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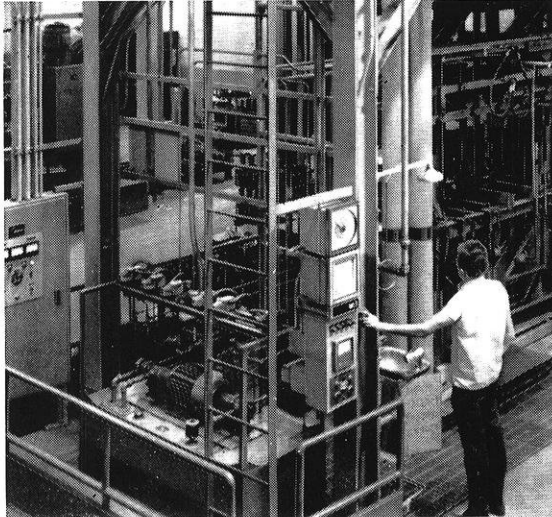
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wisconsin engineer

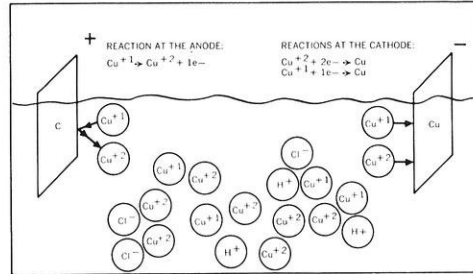
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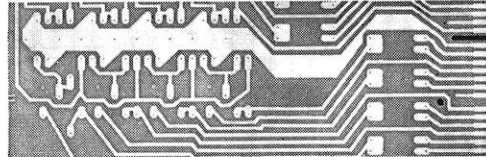
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Virtually all the problems of the old method have been overcome. No more machine downtime is required to change etchant. No more costly ferric chloride

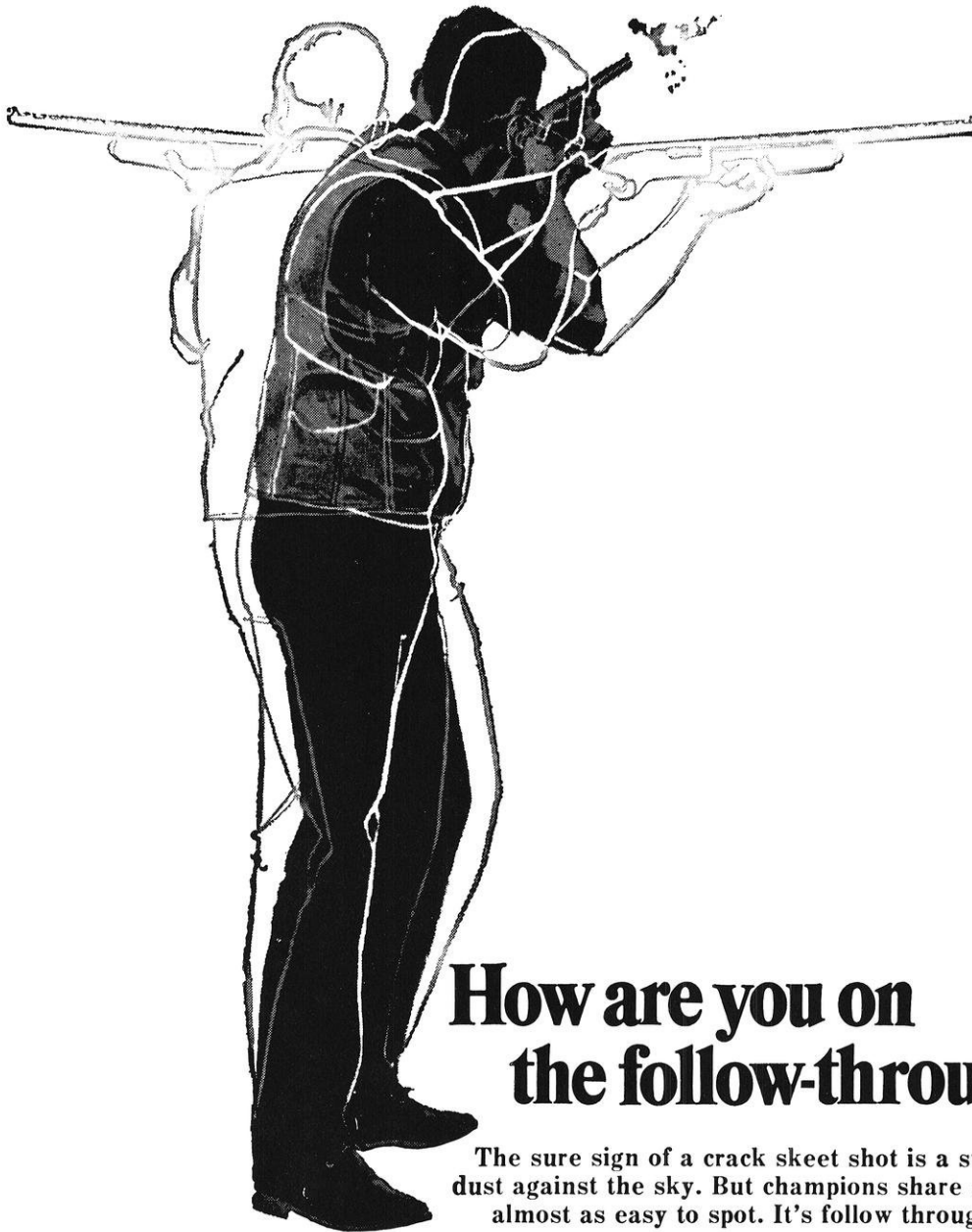
is needed. Etchant strength does not diminish. The etching rate is now constant and faster than the average ferric chloride rate. There's no more waste of etched copper. It is now recovered, about 20 pounds per hour, and resold.

Conclusion: The first completely closed-loop cupric chloride etching system in the printed circuit industry is a major innovation that has improved efficiency and quality, eliminated downtime and decreased costs by more than 90%. Furthermore, it has helped conserve a valuable natural resource.



