Bendix Corporation, and is made in three categories according to the chapter's size. LIT is in the "above 75 member" category. In addition to membership growth, participation in parent society meetings and community activities are considered.

A coordinate monetary award of \$200, the proposed use of which is a criteria in judging, was accepted by LIT Student Chapter President Richard Woroniec, a senior in mechanical engineering. It is earmarked by the chapter to purchase an engine analyzer and related equipment to assist student members in performing tune-up clinic tests.

corporation in research work.

Approximately 65 students from 31 different high schools attended the initial meeting of the year. In addition, faculty were present from several schools. There are no program dues. At the November meeting students elected officers to plan the remainder

of the year's program.

Lawrence Institute of Technology's School of Arts and Science invites all interested area high school students, parents, and faculty to participate in the program. For further information, please call the office of the dean, 356-0200, ext. 61 or 104.

39 inducted by Presidents Club

Thirty-nine new members were officially welcomed into the LIT Presidents Club at the organization's fourth annual dinner October 22. Frank E. Noggle, ME'70, Presidents Club president officiated at the brief formal program which included awarding of membership plaques and a state of the College address by Dr. Richard E. Marburger, LIT president.

"In a word," began Dr. Marburger, "the state of the College is excellent. An enrollment record of 4,754 students paced our opening this fall."

Initiated into the Presidents Club were: Bruce J. Annett, Jr., Don and Marge Bamford, Frank and Yvonne

Bell, M. Thomas Braun, Floyd W. Bunt, James F. Carr, Terry Cross, Dr. Perry E. Gresham, Dr. and Mrs. John D. Hromi, Emil J. Jaworowski, Mr. and Mrs. Jack L. Korb, Ernest W. Kosty, and Dr. Algird Kreuchunas.

Others were: Robert R. Kuhnert, Lee and Julie Lahr, Richard F. Larkins, Zackulyn Lee, Bob Lund, Roger E. Marce, Mrs. Henry C. Maskey, Robert W. Miltzer, Mark L. and Patricia F. Nagel, Raymond T. Perring, Clarence A. Phillips, Thaddeus Pietrykowski, and Mr. and Mrs. Louis G. Redstone.

Other new members included: Solomon E. and Nellie Redstone, Richard W. Ruen, Anthony S. Ryff, Robert J. Schlaff, Charles W. Schwartz, Richard C. Sharp, Russell H. Starks, Louis J. Steigerwald, Mr. and Mrs. M. H. Trygar, Gary and Charlotte Van Neck, Richard and Marlene Visger, Thomas and Elizabeth Wieszkowiak, and Hurst Wulf.

Faculty/staff update

Dr. Stephen R. Davis, dean, School of Engineering, addressed the Forging Industry Association at their winter meeting in November at Marco Island, FL. His topic was "Energy Conservation in Forging Operations". In October, Davis was the kick off speaker for the Milwaukee (WI) Chapter of the American Society of Metals seminar on practical energy conservation.

Zaven Margosian, dean, School of Arts and Science, participated in an October panel discussion on "Education For the Gifted" in Birmingham. His topic was "Early Use of College".

Dr. John D. Hromi, associate professor of mechanical engineering, chairman of the Chemical Division of the American Society for Quality Control, recently presided over the 21st annual technical conference in Detroit.

Dr. Dent, Dr. Twiss die

Dr. Donald H. Dent, professor of mechanical engineering, died August 25. Dr. Dent, 53, was a member of the engineering faculty since 1967, and was involved in the formation of the College's construction engineering department. He served as the department's first chairman, and in 1973 became a member of the mechanical engineering department.

A popular teacher, he received his B.S., M.S., and Ph.D. degrees in engineering mechanics from Wayne State University. A native of Ohio, he graduated from Detroit Southwestern High School. He is survived by his wife, Ada Ruth, and a daughter. Dr. Dent was an elder of the Jefferson Avenue Presbyterian Church and taught in the church school.

Friends, students, and family of Dr. Dent have established a memorial fund in his honor at the College.



Dr. Dent



Dr. Twiss

Dr. Sumner B. Twiss, Lawrence Institute of Technology's vice president for development from 1974 to 1976 and a College trustee from 1965 to 1974, passed away September 23. Dr. Twiss had retired from LIT to become Manager of Technical Service for the CAB-O-SIL Division of the Cabot Corporation, Boston, MA.

Dr. Twiss, 60, received an honorary doctor of science degree from LIT in 1965, and was a member of the College's Presidents Club. He earned his B.S. degree from Trinity College, and in 1944 earned his Ph.D. in chemistry from the Johns Hopkins University.

Prior to his position at LIT, Dr. Twiss was president of Chrysler's

Chemical Division for 15 years. He had previously held several research and management positions with the duPont Company, and had taught at Johns Hopkins and Wayne State. In February, he received the Engineering Society of Detroit Affiliate Council's "Gold Award" for his outstanding contributions to science and engineering.

He was a past president of the Adhesive and Sealant Council (the national trade association for that industry) and was affiliated with a number of technical trade organizations. Dr. Twiss published more than 40 papers and books in theoretical and applied chemistry, and held several patents. He was a member of Phi Beta Kappa, Sigma Xi and Phi Lambda Upsilon, and a fellow of the Royal Society of Arts of Great Britain. In 1967, Dr. Twiss received the American Chemical Society's Midgley Award for outstanding research contributions in the field of chemistry relating to the automobile industry.

Dr. Twiss' wife, Jeanette, requests that memorials be directed to the Sumner B. Twiss Scholarship Fund at the College.

LIT's irrepressible Martin Sclar

He is an "unretireable" individual. His experience is hard-earned and long. And, it is Lawrence Institute of Technology's good fortune to have him "at work" on campus even though he won't accept a cent of pay. Instead, he prefers to make contributions to his employer.

Any man, it is assumed, who has earned "enough" on which to live comfortably, richly deserves the rewards of retirement. But, retirement is not enough for Dr. Martin Sclar. He has become, instead, a kind of voluntary jack-of-all trades "administrative assistant" on LIT's Southfield campus. He is both teacher and counselor. He is a trouble-shooter and educational promoter. He takes his work so seriously that he would not consider shirking assigned responsibilities for a vacation except when it is allowed by the College calendar.

His retirement rewards come from students who greet him with enthusiasm. "It is such a good feeling when they are glad and happy to see me," he smiles. "It's better than pay. It gives me a chance to give back a little bit of what I received through the years."



At LIT he calls himself a "watchman" in chemistry lab. But the organic chemistry students he is currently monitoring for three hours every Tuesday and Thursday afternoon have greatest respect for his obvious practical experience when they seek him out either for words of advice or just the litmus paper he carefully doles out.

"He shows us how to do it right," says Thomas James, sophomore chemistry major, in speaking for the group. For Dr. Sclar they put in a full half-day's experimentation in lab. And, he gives them a sense of accomplishment as he signs their manuals and chats about the day's assignment.

