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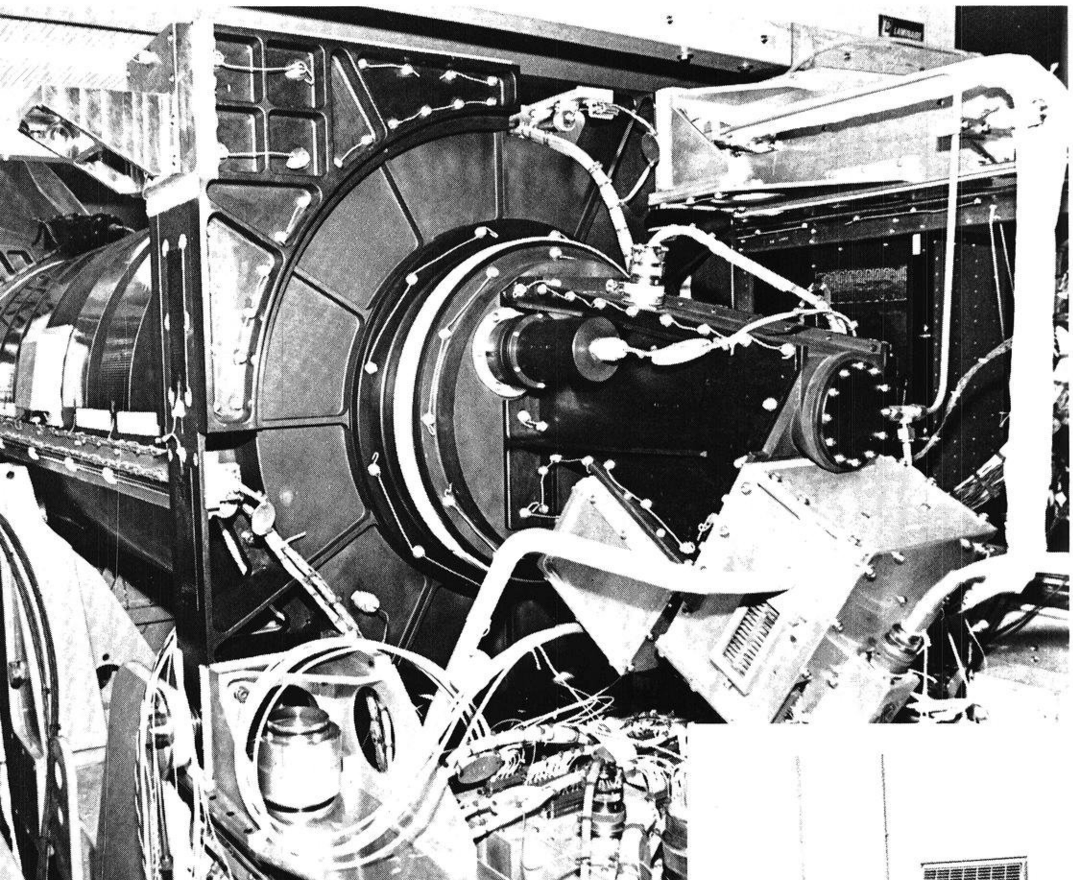
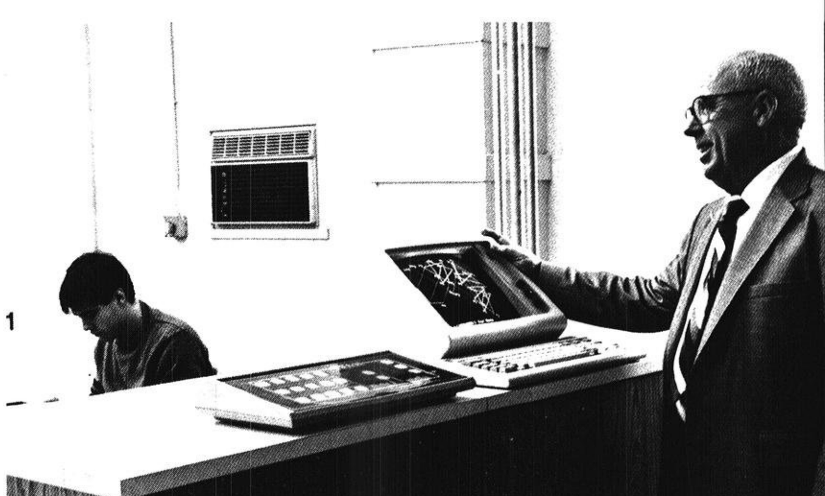
wisconsin engineer