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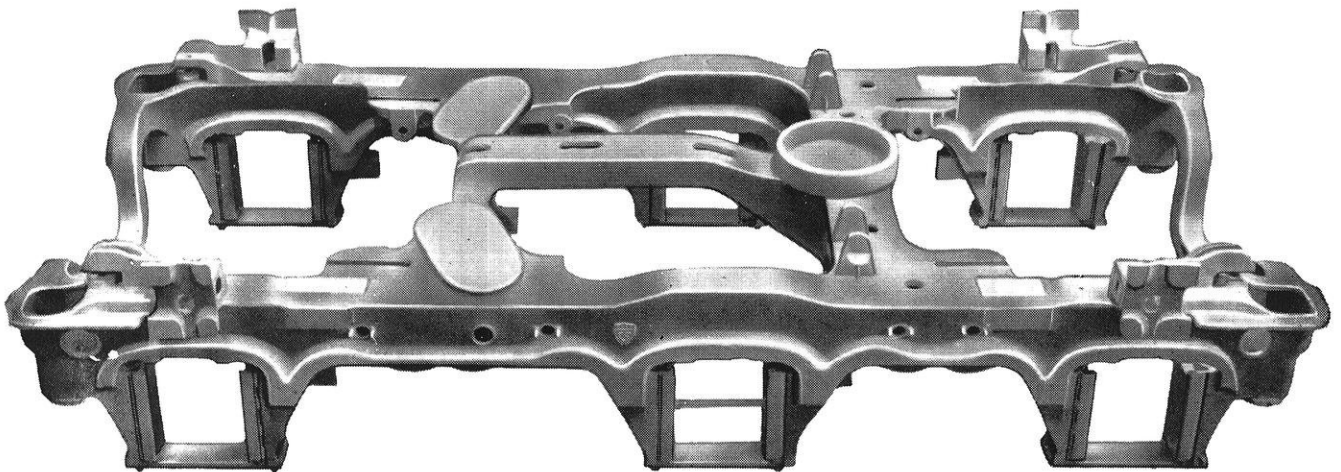
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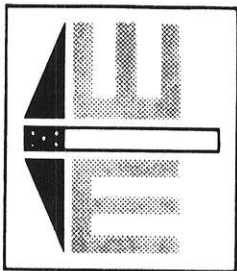
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"The concern for man and his destiny must always be the chief interest of all technical effort. Never forget it among your diagrams and equations."

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wisconsin engineer

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Editorial

by Jack VanDerhei

A University education is not a multi-year contract of memorizing or taking examinations. The Wisconsin Engineer maintains that a true education is being able to apply classroom learning to real life situations. The only way this can be achieved is by relating to other people. No benefits can be achieved from a formal education, if students are apathetic or complacent.

After graduation, prospective employers are looking for more than grades. In a cold, hard, business world, an engineer has to prove he can get along with people. Encounters made in activities will provide valuable experience and excellent references to qualify an engineer for a good job.

Through many activities on this campus, engineers can and have become involved.

Engineering Expo is working to uphold the prestigious reputation of the University of Wisconsin's College of Engineering. Polygon Council is also working to provide service and social alternatives for students. Many engineers, who worked on the urban car, must have felt great satisfaction from national recognition they received. The City View Machine Corporation is an example of putting education and involvement together, serving each worker intrinsically. By involving themselves with the workings of the company and with the problems of the community, morale stays high. They know they are doing something.

The opportunities are here. Engineers can no longer live in an ivory tower. We all must consider the social aspects of technology and the concept of human ecology.

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City View at its new facility, 4301 Robertson Road

City View Celebrates First Birthday

City View Machine Corporation will celebrate its first birthday on October 22. An open house is planned at the expanded plant facility, 4301 Robertson Rd., Madison. A repair and service corporation for Gisholt machines, this company was formed by former Gisholt employees. Giddings and Lewis, a Fond du Lac-based machine tool company, phased out the Gisholt plant in Madison in January of last year, leaving 1100 unemployed. Now, City View, proud of their 700 man-years of experience, is in competition with Giddings and Lewis for the market of rebuilding old Gisholt machinery.

Under the direction of Dr. Karl Smith, University of Wisconsin Social Cybernetics Laboratory, a Gisholt Self-Help Organization was formed to coordinate the efforts of those men, many of whom were over 45, in trying to find jobs. These older, more experienced men soon discovered that "companies want you to have all the experience in the world and still be 21."

Dr. Smith credits the National Alliance of Businessmen for much of the Self-Help Organization's success. The men were encouraged to form their own corporation in 1971 and it became a reality for them one year ago. Starting with eight men, the work force has been expanded to 28. If two major contracts come through for them next month, they will enlarge the

plant on their ten acre site, and add more people to the payroll. The machinists are making \$3.50 per hour now and will get a raise if these two contracts materialize.

City View is operating in conjunction with the Gisholt Self-Help Organization's Training Program. They will recruit most of any needed help from that source. Corporation President Howard Tholo said, "Maybe we are discriminating but we do feel it is important to try to hire the men put out of work by the Gisholt closing."

Another source for employees will be a prisoner rehabilitation program, coordinated by Dr. Smith. He has arranged for a former Giddings and Lewis road man, now serving time in Waupun, to be transferred to Oregon. He will obtain Huber Law privileges and will be retrained at City View. "Since community rehabilitation must go beyond trying to find jobs for convicts, these men must be encouraged to establish themselves within a community," said Dr. Smith. "The Social Cybernetics Lab has been involved in this and if the training program is successful, we will try to set up some kind of subsidiary machine shop for ex-offenders and the disabled to provide state service machine shops in a given community."

Federal safety standards have been set up by the National Office of Safety and Health. City View is trying to implement changes within their own shop. Dr. Smith thinks that these men already know quite a bit about industrial safety and can make a little money on the side by giving night classes for other machinists in the city. "They will be the teachers, not the students," he said.

An 8090 CDC Computer was also made available to the corporation, through Dr. Smith. Set up for control operations, the computer will be used to more efficiently analyse costs, engineering, and manufacturing data.

As of now, City View is a closed corporation. They sold their first shares of stock this summer but only to former Gisholt employees. Being a closed corporation, City View is regulated by law as to how many persons can invest in the corporation during any given year. According to Tholo, they are planning to open the stock up again after the first of the year. "We'd like to become an open corporation eventually," said Tholo.

Plans for the future are uncertain. The attitude is optimistic and morale is high, according to one employee. "Business is slow, but people are getting to know us now — we've done work for people in Florida, California and New York," said Tholo. "It is a matter of getting the word around that we are available and that we do a good job."

Other workers agreed. Frank Mosel, on the Board of Directors, said, "Once you do a good job for a company, that's when you get the business. Repeat bus-

iness—that's the thing. We warrantee our work for six months and we haven't had any complaints yet, that I know of."