For 40 years a chemist by trade, Dr. Sclar admits to having forgotten "some of the more sophisticated techniques used in the classroom. But there is basic knowledge," he continues, "that you always use."

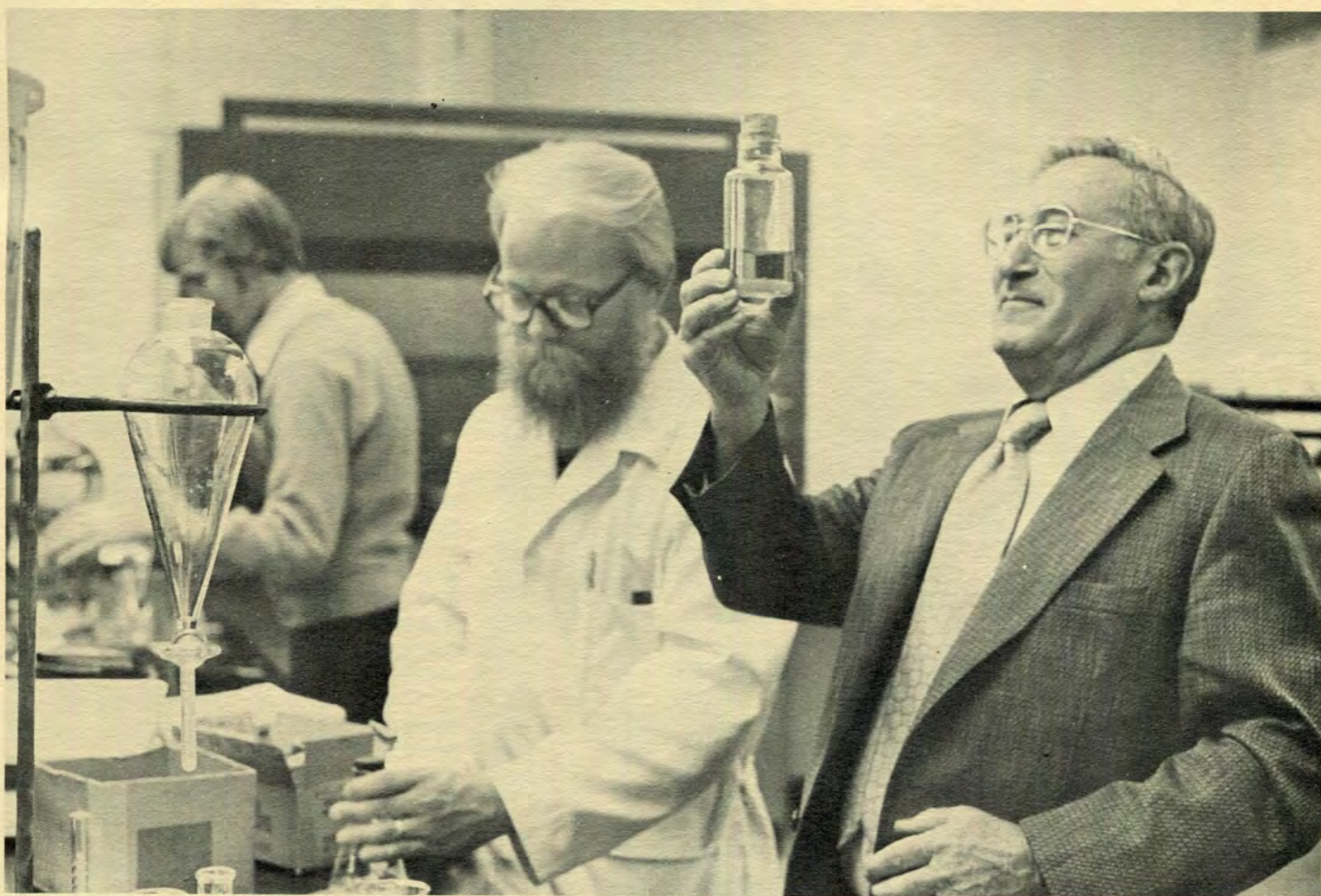
A graduate of Temple University with both a B.A. and M.A. in chemistry, he received his Ph.D. in physical chemistry from the University of Pennsylvania as a Harrison Fellow. "1935 was a very hard time to look for a job," he remembers, so, in desperation, he advertised in a chemistry journal for work.

"I heard from a then-small outfit in Detroit," he points out, "but I couldn't go for an interview until they sent me \$50 for transportation." They did and he went—to stay for a lifetime career that eight years later resulted in his promotion to manager of Industrial Chemical Products of Detroit, manufacturers of chemicals for the metal industry. He did all of the lab work, organized priorities during World War II and purchased materials prior to his appointment as manager. In later years, he ran the business.

"There were times in those depression years when you 'ran scared' about a job," he reminisces. So, for insurance and to make himself more valuable on the job, he went to night school at Wayne State University to obtain a law degree. But, while a member of the Michigan Bar Association, he never actually practices this skill.

It was during this period, however, that he met and married his wife, Charlotte—herself an active volunteer utilizing a masters degree obtained in library science after they raised two sons (a doctor and a lawyer). She gives two half days each week as librarian at Cranbrook's Institutions. They live in Southfield.

In addition to teaching chemistry labs for college students, Dr. Sclar also has helped in LIT's chem labs for outstanding high school students studying on campus. For the last three years, Dr. Richard Michel, dean



"The measure of success in a chemistry lab is to know your chemicals and have a respect of how they work in combination," Dr. Martin Sclar advises his students. Above, he lends an experienced hand to sophomore Thomas James. At left, he assists sophomore Cheryl Dennis.

of the School for Associate Studies, claimed Dr. Sclar's "spare time" each spring (Tuesday and Thursday nights) to interview and counsel students whose work was not up to par. This job especially appeals to Dr. Sclar as it involves students "trying hard to succeed while pursuing a career and degree simultaneously." He, too, remembers how hard this was as he worked his way through Temple University doing odd jobs.

Dr. Sclar was introduced to LIT five years ago by an alumnus friend, Anthony York, IM'59, a buyer for Chrysler. It was the late Dr. Sumner B. Twiss, vice-president for development, who first interviewed the man "with something to give" and invited him to share his talents on campus.

"He brings a wealth of experience

to us along with an attitude that is better than excellent," says Dean Zaven Margosian of the School of Arts and Science. "He is extremely valuable, intelligent and hard working," echoes Dean Michel, who first noted his "unretireable" characteristics.

Until Martin Sclar elects to do something else or "officially retires," his good humor and expertise will continue to brighten the day of all

those he meets on campus, especially those students to whom he represents the "real world" of chemistry.

College housing adds new dimension at LIT

The first-time availability of on-campus student housing has added a new dimension to Lawrence Institute of Technology. A nine-story, \$4 million, 142-unit Student Housing Center opened on campus August 1 and is already over 94 percent occupied.