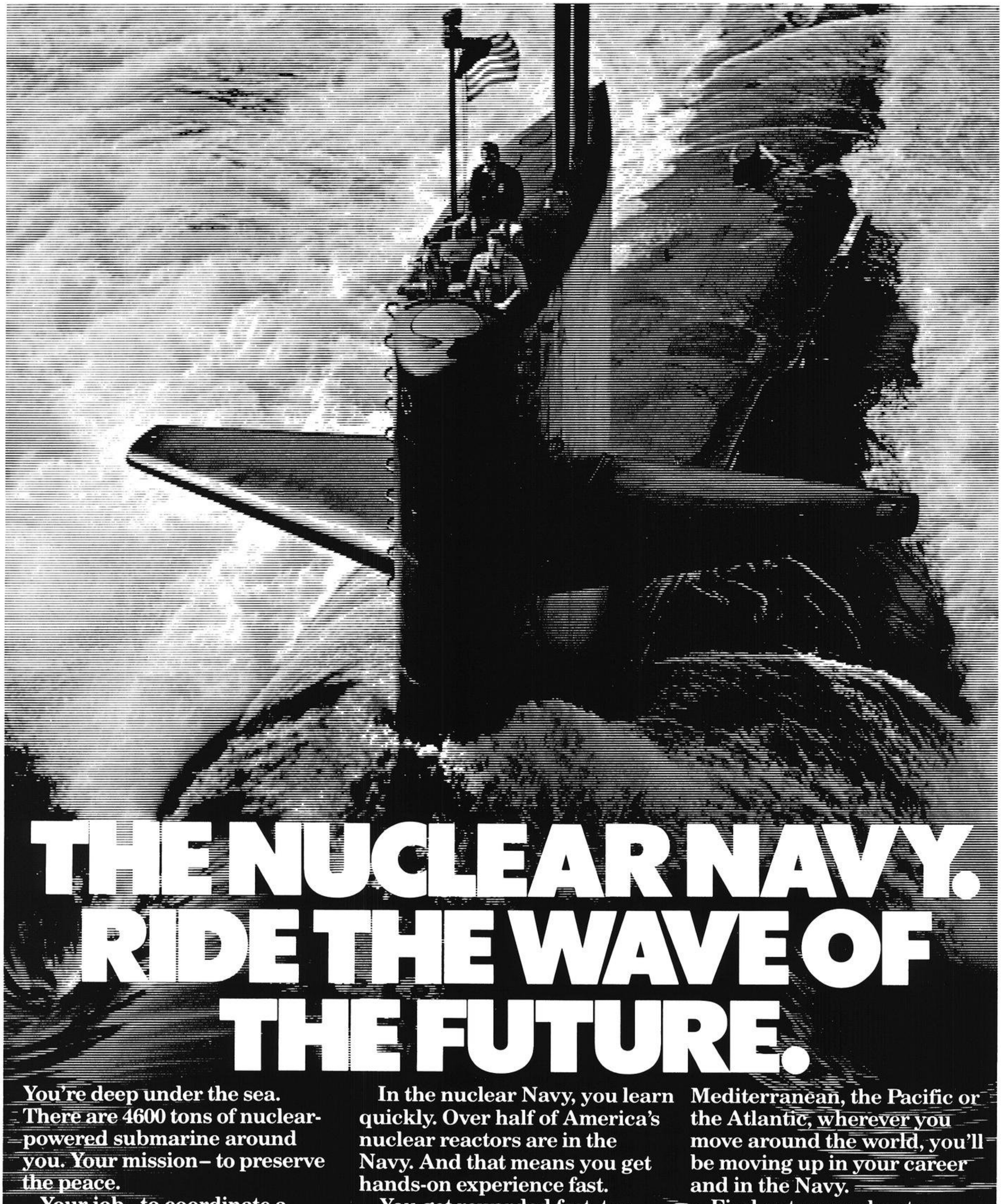
Makin' WUPPE



The McNeary Effect

Also in this issue:

- Are Engineers People?
- Company interview dates
- Wisconsin Teaching Innovations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wisconsin engineer

PUBLISHED BY THE ENGINEERING STUDENTS OF THE UNIVERSITY OF WISCONSIN-MADISON **February 1985**

On the Cover:

A view of the inner workings of WUPPE, which was designed and built by the University of Wisconsin Space Astronomy Laboratory in cooperation with NASA. The equipment will be used on future space shuttle missions for scientific research.