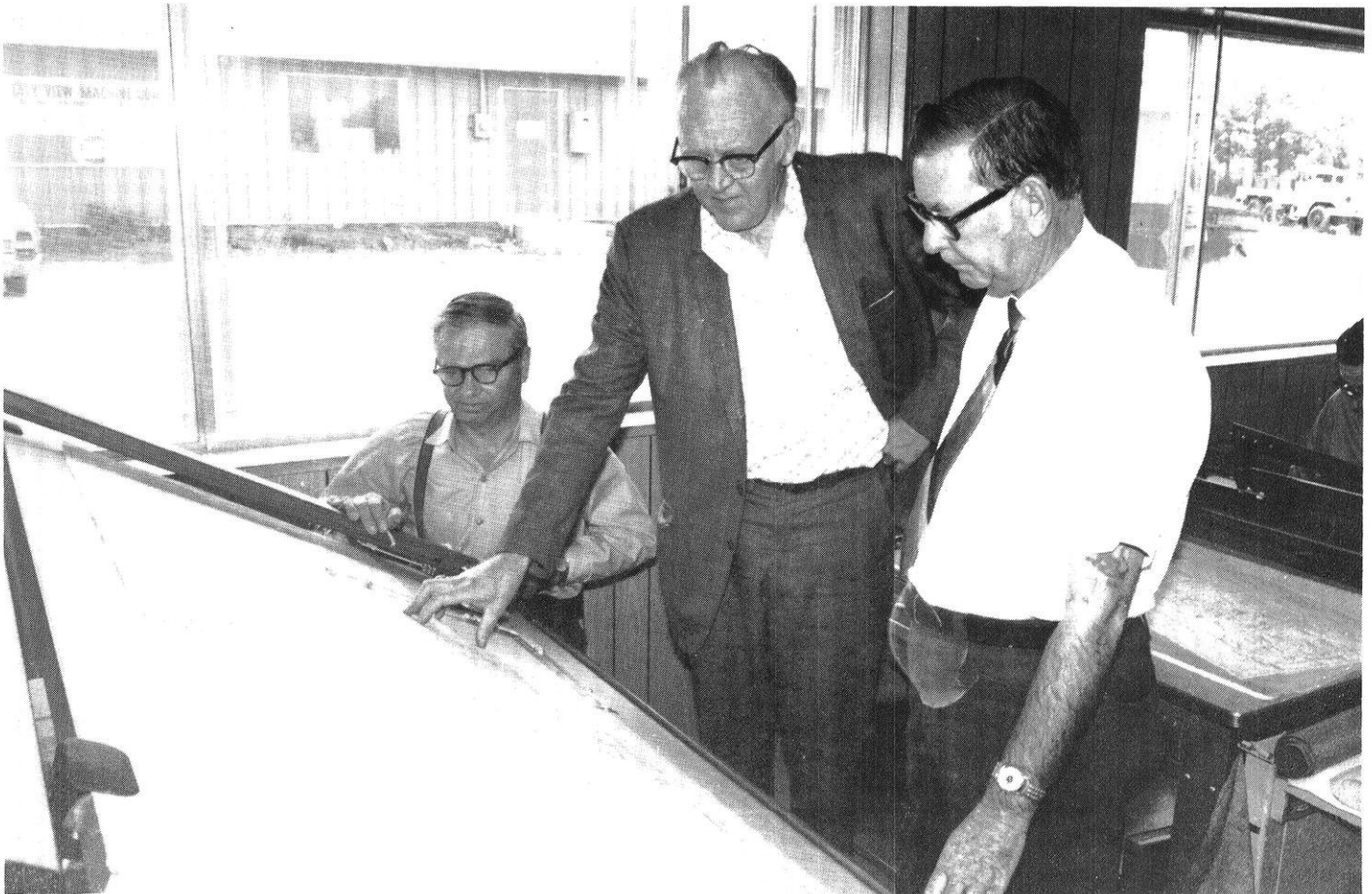
Vice President in charge of Engineering, John Backey, said, "We should have a backlog. Now it's a matter of going out and getting it."

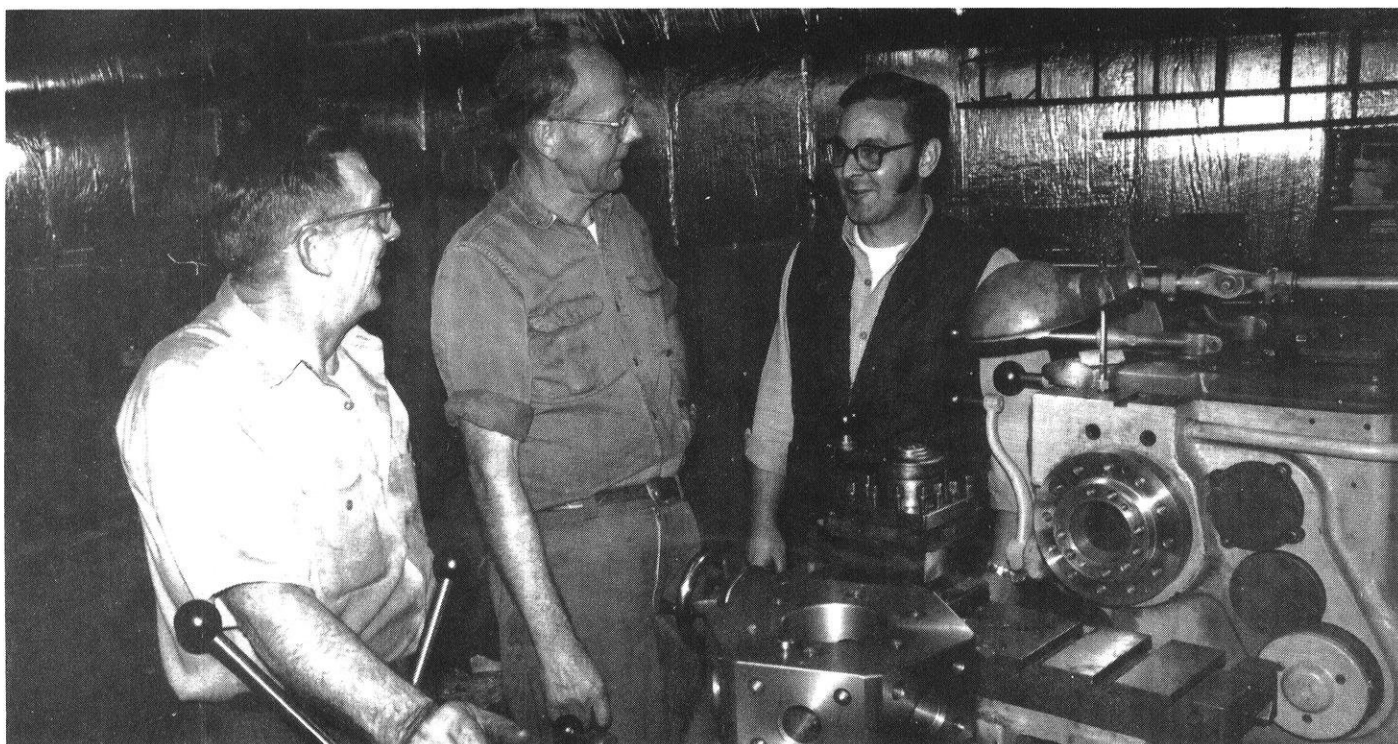
Dr. Smith thinks the development has been "fabulous." He admits that the men "may be in hot financial trouble for a while to cover the tremendous investment they have there." He estimates that there is over \$250,000 worth of equipment in the present facility.