The private, coeducational College's apartment living facility is attracting students from as far away as Massachusetts, Kansas, Japan and Iran. And, many Metropolitan area students, formerly dependent on transportation to attend classes, are also enjoying the convenience of campus residence.

Students can now elect to share one or two bedroom apartment units. The many who work can more readily schedule classes during either of LIT's full-time day or evening baccalaureate programs.

"Campus housing not only will attract students formerly unable to choose our academic programs because of the lack of transportation, but also allows the scholastic quality of students to continue to rise as we expand our ability to serve local, outstate and out-of-state students," Dr. Wayne H. Buell, LIT chairman of the board and chief executive officer said. It was during Dr. Buell's just completed 13-year presidency that development of on-campus housing became a reality. Still to come at LIT are another academic building and a student activities center.

An analysis of apartment occupancy shows that the majority of residents are freshmen, most of whom could not have selected LIT before housing became available. Detroit and suburban area students from within a 25 mile radius comprise about one-half of the apartment population. Out-staters are another third.



"Occupied" is the status of LIT's Student Housing Center. Above, Dana Snow, fifth-year architecture student from Grand Rapids.



A bird's eye view of the countryside is enjoyed by ninth floor roommates (L to R): Jim Grau, Oakhurst, NJ; Brian Holtz, Adrian; and Ernie Stockinger, Tecumseh. At bottom, Holtz, left, is his apartment's chief cook and serves up a bowl of chili to fourth floor visitor Don Rondeau, Bay City. At center, Joe and Karen Wampler appreciate the comforts of an apartment they've furnished themselves.

States or districts represented among the residents are, in addition to Massachusetts, and Kansas: New York, New Jersey, Virginia, Washington D.C., Pennsylvania, Ohio, Illinois and Iowa. Fifty international students from Canada, South America, Iran, China, and Japan live in the Center, too. Fourteen married couples are finding their apartments an economical first "home" while one or both study at the College.

Economy and today's students' desire for independence and individual responsibility were criteria for LIT opting for an apartment plan for living, rather than the traditional college dormitory. Sharing expenses in furnished or unfurnished units according to student choice is a factor in holding down costs. Each unit has a fully-equipped kitchen so that students may also share food costs. For those who choose, the campus cafeteria serves both students and staff.

The College Housing Center is situated on a rolling partially-wooded tract on the south side of LIT's 85-acre campus. The opening of the new facility provided the inevitable minor "shake-down" problems but students and administrators are meeting together to find solutions.

"We plan to continue to be good neighbors," Dr. Buell emphasized, "both to each other within the building and to the many private residences surrounding us. We have always been known to have a 'serious' student body and we expect that trend to be accelerated by our ability to select and house students from a broad geographic area."



CLOSE UP

FOCUS ON ENERGY

Energy—problems of supply, demand, source, and utilization, is a topic of increasing global concern and debate. Energy is of special interest at a technical college like Lawrence Institute of Technology.

In keeping with its operational axiom of "private colleges serve public purposes," LIT recently hosted two of the technical sectors most eminent personalities speaking on energy: Elliott M. Estes, president of the General Motors Corporation, and William P. Panny, president of the Engineering Society of Detroit.

Coming at the invitation of Dr. Richard E. Marburger, LIT president,

both Mr. Estes and Mr. Panny offered a provocative analysis of the current situation as well as some thoughtful solutions. Their respective campus appearances were part of LIT's School of Arts and Science and School of Business and Industrial Management lecture series, coordinated by Deans Zaven Margosian and Leland A. Lahr.

But the College is doing much more than providing a forum for important guest lectures. Dean Karl H. Greimel and faculty of the School of Architecture not only offer courses in alternate energy and other environmental topics—they've also been involved in special projects like alumnus Bill Beitz' "energy conscious" home (see page 19). Dean Stephen R. Davis of the School of Engineering consults extensively on the topic of energy management, and was instrumental in securing computerized

energy monitoring equipment for the campus. A wind-powered generator spins atop the engineering labs, indicative of energy management classes going on inside classrooms below. The very active LIT student branch of the Society of Automotive Engineers devoted the month of November to providing special programs and clinics in fuel savings. Dean Richard E. Michel of the School for Associate Studies coordinates special short courses emphasizing energy conservation. The rising cost of energy has precipitated a number of on-campus efficiency procedures.

Developing an energy-conscious society both broadly informed and prudently motivated is a significant goal of Lawrence Institute of Technology. In this, and many other ways, private colleges indeed serve public purposes.



College conserves as costs mount

Utility costs up in the family bungalow? Then consider Lawrence Institute of Technology's whopping \$48,000 gas bill and \$116,231 electric bill last year. That's the cost of warming and lighting classrooms for 4,754 students attending the College. Conservation measures, including dialing down thermostats, weather-stripping doors and windows, and simply turning off lights have significantly reduced yearly energy hikes—in fact last year's bills were only 4 percent more than the year before even though utility rates had risen considerably.

Ray Sobie (top) of Dearborn Heights and Jim Altomare of Warren, both with the Heineman and Lovett Company of Detroit, spent a week caulking windows and walls in LIT's 181,000 sq. ft. administration end engineering building.

Energy: good solutions and bad

Remarks by Elliott M. Estes, president and chief operating officer of General Motors Corporation, at LIT October 13, 1977.

I've been looking forward to this visit to LIT. For one thing, it gives me the chance to congratulate you, Dr. Marburger, on becoming president of the College—and also you, Dr. Buell, for serving this school and this community so long and so well.

This visit also gives me the opportunity to tell the LIT staff and faculty personally just how much we value the contributions that you make to our community—to its residents, its businesses and its economy—through the excellent technical and management instruction you provide.

As for me—being a former co-op student—I particularly appreciate the role that your evening baccalaureate program plays. I think it fills a special need in this area. I know, for example, that several hundred GM employees in this area are now enrolled in Lawrence Institute's evening classes, continuing to upgrade their skills even as they hold down full-time jobs. I'm sure I don't have to tell you that these are the kind of employees we like to have—people with initiative who recognize the importance of good skills in today's complicated world—and who are willing to make the extra, self-help effort to improve their education and professional skill.

Self-help . . . initiative . . . hard work . . . the willingness to put in extra effort to accomplish more than the ordinary—this is the kind of person—this is the spirit—that more than anything else is responsible for the unprecedented progress we have made in the past.

And when you look at the future—at the enormous challenges we still must overcome—it's clear that the need for people with that spirit has not passed with the earlier, less complex times. Far from it.



Elliott M. Estes, president of General Motors, second from right, chats with (L to R): Richard E. Marburger, LIT president; G. Robert Harrington, LIT vice president-development; and Wayne H. Buell, LIT chairman of the board.

The problems of the '80s and '90s—plus the unknown but certain challenges that await us in a new century that is only 22 years away—will continue to demand extraordinary effort from many extraordinary people if America is to keep moving forward.