Professor James J. McNeary at the helm of the General Engineering Department.

Columns

Features

The General Engineering Department — some say it's slicker than cat fur.

The **Wisconsin Engineer Magazine** is published by and for engineering students at UW-Madison. Philosophies and opinions expressed in this magazine do not necessarily reflect those of the College of Engineering. All interested students have an equal opportunity to contribute to this publication. **Charter Member of the Engineeing College Magazines Associated. Chairperson:** John N. Clausen, Mechanical Engineering Building, University of Minnesota, Minneapolis, MN 55455. **Publisher's Representatives:** Littell-Murray-Barnhill, Inc., 1328 Broadway, New York, NY 10001 and 221 North LaSelle Street, Chicago, IL 60601.

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Editorial
Graduation Syndrome

by Brian Lake

Well, here I am, second semester of my senior year as an engineering student at Madison. Although I have two more semesters to finish, graduation is imminent. Getting this far in college is undoubtedly the most trying and difficult task that I have ever experienced. It has involved a lot of hard work, long hours, and dedication.

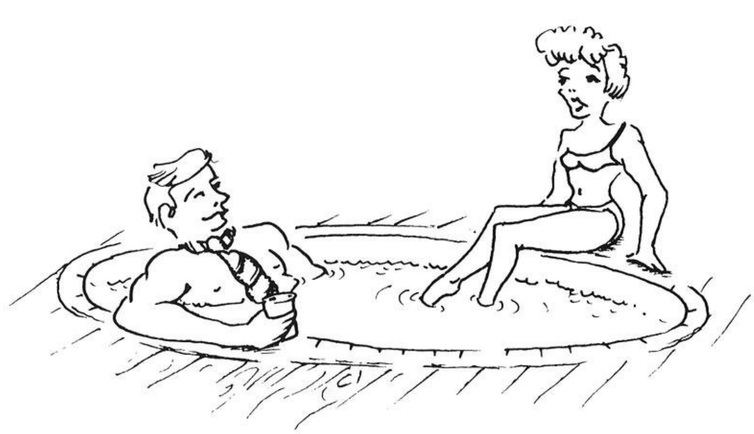
Although everyone has his or her personal reasons for tolerating all the work it takes to earn an engineering degree, the satisfaction of knowing you've accomplished your goal is a very rewarding experience. However, college is more than just hard work. College life also involves many social activities. These include meeting new people and making new friends; often they are your classmates, people who you learn and work with (or in some instances, learn to work with).

I've realized that one of the fringe benefits of working toward my engineering degree is the friendships I've made along the way. This year, however, I have found that I (a senior near graduation) have more friends than I ever thought I had. Take the other day for example. While sitting around, trying to motivate myself to study, I received a telephone call from an agent from the "Fly-By-Night Financial Planning and Investment Services." The agent told me that he was "worried sick" about my future, my financial future, that is. He said he desperately needed an hour of my time, at his convenience, to tell me how he could save me from the unknown evils of the business world. I was told that "it is a jungle out there." So after giving it a little thought, I decided, "why not?"

When we met, he explained that (for a "small" nominal percentage of all earnings) he could take my hard earned money and invest it in risky business ventures. I politely said "I'll think about it, no thank you" and left before he attempted to sell me some prime swamp land in Arizona.

It didn't take me very long to get the picture. These "friends" of mine want my money, and they want it long before I even earn it. The audacity of some people really shocks me. Here I am, nearing the completion of a five year engineering education, only to discover that there are numerous people who feel they have a personal obligation to help me "reap the rewards" of my time and efforts. What is even more amazing is that these people actually assume I need their help, and that I, as an engineer, am too inept to handle my own private business affairs.