As yet, there has not been financial resources to set up a retirement plan but most of the men are happy just to be working, according to Alton Knudson, a City View employee. Having spent 20 years on Gisholt's test floor and ten years on the road, he said, "I like working here. We are doing the same kind of jobs we did at Gisholt. We probably won't expand to be a full machine shop like Gisholt was because we don't have a product. We'd like more subcontract work to build up our service department to what we'd like it to be. However, this takes time."

Egon Lehmann, also on the Board of Directors, was a foreman on the test floor for 18 years. At 58, he recalls starting at Gisholt during the 1930's for 24 cents per hour. He said, "I'll never see City View expanded to what Gisholt was but you have to remember that it took 85 years for Gisholt to get where it was before Giddings and Lewis took over. I guess we'll have to wait and see . . ."

Draftsman, Engineer John Backey, and President Howard Tholo examine engineering sketches





Egon Lehmann, Frank Mosel and Sheldon Miller work to rebuild balancing machine

Dr. Smith feels that City View should direct their efforts more toward developing a product. He said, "The fact is that the machine tool business will probably be greatly depressed for the next ten to 15 years. Right now, there is a great surplus of standard machines, with very inflated prices. If City View can get a hold of old machinery and repair it, they could do very well for the time being. However, I wish these guys would develop a product. Eventually, they will have to get some ideas of sustained manufacturing other than repairing Gisholt machines."

Tholo indicated that Giddings and Lewis may be closing out most of the Gisholt line of machinery for which they have patents. "If we had the financial resources, we'd like to go up there and try to negotiate with them," he said.

Dr. Smith thinks this would be a real possibility. He said, "If Giddings and Lewis folds up, which it might do in the next few years, City View has the know-how and the experience to easily take over the manufacture of lathes and balancing machines."

Three workers at City View are under 40. One of them is Sheldon Miller, who worked five years at Gisholt. Involved in the Self-Help Training Program, he considers City View a good opportunity. He does road work for the company and enjoys traveling. He said that City View charges \$100 a day for service work — \$60 for the company and \$40 for the road man. He is a stockholder and plans on staying with the corporation. "I think City View could be another Gisholt. The Giddings and Lewis plant in Janesville is hiring for pretty good wages. I admit it's tempting but I'm going to stay here. Madison needs the blue-collar jobs," Miller said.

City View makes their own parts for 90 per cent of the repairs and rebuilding work. They purchase standard items such as bearings and have the heat

treating done locally. "That way, we can help other local industries that also need the business," said Miller.

According to John Backey, up to this point, there hasn't been much demand for engineering. He and two other draftsmen make up the engineering department. If these two major contracts come through, he anticipates hiring additional help — part time, at least.

Backey seems to be aware of their problem. He summed it up by saying, "We started out a lot stronger than we are now. Before, we worked to do a job and didn't worry about where the money was coming from. Now, we know what we can perform and get paid for it. It's at a point where we worry whether or not we can afford to do the job. One of the biggest problems is getting people to pay. The money isn't only tight around here. There is a lot of work that companies need done, they just don't have the money to do it."

Dr. Smith agreed. He said that City View could make a substantial profit if companies would pay up. Overall, he is pleased with the progress. He said, "They are a great bunch of guys. The Gisholt Self-Help Organization has served its purpose for the most part. Now, we are starting on a new project to coordinate the efforts of women in technical fields."

He concluded, "This experience has been a real inspiration for me. In psychology, it was very depressing to see my colleagues ignore their living and working relationship with their community. I had the impression that social scientists were a combination of goons and incompetents who organized themselves to bleed the community rather than to help it. City View Machine Corporation is doing something—for itself and the community. It has renewed my faith."

How Many Sides To A Polygon?

James Seitz on the
Polygon Engineering Council



Contrary to some rumors floating around the Engineering Campus, Polygon Council Members do not lurk in dark hallways, dressed in black raincoats, sun glasses, and with a Humprey Bogard hat tipped towards the right eye. Neither do they try to con a surprised freshman into buying a cheap slide rule.

The Polygon Engineering Council is the governing body of the students off the Engineering Campus. The membership is composed of two representatives from the various professional societies having student chapters on the Engineering Campus.

Polygon does a great deal of functions that receive little publicity. One of the major activities is the St. Pat's activities. However, this year Polygon plans on combining efforts with the Triangle Fraternity to make St. Pat's an all-Engineering Campus event.

Polygon also finances the Engineering Exposition which takes place next semester. Engineering "EXPO" combines industrial and student exhibits of technological solutions to present and future problems. This exposition also attracts prominent individuals from engineering and science. They speak on various topics of interest to engineers. This year the keynote speaker will hopefully be Niel Armstrong, first man on the moon, and new professor of Engineering at Cincinnati University.