Fortunately, this country still is blessed with many people like that—people willing—and yes, even eager—to do whatever extra is required. The increasing enrollments in LIT's evening classes are proof that people with this spirit are not entirely a vanishing breed.

So I am confident about the future—confident that we will be able to put today's problems behind us and open up the way for more prosperity and more opportunity than ever before.

But our challenges are not easy. They're not simple problems. In securing the energy and other raw materials we need . . . in improving productivity, reducing unemployment and providing more opportunity for all . . . in controlling pollution, saving the cities and improving the overall quality of life . . . in continuing to help the developing nations and competing successfully in increasingly tough world markets—in these and many, many more, all the skill, determination and hard work we can muster will be needed.

Real and lasting progress has never been easy or cheap. Real progress

has to be earned and paid for—with extra effort, with initiative, with innovation, imagination and daring, and with the willingness to take the risks that are necessary to turn potential rewards into real ones.

While I do remain optimistic about our ability to continue to make progress, I have to concede that I do see a disturbing change in our national mood developing in this country today, and I can't help but think that it will make the conquest of our challenges more difficult than it really has to be—if this mood grows stronger.

I don't claim to be a social scientist, but I believe this new mood is reflected in three separate, but inter-related changes in society as a whole. Unfortunately, the result is a general decline in the positive, self-reliant spirit exemplified by the kind of people who will go to class at night to improve themselves after working at their regular job all day long.

The first of these changes that I see is that an increasing number of Americans seem unwilling to make any of that extra effort I've been talking about. More and more people are now balking when they are asked to make a sacrifice—a contribution—to the achievement of national goals. "Let somebody else do it" seems to be their motto. Perhaps this attitude is left over from our recent, troubled past when Americans were asked to support—and make sacrifices for—an unpopular war. If that's the case, maybe this attitude will fade in time, but right now it seems to be getting stronger.

Second, there also is a growing feeling among many Americans that just because they've been lucky enough to be born in this country, they are automatically entitled to a share of our good life without really having to earn it. For instance, it is no longer unusual to hear people complain that they don't want anyone using up their *fair share of energy*. But they rarely ever say anything about helping earn that energy—about helping pay for its discovery and development. Unlike those of us who remember the Great Depression, these people obviously do not believe that "there is no such thing as a free lunch."

Finally, given this feeling of entitlement and their unwillingness to make sacrifices, many people now expect others to deliver to them whatever it is that they desire. For example, public opinion surveys show that large numbers of Americans now expect the auto industry to deliver spectacular technological breakthroughs to ensure their continued personal mobility and freedom without any real contribution on their part either to energy conservation or the development of new supplies. Those polls also tell us that people don't really believe us when we say there are no easy, spectacular ways of improving fuel economy.

"There . . . is a growing feeling among many Americans that just because they were lucky enough to be born in this country, they are automatically entitled to a share of our good life without really having to earn it."

In one respect, this confidence in our industry's technical capability is a real compliment. But in another, this childlike belief that someone or something will come along at the last minute to save us from disaster has to be one reason that the United States is having so much trouble in coming to grips with our growing shortage of domestically produced oil and natural gas.

Now, I do have to admit that Americans who feel this way do not usually turn to private industry. More often than not, they want government to deliver to them whatever it is that they believe is their due.

If you don't believe this is true, you haven't been paying much attention to the growing list of laws and regulations coming from Washington—and from a number of state capitals, as well—which are supposed to provide this benefit to this group and this favor to that by suspending, amending or repealing the economic laws of supply and demand.

Well, you can't repeal the laws of supply and demand—not without ultimately paying the consequences. And the shortage of oil and natural gas that Congress is having so much difficulty trying to correct is the direct consequence of a quarter century of direct and indirect controls on energy prices in this country.

Ironically—and unfortunately—that lesson seems lost on many of those who are now trying to write a new energy policy. Many members of the House and Senate—and members of the Administration, too—want to impose more and tighter controls rather than begin to let supply and demand start to end the shortages. The best thing about letting supply and demand work—aside from the fact that it can end the shortages—is that it will do so by working on both sides of the energy equation. It will provide incentive for users to conserve energy at the very same time it provides incentive for producers to find and develop new supplies.

Another good thing about supply and demand—about the working of a free economy in which people can pick and choose as to how they want to spend the fruits of their labor—is that it is consistent with America's heritage of political freedom. Working together, hand-in-hand, our political freedom and our economic freedom have made America the land of the freest people that history has ever known.

But now, a growing number of people who would be the first to oppose any effort to abridge our political freedom are suggesting that a number of economic choices be taken away from the people and delegated to government.

An example of this kind of thinking is the Metzenbaum Amendment which the United States Senate already has voted to approve. Introduced by Senator Howard Metzenbaum of Ohio this rather large chip out of our economic freedom would prohibit the manufacture of automobiles which do not get a minimum number of miles per gallon of fuel. Specifically, the amendment would outlaw cars that get less than 16 mpg in 1980 and the minimum mileage would go up a mile per gallon each year until it reached 21 mpg in 1985.

Now, nobody at GM will argue for a minute about the need to improve fuel economy. Our record so far shows we understand the importance of conservation. From 12 mpg in 1974 to more than 18½ mpg in the 1978 model year, we have improved our average mileage more than any other U.S. manufacturer. Not only that, we are firmly on the public record with a pledge that we are working to achieve a 27.5 mpg fleet average that will be required in 1985.

Since we have such a strong program—and such a strong commitment—our initial analysis shows that a relatively small proportion of our production would be impacted by the Metzenbaum Amendment. In 1980 and 1981, for instance, some of our sporty Firebirds, Camaros and Corvettes would be vulnerable if this proposal becomes law, and to continue to provide a nine passenger limousine, we would have to use diesels exclusively in them.

But even if not one single GM car were vulnerable, we still strongly oppose this proposal. We think it would set a dangerous precedent. There is no doubt that this amendment, if approved, could signal the start of a retreat from this country's heritage of economic freedom.

Another ironic thing is that this proposal is being promoted in the name of fairness. That fairness argument runs something like this: Without a minimum fuel economy standard, rich people will be able to afford big cars, their higher operating costs, and even the gas-guzzler taxes, should they be approved, and thereby use up or waste—quote, unquote—part of someone else's fair share of energy.

Although the bill is supposed to be aimed at the "wasteful rich," it seems fairly clear that a lot of other people—ordinary working people—could be affected, too. What about the large family that likes to take advantage of relatively inexpensive camping vacations and would be willing to allocate more of their income to pay the costs associated with a large car capable of towing a sizeable camper? And what

is going to happen when people who need a car like that cannot legally buy a new one? Some of them, for sure, will keep driving their old cars as long as they can, and that will slow the replacement of older, less efficient vehicles with newer ones that contribute to the fuel savings that this country needs.