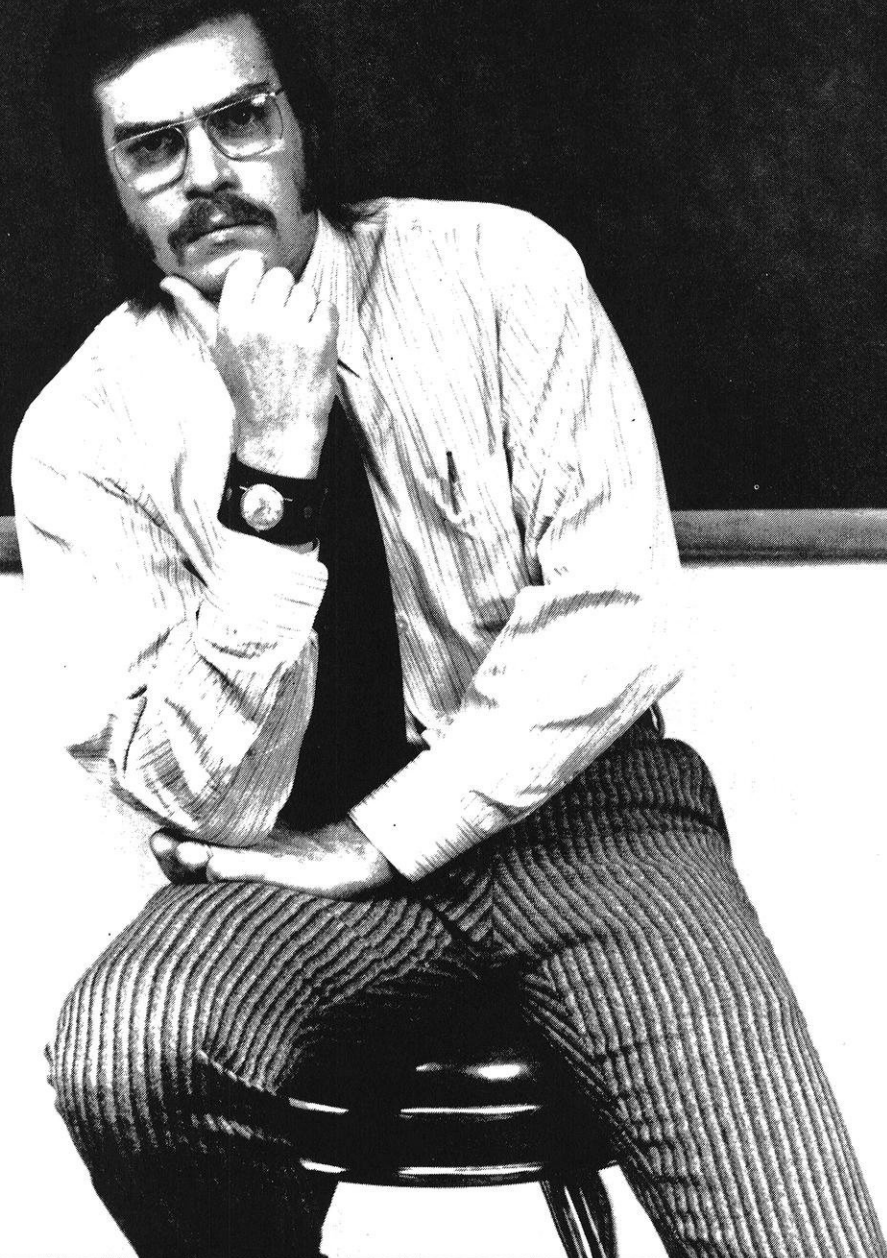
Polygon would also like to sponsor a symposium similar to the W.S.A. symposium, but would focus more on a subjects relevant to technologically-oriented individuals.

Polygon also recognized outstanding students and teachers at their spring awards banquet. Last spring the outstanding professors from each department in the College of Engineering were honored award recipients elected by the students that are majors in the individual professor's department. This was done by Polygon in hope that a professor would receive the honor and recognition he deserves for devoting his time and efforts to students. In addition, scholarships were awarded to students with high academic achievements and outstanding contribution to the community.

Polygon is looking for the support of Engineering students. In the words of James Seitz, President of the Polygon Engineering Council, "Polygon can do a lot for this student community. What we need is involvement and student action. Only then can Polygon do something for you.

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Dean Offers

Challenging Programs

Another year has begun for the College of Engineering at the University of Wisconsin – Madison. Unlike past years, the Madison campus began its academic year before Labor Day, approximately one month earlier than we have started in the past. We hope that this will be a more satisfactory and acceptable timetable for students and faculty and that we will make productive use of the freedom of the periods between sessions. As many of you know, with the early ending of the spring semester there will be a three-week summer or inter-session period during which 1-3 credit courses will be offered. The College of Engineering will offer some of these inter-session courses and it will be a new opportunity for students to acquire additional credits to accelerate progress toward their degrees.

As we begin the 1972-73 year the College is looking forward to many new educational programs. We find a growing interest on the part of non-engineering students to take courses taught in engineering to provide them with a better understanding of technology. The enrollment of non-engineering students in engineering courses has been increasing steadily and we anticipate a time when this will become a major educational activity of our College. To help develop these courses, a new committee of the College has been formed entitled COMMITTEE ON COURSES FOR NON-ENGINEERS.

Other new activities in the College consist of the formation of the COLLEGE OF ENGINEERING ENERGY GROUP which will coordinate all the programs in the College which deal with energy—its production, transmission, and consumption. It is significant to note that our faculty is engaged in teaching and research programs in all the traditional

sources of energy such as electrical power, energy from the internal combustion engine, and also in non-traditional fields. The College is actively engaged in a feasibility study of energy from nuclear fusion as it continues to study the role of nuclear fission energy in our environment. Our long-standing program of solar energy has been revitalized with a grant from the National Science Foundation, while other faculty and students pursue studies of energy storage and transmission under superconducting conditions.

Other educational programs that are continuing in vigorous and interdisciplinary fashion include biomedical engineering, environmental engineering in all departments, ocean engineering, transportation in urban and regional planning, and other areas which deal in one way or another with the problems of society.

Finally, to underscore the growing social concern of the College, I am pleased to announce the appointment of Mr. Willie Nunnery in my office to direct the College's Affirmative Action Plan and a program for engineering education opportunities for minority students. I shall discuss this program in a later communication.

It is my hope that these programs will provide unique and challenging opportunities for both students and faculty and that the College will continue to play a leadership role in its continued effort to work with other disciplines and especially those in which we find growing concern from a social and behavioral science standpoint. I look forward to another fine year for the *Wisconsin Engineer* and the opportunity to communicate with its readers through the Dean's Page. My best wishes to all of its readers.



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Urban Car Wins National Recognition



Open car door shows urban vehicle safety features

by Steve Sanborn

Praised by Secretary of Transportation John Volpe, the University of Wisconsin's entry in the 1972 Urban Vehicle Design competition is constructed to provide safety for passengers, minimize fuel consumption and emissions, and to provide an economical means of transportation systems. During competition at the North American Student Urban Vehicle Design Competition held at the General Motors Proving Grounds in Michigan, the vehicle received two major awards: one for safety and one for innovation.

Designed and constructed by 25 engineering students of the University of Wisconsin, the car is 10' 6" long, 5' 6" wide and weighs 2800 lbs. While the cost of the prototype vehicle is \$43,000, a panel of expert cost analysts from Detroit estimated the production version would cost only \$2800.