It is amazing to me that this country should be seriously considering banning certain kinds of cars when even a leftist leaning country like Italy has not. Italy, as you know, must import nearly all its petroleum, and gasoline there costs well over \$2 a gallon. But in Italy, if you are willing to pay the costs—because you feel you need that kind of transportation—you can drive any kind of car you want. I think Americans ought to continue to have at least as much economic freedom as the Italians.

“... you can't repeal the laws of supply and demand—not without paying the consequences.”

Since I'm convinced that GM is ahead of its competition in getting rid of inefficient cars, I don't want this to sound like a defense of gas-guzzlers—because it isn't. But if certain cars are banned today, what will be next? If you must drive a car that gets more than x-miles per gallon, isn't it reasonable to expect that the next step might be to say, you can't live in a house with more than two bedrooms? Or that it will be illegal to heat your house above 65 degrees in winter or cool it below 75 in summer? Or that laws prohibiting driving vacations of more than 250 miles will be passed? Where would it stop?

All those things would save energy, too—but the price—exact in lost freedom—would be too high. That wouldn't be fair, either—none of those things.

Those who doubt our ability to increase domestic energy supplies now want to force everybody to share in worsening shortages—including those Americans who know they are not inevitable and are willing to pay the price to keep the gloomy predictions from coming true. How fair is that? More importantly, how smart is it?

What has happened in the intrastate gas markets show that the United States is not suffering from a shortage of natural gas as much as we are a shortage bargain basement gas. The free markets—located within a given state where supply and demand is still allowed to work—do have higher prices; sure—sometimes two or three times higher than the maximum controlled price. But a great deal more gas is available there, and gas producers—wherever possible—are concentrating their search for new gas that can be sold for realistic prices. Those intrastate natural gas prices must be realistic—or they would never occur in a free market. But some people obviously do not think they are realistic and have even proposed clamping federal controls on intrastate gas.

I can only think of one reason why people would be so determined to keep—and expand—energy price controls. Like those who favor outlawing certain kinds of cars in return for so little potential energy savings, they must be firmly convinced that conservation is the only way out of the dilemma we're in. They have clearly bought the idea that America's oil and natural gas production will inevitably decline—and nothing we can do will have much effect on the supply side of our energy equation.

Fortunately, they are wrong. America still has abundant oil and gas reserves, and increasing the supply is the perfect complement to conservation. Both can be accomplished if we will only let the price of energy reflect its true value.

If we continue to go along with those who are trying to prove there is

such a thing as a free lunch and you have to give it to the voters in the form of low energy prices so they will keep you in office, our future will be bleak.

But it can be bright if we rely on our heritage of economic freedom instead of trying to scrap it. The phased decontrol of all energy prices will help lessen the risk of renewed serious inflation. And as we allow the economics of energy to straighten themselves out through the magic of the free market, we will be ensuring both the energy that we will need in the future and a continuation of the freedoms Americans enjoyed in the past.

“Most Americans are still positive, can-do people, and it’s time we started acting like that.”

So I urge members of Congress—especially the members of the conference committees which will have to reconcile different House and Senate bills on energy policy—to give deregulation a chance to work for a reasonable test period—say, 10 years, given the oil and gas industry’s long lead times.

If—during that time—the working of supply and demand does not result in additional oil and natural gas supplies—if costly alternate energy sources do not begin to become economically viable—we won’t really have lost anything compared to what will happen if controls are kept in place.

A test period like this should end the argument over whether supply and demand will still work with energy in this country—or whether past controls have created a situation where only more controls can be effective.

Although the answer seems clear to me, which way the country is going to go still isn’t settled. So I urge you to let your Congressman and Senators and the White House know how you feel. There may be a shifting mood in this country but it isn’t the prevalent one—not yet. Most Americans are still positive, can-do people, and it’s time we started acting like that.

About Elliott M. Estes

Elliott M. (Pete) Estes was elected president and chief operating officer of General Motors and appointed chairman of the Corporation’s Administration and Executive Committees in 1974. He had earlier served in a number of engineering and management capacities at GM, including executive vice president of operations, and general manager of both Chevrolet and Pontiac Motor Divisions.

He attended General Motors Institute and was graduated from the University of Cincinnati with a degree in mechanical engineering.

Energy: today’s problem—an engineer’s response

Remarks by William P. Panny, president of the Engineering Society of Detroit and executive vice president of Rockwell International Corporation, at LIT October 27, 1977.

It’s nice to be back at LIT. When I was teaching here back in the early fifties, I couldn’t have imagined that someday I would have the honor to revisit the campus as a guest speaker.

I relish the opportunity.

For a guy who spent a great part of his college life in the Dean’s office for a lot of reasons—most of them bad—this chance to talk instead of listen is just too good to be true.

Back in my teaching days, however, it was a different story. Discussion in my classroom was open and frank.

But that’s the way you’ve got to operate when you’re teaching “English and the American Language”.

Well, I didn’t really teach that course. And as most of you have guessed by now, I didn’t take the course either.

What I did take and teach is engineering. However, there is one big difference between when I was teaching here and today. Either kids are a lot smarter now, or Doctors Buell and Marburger have a helluva better staff than back in my time.

I say that because a couple of weeks ago when Pete Estes of General Motors spoke here, I was very impressed with the hard questions he was asked.

In fact, after listening to the exchange, I was afraid to come into this lion’s den for fear of getting chewed up.

What makes my anxiety even worse, is that I’m going to talk about the same subject as he did—energy. Like Pete, I don’t pretend to be an ex-

pert on the subject, but I've got a pretty good idea on how this energy problem could be resolved.

And President Carter doesn't even have to call me; he can have my answer right now, free of charge.

My answer is: Cut our engineers and scientists loose, and let them go at the problem with no holds barred.

This may sound simplistic, but I've got a couple of good reasons to feel as I do.

First, history is on my side. Remember from your history books what happened in the 19th century when it looked like the supply of whale oil was going to run out? There was a lot of fear and concern then, but kerosene was developed and substituted.

A lot of us in this room can recall the big problem we faced during World War II when supplies of natural rubber were closed to us by the take over of Malaysia by the Japanese. Within 18 months, synthetic rubber was developed and produced.

I think these two examples, among many others, show the "can do" attitude and spirit that resides in the technological community.

My second reason for feeling the way I do is that I happen to work for a high technology company. I have seen first-hand what capable engineers and scientists can do in finding solutions and a better way of doing things. And these skills have been put to work on energy—on finding ways to save it—on developing new sources—and on making our products more energy efficient.

Their track record is impressive.

Let me cite a result of the Rockwell conservation effort.

In 1972, Rockwell International Corporation used about 20 trillion BTU's to make its products and to run its operations.

That year, our sales were almost \$3 billion.

In 1976, we produced more products and had sales of over \$5 billion. But our energy consumption dropped by 25 percent.

That's enough energy to supply the total natural gas and electrical needs of more than 20,000 Detroit-area homes for one year.