Safety features are evident in the passenger capsule, which is the strongest part of the car, where surrounding components are designed to absorb energy. The interior is padded and fireproofed. In the event of a high speed collision, the subframe structure of the car will collapse and absorb energy. Doors are made as large as possible, yet they need only one foot to the side of the vehicle to open. An energy absorbing foam is used in the bumpers for preventing damage to the vehicle during five mile per hour front and rear collisions.

Emissions are expected to meet 1976 federal standards. To aid in emission control, the engine is equipped with a catalytic muffler and a thermal reactor. The engine is also modified to facilitate the use of LP gas.

The combination of an internal combustion engine (a 50 horsepower Wankel) and an electric machine in the vehicle is referred to as a hybrid. The electrical requirements are met by a single machine that serves as a motor and as a generator. Its main purpose is to divide torque between the wheels and the generation of electricity. A set of three heavy-duty batteries act as an energy storage device for the vehicle.

The National Highway Traffic Safety Administration sponsored the car in the International Transportation Exposition, Washington, D.C. Since that time, the automobile has been the subject of over fifty articles in various newspapers and magazines throughout the country. News coverage has extended as far as London, England.

It was built to provide, throughout its planning and construction, situations that were comparable to industrial experience. The students working on the project found it necessary to make realistic estimates of the time needed to complete each phase of construction. Students will be able to continue testing the car this year, making necessary improvements and corrections.

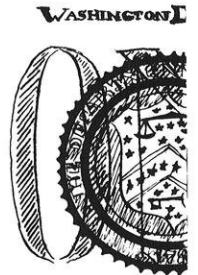
Interviewers Line Up

Appointments

Allen Bradley . . . . .	.23 Oct.	General Electric	2-3 Nov.
Allis Chalmers	7 & 9 Nov.	General Foods	1-2 Nov.
Alcoa	10-11 Oct.	General Motors	6-10 Nov.
American Appraisal . . . . .	.24 Oct.	Globe Union . . . . .	.19 Oct.
American Electrical Power . . . . .	.18 Oct.	B.F. Goodrich . . . . .	.23 Oct.
Amoco Production . . . . .	.16 Oct.	Heil	1-2 Nov.
Arthur Anderson . . . . .	.24 Oct.	Hercules Incorp. . . . .	.2 Nov.
Archer Daniels Midland . . . . .	.2 Nov.	Hewlett Packard . . . . .	.5 Oct.
Atlantic Richfield (ARCO)	8-9 Nov.	Honeywell	19-20 Oct.
Automatic Electric . . . . .	.10 Oct.	I.B.M. . . . .	.27 Oct.
Babcock & Wilcox . . . . .	.17 Oct.	Ill. Div. Waterways . . . . .	.11 Oct.
Barber Colman . . . . .	.17 Oct.	Ind. Dept. Nat. Res. . . . .	.20 Oct.
Baxter Labs . . . . .	.17 Oct.	Inst. Paper (Miller) . . . . .	.10 Oct.
Bechtel . . . . .	.6 Nov.	Interlake Steel	10-11 Oct.
Bell System	16-19 Oct.	Interstate Power . . . . .	.24 Oct.
Burroughs . . . . .	.1 Nov.	Johnson Service	19-20 Oct.
Cargill . . . . .	.23 Oct.	Kellogg	6-7 Nov.
Celanese	31 Oct. -2 Nov.	Koehring	24-25 Oct.
Charmin Paper	31 Oct. -1 Nov.	Kohler	2-3 Nov.
Chemical Abstract . . . . .	.8 Nov.	Ladish . . . . .	.23 Oct.
Chicago Bridge & Iron . . . . .	.9 Nov.	Leeds & Northrup . . . . .	.17 Oct.
Chrysler Outboard . . . . .	.13 Oct.	Loyola U-117 Bascom . . . . .	.9-10 Oct.
Clark Dietz . . . . .	.6 Nov.	Magnavox	23-25 Oct.
Cleveland Cliffs . . . . .	.19 Oct.	Oscar Mayer . . . . .	.13 Oct.
Collins Radio . . . . .	.8 Nov.	McDonnell Douglas	8-9 Nov.
Columbia Gas Systems . . . . .	.25 Oct.	Milwaukee R.R. . . . .	.14 Nov.
Combustion Engr. . . . .	.3 Nov.	3M	16-20 Oct.
Commonwealth Edison . . . . .	.20 Oct.	Mirro Aluminum . . . . .	.20 Oct.
Cont. Corp. of America	2-3 Nov.	Mobil Oil	26-27 Oct.
Continental Oil	11-12 Oct.	Modine Mfg. . . . .	.13 Oct.
Cornell Aeron. Labs . . . . .	.1 Nov.	Morse Chain . . . . .	.30 Oct.
County of L.A. . . . .	.16 Oct.	Motorola	10-11 Oct.
Dairyland Power . . . . .	.18 Oct.	N.L. Industries . . . . .	.9 Nov.
Dayton Power & Light . . . . .	.12 Oct.	Nalco Chemicals . . . . .	.10 Oct.
Deere & Co.	24-25 Oct.	National Steel . . . . .	.19 Oct.
Detroit Edison . . . . .	.11 Oct.	Nordberg . . . . .	.16 Oct.
Dow Chemical	17-19 Oct.	N. American Rockell	30-31 Oct.
Dow Corning . . . . .	.9-11 Oct.	Northern Ill. Gas . . . . .	.2 Nov.
DuPont	16-20 Oct.	Northern States Power . . . . .	.19 Oct.
Eastman	25-26 Oct.	Ohio Brass . . . . .	.27 Oct.
Eastman — PhD's	30 Oct. -1 Nov.	Ohio Dept. Highways . . . . .	.9 Nov.
Eaton . . . . .	.26 Oct.	Olin Corp. . . . .	.6 Nov.
Emerson Electric . . . . .	.2 Nov.	Outboard Marine . . . . .	.11 Oct.
Esso Res. & Engr./Humble/Enjay	24-26 Oct.	Penn Controls	19-20 Oct.
Ethyl Corp.	6-7 Nov.	Peoples Gas Light . . . . .	.12 Oct.
FMC-Northern Ordn. . . . .	.23 Oct.	Pfizer-Indiana . . . . .	.13 Oct.
Factory Mutual . . . . .	.19 Oct.	PPG	25-26 Oct.
Falk Corp. . . . .	.18 Oct.	Procter & Gamble	11-12 Oct.
Firestone	6-8 Nov.	Raytheon	24-25 Oct.
Ford Motor24 Oct.	Republic Steel	26-27 Oct.