We're busy conserving energy because it makes good economic sense.

There was a time when energy was a relatively insignificant portion in the total cost of operating a manufacturing plant. One million BTU's of energy used to cost about \$1.50. Today it costs about \$3.30.

That's more than a 100 percent increase.

This increased cost of fuel is only part of the story.

Now, in order to keep our manufacturing doors open and people on the job, a plant not only pays more for its primary fuel, but it must also convert its boilers to accommodate alternate fuels in case the primary fuel is curtailed. The cost of all this is also staggering.

"Cut our engineers and scientists loose and let them go at the problem with no holds barred."

For example, to convert one plant to an alternate energy source ranges from \$100,000 to \$1.5 million, depending on the size and type of plant operation.

What this all boils down to is that energy is no longer an insignificant cost of doing business.

That's why when we were smart enough to see what was coming—before most people ever heard of the phrase "energy crisis"—we worked our tails off to make the situation work for us instead of against us.

Let me give you some examples of what we did to conserve energy.

A lot of it has been taking place right here in our own backyard at Automotive Operations in Troy.

In 1972, we created an Energy Conservation Department and since that time we've invested \$3 million in finding ways to reduce conventional energy usage. At the start, we checked every nook and cranny at every plant. We turned off lights, lowered temperatures, and all of the other things you would normally do to save energy. We asked our guys to look around and check with the utilities on getting more ideas to save. We converted lighting systems, added insulation, relined furnaces and remodeled ventilating systems.

But then we started getting more innovative in our approach. We developed and installed a trash burning system at one of our plants in Ohio that takes care of all their normal heating and air conditioning needs.

This trash burner is pollution free. In it we burn the plant's solid waste like wood and cardboard boxes. We also burn cornstalks from a nearby field and solid waste from other plants in the area.

Governor Rhodes was so impressed with it that he wanted to be at the unveiling of the trash burner.

At another Ohio plant we installed an induction heating process to replace natural gas.

That's saving that plant almost \$100,000 a year in energy costs, not to mention the natural gas we've freed up to supplement resident use in energy-starved Ohio.

In another plant, we developed a method to cold form metal parts instead of using heat from natural gas to do the job.

At one of our foundries, we redesigned cupolas and reduced natural gas usage there by 50 percent.

We not only conserved energy, but we searched for alternate sources to avoid plant shut-downs due to curtailment of our primary fuels.

We renovated natural gas wells near our plant in Winchester, Kentucky. Today, we're leasing those wells, and it supplements the plant's natural gas needs by 15 percent.

During the bitter cold of last winter when many of America's northeastern and midwest industrial plants were cut off from gas completely, we had

truck convoys and rail cars bringing propane from western Canada, Kansas and Texas to our facilities in Pennsylvania and Ohio.

Now, what's the result of our conservation program and hard work in finding available alternate energy sources?

I think Dale Meyers, who was recently nominated by President Carter to be undersecretary of energy, and his energy committee at Rockwell summed it up quite well when they reported that of the 100 manufacturing plants we operate in the U.S., only three of them were forced to close during the energy problems the nation endured last winter.

And this closing affected only about 3 percent of our U.S. employees for only 11 days.

Conserving energy and finding new supplies is one side of our story. Helping others to conserve is another side.

Throughout the company we have many examples of products that help our customers cut their energy costs.

Again, I want to use our Automotive business as an example of our efforts since the transportation business is one of the biggest users of energy. We're working with both car and truck makers in finding ways to reduce fuel consumption.

You are all well aware of the move toward lighter weight vehicles. A great deal of that weight savings is coming from substitute materials like plastic and aluminum in place of steel.

The heat is really on component suppliers like ourselves to come up with the products. And our engineers and scientists have again responded to the challenge.

They've helped car and truck makers reduce the weight of their vehicles by:

- Replacing steel hoods with plastic.
- By taking 80 to 90 pounds from our tandem axles by substituting aluminum for steel.

“Conservation is good, but it won't be enough. In order to maintain our standard of living and the viability of our economic and social systems, we must double our energy supplies by the year 2000.”

- By developing a brake system that cuts heavy vehicle weight by 385 pounds.
- And by designing and producing taper leaf springs that replace multi-leaf products and reduces the weight by 30 percent.

Another area where fuel is saved is through better monitoring of the vehicle's functions through electronics, and we're working on a system that does just that.

Our research and engineering people have also put together an all fiberglass pickup truck to demonstrate how another 400 pounds can be cut from the typical vehicle.

We're looking at everything we produce to see how weight can be eliminated. It starts with the design of the product and is carried through until it leaves the shipping dock.

So far, I've given you examples of how technology has been successfully applied to energy conservation from our side and the customer's side. But the strength of technology—if it's cut loose to do the job—lies in developing new energy sources.

The trouble with President Carter's energy program is that he's not giving technology the go ahead. He's put too many of his marbles in the conservation bag.

Conservation is good, but it won't be enough. In order to maintain our standard of living and the viability of our economic and social systems, we

must double our energy supplies by the year 2000. Combine that with another projection that says that at the rate we are burning gas and oil, both will begin to play out by the same year, and that spells big trouble.

But it doesn't have to be that way. We can have all the energy we need—plus some—if we'd just pay attention to the wisdom of technology.

Again, everyday, I see first hand what technology can do.

Right now, Rockwell engineers and scientists are working on the most advanced methods of developing new energy. Our Atomics International Division has been active in the nuclear power reactor field for more than 25 years. One of the major projects they have going is the development of a liquid metal fast breeder reactor for electric power generation. The breeder, as most of you know, is one of the few technologies that can provide unlimited energy supply.

Atomics is doing additional research on the breeder under contract now with the Energy Research and Development Administration.

They're operating a Liquid Metal Engineering Center. They are testing the transfer of heat from the breeder to steam generators.

I'd like to dwell on nuclear energy for a couple of minutes. You are all well aware of the controversy nuclear energy has created in this country.

In my travels overseas, I found that many of the leading industrial nations are moving fast on the development of fast breeder reactors. Most of them are 8 to 12 years ahead of us. The most interesting case was Japan.

Here is the only nation ever to be hit with a nuclear weapon, moving rapidly forward in using that same power for peaceful uses.

France plans to use nuclear power for 70 percent of its electricity by 1985.

Russia, which wants to conserve its Siberian oil for chemical feedstocks, is going all-out for nuclear power and commercialization of the breeder.

One of the results of all this to us could be this: while the rest of the industrialized world is working on plen-

tiful, cheaper power—and we're not—their products will have a strong price advantage.

In today's world market—which is already highly competitive—that's one helluva consideration.

Our engineers and scientists are also engaged in a system that turns pulverized coal into crude oil and synthetic gas using liquid rocket technology.

They're also working in the solar, geothermal and wind energy fields.

One of the projects involves a solar receiver boiler. It's heated by sunlight which is reflected from a field of mirrors and supplies steam to drive conventional turbine generators.