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ONE DOLLAR

Campus Interviews (continued)

Rex Chain Belt	1 Nov.	Walker Mfg.	10 Oct.
Rohm & Haas	4-5 Nov.	West Bend	17 Oct.
St. Regis Paper	23-24 Oct.	Westhoff & Novick	6 Nov.
Sangamo Electric	18 Oct.	Whirlpool	7-8 Nov.
Sargen & Lundy	3 Nov.	Wis. Dept. Nat. Res.	31 Oct.-1 Nov.
Shell Companies	30 Oct.-1 Nov.	Wis. Electric Power	18-19 Oct.
Shure Bros	18 Oct.	Wis. Natural Gas	18-19 Oct.
Square D	23-24 Oct.	Wis. Power & Light	27 & 30 Oct.
Std. Oil of Calif.	30 Oct.-3 Nov.	Wis. Public Service	12 Oct.
Stauffer Chemicals	10 Oct.	Xerox Corp.	8 Nov.
Sundstrand	18 Oct.	Youngstown Sheet	3 Nov.
Texaco	26-27 Oct.	U.S. Government	
Texas Instruments	30-31 Oct.	U.S. Army-Army Engr. District	11 Oct.
Thunderbird Grad. School	10 Nov.-117 Bascom	U.S. Army Material	7 Nov.
Torrington	7 Nov.	U.S. Army Medical	9 Nov.
Trane Co.	7-9 Nov.	N.D.A.A.	6-7 Nov.
Uarco	10 Oct.	U.S. Navy-Capt. Area Personnel	10 Nov.
Underwriters Labs	1 Nov.	U.S. Navy-Naval Civil Engr. (Pt. Hueneme)	1 Nov.
UCC—All divisions	12-13 Oct.	U.S. Gen. Acctg.	18 Oct.
UCC—PhD's	26 Oct.	N.S.A.	19 Oct.
Union Oil of Calif.	8-9 Nov.	U.S.D. A-Soil Conserv.	17 Oct.
U.S. Gypsum	9 Nov.	U.S. Patent	7-8 Nov.
U.S. Steel	27 Oct.	Dept. Public Roads-Fed. Highways	26 Oct.
Univac-Data	11-12 Oct.	Action/Peace/Vista	30 Oct.-3 Nov.
Univac-Defense	11-12 Oct.	U.S. Air Force	20-21 Nov.
Universal Oil	7 Nov.	U.S. Army	20 Nov.

GALVANIZED STEEL has an "ELECTRIC FENCE" to keep corrosion out of your product

The layer of zinc metallurgically bonded to steel in the galvanizing reaction is much more than just a skin deep barrier against rust. □ When the tough zinc coating is scratched, gouged or worn through, an electrochemical current fences the gaps and the zinc slowly sacrifices itself as it continues to protect the steel. This happens because, in the galvanic series, zinc is less noble than steel and will corrode sacrificially—fighting a stubborn delaying action against corrosion's attack. □ The zinc coating is bonded so firmly and uniformly to the steel that it is practically a part of the base metal and will withstand any deformation that the steel can. Galvanized steel can be formed by virtually any metalworking opera-

tion and can be readily joined by welding or soldering. When fabrication involves cutting or drilling, zinc's "electric fence" provides lasting protection to the exposed edges of the steel. □ Today, galvanized steel is available in finishes custom-tailored to suit your specific application. □ In addition, galvanized steel has the strength, hardness and heat resistance (up to 500°F) to protect your product's performance.

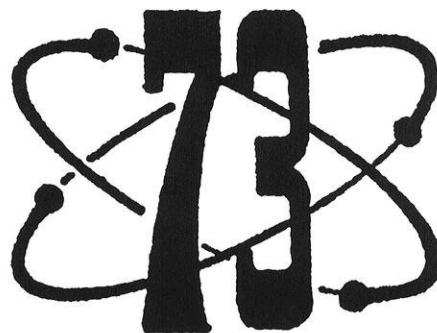
NO OTHER MATERIAL GIVES YOU THE COMBINATION OF STRENGTH, CORROSION-RESISTANCE AND ECONOMY YOU GET FROM GALVANIZED STEEL.

ZN-520



EXPO

by Mike Pfanko



Every day hundreds of ideas are generated which could solve world problems. Any inventor who has the skill and initiative to make his ideas a reality is indeed a great man. Even the greatest inventor must make his invention known to the public. Throughout history, the exposition has been the place where the inventor and the public have converged on new ideas, needs, and realities. This is the purpose of the 1973 College of Engineering Exposition.

Hosting nearly 25,000 people, Expo '73 will feature many exhibits provided by industry and students. This series of articles is designed to keep the Engineering Campus informed and encourage individuals to become involved in Expo so that it will be a benefit to all.

To many of you reading this, an article about the Engineering Exposition that is to be held next April may seem a little premature. If so, you will be surprised to know that the Expo's executive committee has been working hard since last March.

Planning the exposition for a campus this size is no small job. Perhaps the biggest single problem once the chairman has been chosen, is for him to choose his executive committee. The chairman and his committee must decide the scope, the theme, and the ideas behind each year's Expo. While learning by past mistakes, they must shape and define the exposition so that it takes on a character of its own — an identity which makes it characteristically Expo '73.

This year's chairman, Jack VanDerhei (NE-2), was chosen from a group of capable engineering students on the basis of leadership potential and academic performance. Jack's executive committee is also high on the lists around the campus. Fred Beranek (NE-4) is the vice-president; Ron Holten (ChE-3) is the Industrial Exhibits Chairman; Tom Ryer (ee-3) business

manager; Cliff Nadolna (ME-3) Buildings Chairman; Mike Pfanko (ChE-3) Program Chairman; Dan Traxler (IE-3) Student Exhibits Chairman; Mark Calmes (IE-3) Publicity Chairman; Kevin Zentner (ChE-2) High School Relations; and Al Brooker (M&ME-3) Special Effects.

The route of the exposition, starting from the Mechanical Engineering building, and proceeding across the parking lot and through the Engineering building, has been planned, and a map of the exhibit area has been drawn up, showing each exhibit space laid off in ten foot squares. The building organization committee contacted each building's manager to determine what changes would have to be made before next April.

Letters were sent to 425 companies, many of whom exhibited in the past. The letter outlined the background and the goals of the Exposition, and suggested that companies write for further information if they were interested in participating. Each company that wrote back was sent maps of the exhibit areas, additional information, a questionnaire, and a contract.