They are developing thermal storage systems for storing solar heat. This will be used in power generation at night and in inclement weather.

“What's lacking in this whole set-up . . . is a sense of planning, a sense of direction, a sense of urgency.”

Their work in energy storage also includes the development of lithium-iron sulfide batteries. So far, successful tests have been completed on a 150 watt-hour unit. These batteries could be used by utilities to store electricity. The stored electricity could be used later for peak load periods, or to power non-polluting electric vehicles.

In geothermal energy, they're working on using the earth's natural steam or hot water to turn a turbine generator or to heat another fluid to turn the generator. This is contributing to the development of a full size commercial geothermal power plant.

Wind energy is also being investigated. Right now, our engineers have established a small windmill systems test center on the eastern slopes of the Rocky Mountains.

The first five of ten windmills—propellers and windcatching wheels mounted atop 40 to 50 foot high towers—are generating electricity in a program aimed at improving windmill efficiency.

Transmission of energy is yet another area where a lot of work is being done. Our Flow Control Division is the world's leading supplier of special valving for coal slurry pipelines. These lines deliver pulverized coal in a water slurry to coal-fired electric power plants.

This division is also involved in the coal gasification process. The engineers have designed an innovative lockhopper valve which permits coal solids to be fed into a high-pressure, high-temperature chamber for conversion to gas.

This shopping list of what we're doing in developing new energy sources is not unique to Rockwell. Many other high technology companies in America are working just as hard.

What's lacking in this whole set-up, however, is a sense of planning, a sense of direction, a sense of urgency. And that's got to come from the boys in Washington. Unfortunately, there's not many long-range thinkers in that crowd.

I have a plan for them, and they can set the deadline. How about letting the free enterprise system and the technology they have in-house have a real whack at it.

There's not really one answer to the energy problem, but a bunch of them.

De-regulate natural gas because it will provide incentive for natural gas exploration.

Don't break up the oil companies, because they're one of the most productive industries in America.

Push hard on better use of our vast coal resources.

Move fast on the development and use of nuclear energy.

And, finally, provide the technological community with more incentive and support as they work in the new energy areas of solar, wind and geothermal.

Like the whale oil crisis of the 19th century and the rubber crisis of the 1940's, if we do all of these things, I'm confident that we can put the energy crisis behind us.

As I was going through my talk tonight, I kept glancing around the room to see if any of my former students are here. I've got a lot of them, because, I never flunked anybody.

My wife wouldn't let me.

Every time one of them got into a little trouble, she'd invite them over to the house for dinner. Then she'd expect me to tutor them.

Word got around, and my class size kept getting bigger. That didn't bother me though, but I finally called it quits when I heard one of my students tell another:

“The only thing you're going to get out of that guy's course is a free meal.”



About William P. Panny

As president of the Engineering Society of Detroit, the world's largest regional technical society, William Panny is eminently qualified to speak on energy. Elected a vice chairman and the chief operating officer of the Bendix Corporation the day of this address, he was formerly executive vice president of Rockwell International Corporation with responsibility for automotive, consumer, utility and industrial operations.

Panny received a bachelor of mechanical engineering degree, with honors, from Pratt Institute and a master of automotive engineering degree, with honors, from Chrysler Institute of Engineering.

Energy savings is goal of alumnus-designed home

A classroom project, a TV news commentary and an adventure in building have provided 1977 bachelor of architecture graduate Bill Beitz with a professional plum. His first commissioned house will soon provide energy efficient living for its owner and possible energy efficiency information for Lawrence Institute of Technology's School of Architecture.

The story began last winter when Detroit's NBC affiliate WWJ-TV 4 utilized Associate Professor of Architecture Joseph B. Olivieri's energy conservation class for photographic purposes in a locally televised series. The class assignment for all fifth-year students was to create a house adaptable both for energy efficiency and solar heating.

Bill Beitz' house plan was one of those aired and personally intrigued newscaster Wes Sarginson. Thinking of building his own home to practice what he was preaching on TV, Sarginson and his wife, Ann, sat down with Beitz to design their own energy conserving home to be built in suburban West Bloomfield Township.

"Bill is just a fantastic designer," exclaims highly pleased Sarginson. "Architects need to design homes for



northern climates to save the country. They have got to say to builders, 'we know a better way' and then prove it. That is what my house is all about. If we can prove my experimental house works, then perhaps other houses can be mass produced based on the results."

Working together, Sarginson, Beitz and builder Fred Rubin of Fairfield Development Corp. are indeed experimenting. Progress of the house is monitored frequently as the structure takes form. It is scheduled to be occupied by Christmas.

Beitz' philosophy, gleaned from his classes, is that a great deal of energy efficiency is predicated on the orientation of the house to the lot itself. Since prevailing winds in the area are north-northwest in winter months, the north-facing canal side of the house is protected from wind by an extending three car garage. Other than two sliding doors opening off a rear deck, there are no exterior wall windows in the house except three in the southern front bedrooms to conform with building codes.

All other windows face a completely surrounded 24' x 24' atrium. The family views this interior open space as the home's focus when landscaped. It was the aesthetic design they enjoyed most in their last home in Virginia. Eighty percent of the glass centers on this area. Glass equals only 10 percent of the wall area.

"There is much less glass than in a normal home," Beitz points out. "There is complete privacy on the east where the building is 16' from the property line and closest to neighbors and also on the west entry side. A three foot eave will help shade what glass there is from summer sun, yet allow maximum solar warmth in winter."

All the tricks necessary for solar heating are incorporated in the house, from the 54 degree slanted roof facing south for mounting possible future solar collectors (the most efficient angle for solar collectors), to space reserved for a heat pump in the partial basement and enough yard area to bury a 5,000 gallon heat collecting-conversion tank. For this year, Sarginson will live with a gas furnace to measure temperatures within the house itself and determine the energy efficiency gained by building construction.

Other construction details aimed at energy conservation are walls constructed of 2 x 6" lumber (rather than 2 x 4") packed with 6" of insulation, ceilings padded with a full 15" of insulation, and floors well insulated above the crawl space at the back of the house. Features of the rear living room-family area include a split level design in which a common fireplace is at eye level in the family room and at floor level in the living room.

The four bedroom house also incorporates all the special closet and bathroom features that Ann Sarginson needs to accommodate two young children and frequent visits of her mother who will have her own room and bath. Total floor space in the house is 2,800 sq. feet, part of which will be a three foot quarry tile hallway encompassing the windowed atrium.

"Energy barriers also will be provided by piling dirt nearly to window sill level on the front bedroom side of the house," Beitz explained further. "A wall of spruce trees will be planted to protect the home from icy winter blasts as well as to provide summer shade."

Alabama native Sarginson, who

does not "cotton up" to northern Michigan winters, expects to utilize film clips on his house in future energy series if the energy saved is significant. Because he previously owned a home across the street from the house he is building, he will have bills with which to compare fuel saving. LIT professors who have assisted with the energy saving design hope to monitor heating and take students to see what a former classmate has conceived.

Beitz is a member of the architectural firm of Rossen and Neumann, Southfield commercial property designers for whom he worked during students days. He has advanced from his student status as junior draftsman to job captain.

To design Sarginson's home, he worked after hours on his own as well as Saturdays and Sundays to complete the drawings from which Builder Rubin is working.

There is no doubt that Bill's personal success on completion of his first energy efficient house will also "warm the hearts" of the LIT professors and advisors who provided the impetus for his work.

Below: Alumnus Bill Beitz' energy efficient design home includes a 24' by 24' atrium that, when landscaped, will be the home's focal point. (L to R): Karl Greimel, dean of LIT's School of Architecture, Beitz, and the new home's owner, Wes Sarginson look at the 54 degree slanted roof where solar collectors may someday be installed.



ON-CAMPUS



Cafeteria capers

When Dick Sutton, cafeteria manager, set out to attract more business to the LIT dining room, he meant it! Ethnic "feasts de resistance" this fall were kicked off with Arabian Day, complete with belly dancers (Serena at upper right) and appropriate foods and music. Appropriately clad Servomation employees behind the counter are (L to R): Nadia Kaviany of Iran, Lori Ellingboe, and Marge Kaminski.



Then came Oktoberfest, with Walter Schoneck, (bottom) engineering lab technician, adding secret herbs and spices to rouladen and rotkraut. Servomation student employees (top) Mark Clearwood, (L to R) Lori Ellingboe, Sunday Jaiyesimi, and Linda Zoya sold 500 homemade soft pretzels made by Michigan's pretzel king and queen, Walter and Florence Aupperle.



The "Sounds of Music" will have barely faded away before Sutton begins planning the Jewish Passover feast. Gangway, hamburgers and fries!

ALUMNI NOTES

Eugene S. Kaczmar, IE'50, has earned a masters degree in business administration from Wayne State University. He is employed at the Ford Motor Company, casting division, Dearborn. Kaczmar is married and the father of two children.

Robert N. Lund, IE'50, owner and president of Perfection Heat Treating Company of Detroit, has sold his firm to Thermo Electron Corporation of Waltham, MA. He will continue as president of the new Thermo Electron Division.

Dr. Paul D. Thompson, IM'52, has been appointed dean of the Open College at Daytona Beach (FL) Community College. He was formerly dean of continuing education at Embry Riddle Aeronautical University. As dean, Thompson is responsible for administration of the DBCC adult high school and basic education programs, continuing education, cultural arts, the campus women's center, the center for individualized learning, special programs, and the West Volusia Center. He holds an MBA from the University of Michigan, a Ph.D. from Catholic University of America, and is a retired Air Force Colonel and fighter pilot.

Dennis L. Carmichael, IM'61, an attorney in Troy, is president and founder of End

Time Tract Crusade, a mailer of religious messages.

John D. (Jack) Taylor, IT'64, is owner of Audio Alert Alarms in Dearborn, installers of monitored burglar alarms and security systems.

David R. Rosteck, IM'65, who led his Henry Ford Community College team to Midwest Collegiate Hockey Association championships in three of the past four seasons, has been named Eastern Michigan University's hockey coach for the 1977-78 season.

Thomas E. Hansz, Ar'68, AIA, is a principle of Hansz/Stout Architects, Inc. of Birmingham. He received his masters degree in architecture in 1970 from the Cranbrook Academy of Art. He founded the architectural office in 1972.

Gary W. Millikan, IM'68, has been named second vice president and accounting manager at Manufacturer's National Bank of Detroit. He has been with the bank since 1967.

Edward Skaggs, IM'70, becomes quality control manager of the Foam Division of General Tire & Rubber Company, Marion,

IN. He had previously held quality manager positions with Federal Mogul Corporation and the Goodyear Tire Company. He is an ASQC certified quality engineer and a registered professional engineer.

William R. Blackerby, IM'71, has been named comptroller of Community Bank (Bad Axe, MI). He was formerly employed by Huron Financial Services Trust and was senior internal auditor at National Bank of Detroit prior to that. He and his wife, Cindy, and two children live in Bad Axe.

Mark A. Dion, IM'74, has been promoted to district sales manager of Norwich Products Division of Morton-Norwich Products, Inc. He makes his headquarters in Detroit and supervises sales representatives in Michigan and parts of Indiana and Kentucky. Mark and his wife, Mary, and a son reside in Livonia.

Chukwu Eleke, IM'75, has completed his M.B.A. studies and returned home to Nigeria where he is general manager of E. and O. Chukwu (Nig) Ltd. The 200-employee firm deals in general merchandise, textile knitting, and garment production.

Kenneth R. Miller, EE'77, has begun work on his MS degree in computer and systems engineering at Rensselaer Polytechnic Institute, Troy, NY.

News for Alumni Notes

Use the space below to send us news about you or your L.I.T. friends. Tell us about honors, promotions, marriages, appointments and activities. Moving? Please send us your new address.

Name _____ Major _____ Class Year _____

Street _____

City _____ State _____ Zip Code _____

Check here if this is a new address

News notes:

Send to: Director of Public/Alumni Relations, Lawrence Institute of Technology, 21000 West Ten Mile Road, Southfield, Michigan 48075.

In memoriam

Raymond M. Krokos, ME'37, of Detroit, September 26. Engineer, Evans Products Company. He is survived by his wife, Helen, three sons and two daughters.

Charles McLean, ME'43, of Dearborn, September 30. Retired manufacturing engineer, Ford Motor Company. Survived by his wife.

David C. Loomis, EE'49, of Detroit, September 19. Superintendent, Detroit Public Lighting Department. Survived by his wife, Shirley, three sons and three daughters.

Arthur F. Wilusz, CE'62, director of public services for the City of Southfield and a 1976 Alumni Achievement Award recipient, October 2. He is survived by his wife, Barbara, five sons and two daughters.

Arno Hellthaler, EE'69, of Oak Park, May 1.

Douglas F. Boynton, BT'70, of Rochester, October 7. President of Murphy-Boynton Construction Company, Inc., Southfield. He is survived by his wife, Rebecca, a son and daughter.

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Greek week revisited

Pity, Greek games are not like days of yore. But before the decling and fall of the decathlon is mourned, remember that LIT's Greeks probably haven't gotten any closer to an Olympic game than their fraternity house T.V.



Pictured here are only a few activities of the larger October event known as Greek Week, when the College's three fraternities—Sigma Phi Epsilon, Alpha Sigma Phi, and Phi Kappa Upsilon join Delta Tau Sigma sorority for several days of not-so-serious competition.



Winners were: beauty contest, ASP; ugly Greek, DTS; tricycle race, PKU; chariot race, PKU; mattress race, PKU; and tug-o-war, SPE.