Of course, there is much more to tell, and this could go on and on. Hopefully, you have gotten the idea that Expo isn't just going to happen. It will take a lot of hard work and a lot of time, to create the best Exposition ever. We will need student help and student exhibits. Before this is over, there will be more than 500 engineers working on different committees.

Any interested student should contact Jack VanDerhei (262-6842 or 256-5783) or one of the executive committee members, or stop by the Expo office (Room 1142 Engineering building). They are more than anxious to hear any suggestions. If a student works, he will know he's "transforming the hopes of today into the reality of tomorrow."

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Campus Comments

AWARDS

The first Kurt F. Wendt Engineering Scholarship, established in commemoration of former Dean Kurt F. Wendt who served the College of Engineering for 18 years, was awarded to electrical engineer William Harlan Dornfeld of Horicon, Wisconsin in May this year.

Judged by a committee of students and faculty, the \$500 Wendt Scholarship is awarded to the senior engineer "who most typifies the dedication and ability exemplified by Kurt F. Wendt."

To qualify for the award, a full-time student must rank in the upper 3 per cent of his class on the basis of his GPA since achieving junior status. Monetary need is not a primary consideration unless all other factors are equal.

Dornfeld received his Bachelor of Science degree in electrical engineering this spring. With a National Science Foundation Fellowship, he is currently doing graduate work in mechanical engineering, specializing in computer controls.

Terry Shardt, of Burnamwood, Wisconsin, a senior in electrical engineering, was also awarded the \$200 Honeywell Award in May by the Polygon Council. Greg Vanderheiden of Appleton received the "outstanding Senior" award of \$50.

On the basis of scholarship and activities, 40 to 50 engineering students are nominated for the awards by the Polygon selection committee. Those selected are notified they may apply with final selection based on the applications.

TRIANGLE

Elections held last spring gave us new officers in the form of: Mark Calmes IE-3, President; Ken Cori CEE-3, Vice President; Jerry Houlder EE-4, House Manager; and Jim Owen CEE-4, Steward.

On August 26, we held our annual New Freshman Engineering Picnic. Due to a lack of cooperation with the weather, there was a poor turnout of new freshmen. The members of Triangle and the freshmen who did come had a good time, however. Saturday, October 7 is Parent's Day; and Triangle will again give tours of the Engineering Campus to interested parents.

THETA TAU

A professional fraternity? XI chapter of Theta Tau fraternity offers an alternative in campus activities that many engineering students fail to recognize. Theta Tau is one of a few fraternities on the University of Wisconsin campus that takes an active interest in developing the professional aspirations of its members. In addition to the normal activities of a fraternity (i.e., social interaction) Theta Tau members plan a complete professional development program each semester.

As stated in the Theta Tau membership manual:

The purpose of Theta Tau is to develop and maintain a high standard of professional interest among its members and to unite them in a strong bond of fraternal fellowship. In addition to the desirable attributes of a general fraternity, it offers a common bond: an interest in and pursuance of engineering in its various branches.

The first professional fraternity was founded in 1869. Originally known as the "Society of Minnesota" on October 15, 1904. XI chapter was chartered on January 13, 1923. In recent years Theta Tau has grown in spite of a negative campus attitude toward fraternities.

Members of Theta Tau participate in many activities. The activities include social events, intramural sports, professional development, Engineering Expo and other campus-wide activities such as the *Wisconsin Engineer*. The professional development program includes films, and informal discussions with college interviewers, university professors, and U.W. graduates in industry. A plant trip is also scheduled for this semester. Older fraternity members relate their experiences in industry and also act as tutors for younger members.

To be eligible to pledge Theta Tau, one must be a male student regularly enrolled in an engineering curriculum leading to a bachelor's or higher degree. He must be 18 years of age at the time of initiation. During the pledge period prospective members are further acquainted with the history, purposes and obligations of the fraternity. The pledge period lasts about eight weeks and is climaxed each semester with a ceremony and formal banquet.

Membership in Theta Tau does not terminate at graduation. Many alumni return each year to share their experiences.

The XI chapter house is located at 1633 Monroe St., Madison. All engineers are welcomed guests. Further information about professional fraternities can be obtained at the Theta Tau chapter house.

Unidentical twins.



What do you call two stereo systems that have identically the same insides, but not the same outsides?

Well, you call one a Sylvania compact stereo system. It's stacked and compact with tuner/amplifier, turntable, and tape player all in one unit.

And you call the other a Sylvania component stereo system. Each unit is separate so you can spread it around any way you want it.

Inside, though, they're the same. Both have an RMS rating of 12.5 watts per channel (20 watts IHF) with each channel driven into 8 ohms. There are identical FETs, ICs, and ceramic IF filters in the AM Stereo FM tuner/amplifiers. Both offer the same switchable main and remote speaker jacks, headphone jacks, aux jacks, tape monitor, and built-in matrix four-channel capability for the new quadrasonic sound. The turntables are Garrard automatics with magnetic cartridges and diamond styluses. The 4-track stereo record/playback cassette decks are the same. And both air-suspension speaker systems contain two 8-inch woofers and two 3-inch tweeters.

So if they're the same, how come they're different?

Because different people want the same great stereo sound different ways. So we give it to them.

Come on down to your Sylvania dealer's for a look and a listen.

Then you can pick the shape you want as well as the sound you like.



GTE SYLVANIA

HOW CAN A SMALL PIECE OF WIRE HELP SAVE A PATIENT DURING SURGERY?

General Electric engineers and medical researchers have come up with a very interesting piece of "wire."

It's an electrode wrapped in a membrane that's highly permeable to CO₂ gas. Yet tiny enough to fit inside a needle and be inserted into a person's blood vessel.

That's a neat piece of engineering. But that's not why it's important.

The GE sensor permits a new method of measuring the pCO₂ level in human blood... one of the most important indicators a doctor has for determining a patient's condition during major surgery.

It eliminates the need for drawing a blood sample, then sending it to the hospital lab for a pCO₂ analysis. That can take

time. Sometimes more time than a critically ill patient can afford.

The new GE blood gas analyzer gives a doctor continuous, instantaneous pCO₂ readings. So it can warn him of developing trouble. And give him the time to respond.

It's a good example of how a technological innovation can help solve a human problem.

That's why, at General Electric, we judge innovations more by the impact they'll have on people's lives than by their sheer technical wizardry.

Maybe that's a standard you should apply to the work you'll be doing. Whether or not you ever work at General Electric.

Because, as our engineers will tell you, it's not so much what you do that counts. It's what it means.

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