What I really **don't** need are these "friends." What I **do** need is a job. It's a shame that job offers aren't as abundant as the number of people who are willing to take risks with someone else's money. □



"♫ DO YOU EVER TAKE THAT THING OFF ?! ♪"

"NO WAY, BABY! MY BROKER MIGHT CALL!"

Engineering Abroad

by Michele Kwaterski

Have you ever dreamt of studying in a new and exotic land, experiencing a different culture? Why not study abroad? Now, before starting a job and family, many engineering students choose to spend a summer or yar in a learning adventure abroad.

U.W. Madison maintains relationships with several institution in various countries. Germany, France, and Norway all have well established programs, and Japan is just starting a program. The International Engineering Programs office (1402 University Ave.) is available to assist engineering students with their plans to study abroad. Credits gained abroad as well as financial aid and scholarships are transferable to an engineering degree.

As enriching as the experience may be, many students are discouraged by the added expenses involved with studying abroad. You may be surprised to know that students are eligible for the same financial aid abroad as they are at U.W.-Madison. In fact, additional scholarships are available. Solveig Christenson, a Civil and Environmental engineering student, is having a terrific time studying for a year in Trondheim, Norway. The opportunity for her to study in the Norway-U.W. Engineering Exchange Program was made possible by the Brittingham Trust Scholarship awarded to her as an outstanding student.

A study abroad is a growing experience in any persons life.

A study abroad is a growing experience in any student's life. It is a chance to be exposed to a new culture and to become a different, more capable person—an aspect any job interviewer will mark as a plus in your school years. Whether you spent weekends skiing in the alps or were introduced to the latest technological advances in Japan, you will look back on and build from a study abroad experience for the rest of your life. □

Project Trochos: A Quest for Teaching Innovation

by Paul A. Stone

Project Trochos is not a new Greek restaraunt on State Street. It is the University of Wisconsin - Madison's search for revolutionary ideas in teaching methods. Trochos (tro kos; Greek for wheel) is intended to act as a catalyst, by prompting university faculty to develop innovative ways of incorporating microcomputer technology into the classroom. The project will have a substantial impact on every discipline on campus. Present proposals range from the simulation of nuclear power plant operation to the analysis of herd problems in animal production.

The multi-million dollar program is funded jointly by the University and the International Business Machines Corporation, IBM, through a $7.5 million IBM Advanced Education Project Grant. Clifford B. Gillman, associate director of the Madison Academic Computing Center and director of Project Trochos, explained that "the IBM grant resulted from an initial twenty-eight proposals which were chosen in a campus-wide competition. Three additional competitions will be conducted to determine the specific use of the grant: the first was completed February 1 of this year, and the second and third proposal deadlines will be in January of 1986 and 1987, respectively."

The proposals undergo a rigorous review once submitted for Project Trochos grants.

The proposals undergo a rigorous review once submitted for Project Trochos grants. Department chairpersons must ensure that the department can meet its contribution to the proposal. A faculty review committee headed by Gillman then decides which proposals to accept, based upon how well the proposals fulfill the goals of Project Trochos: to develop instructional software and innovative teaching applications for the microcomputer workstation. Once accepted by the committee, proposals must be further approved by the chancellor's office and finally by IBM.

The College of Engineering submitted three proposals in the initial application for the grant. These are: the use of the microcomputer workstation for the digital signal processing analysis of audio signals; the development of a diffraction and crystallographic laboratory; and the creation of a nuclear fission reactor simulation laboratory.

The nuclear engineering plan for the microcomputer workstation, submitted by Professor Gregory A. Moses and Associate Professor Michael L. Corradini, would form the basis of a new course on the operation of a nuclear power plant. This course would complement design courses by simulating practical experience in reactor operation. Project Trochos funding is vital for the establishment of the course.

It is expected that over 1000 workstations will be linked together by an IBM mainframe computer. The linking will provide instant access to, and enable an exchange of, previously unavailable software.

Project Trochos will provide the opportunity for a better, more diversified curriculum, as well as a more interesting and informative classroom atmosphere.

While faculty will benefit from Trochos, the ultimate benefactor will be the student. Project Trochos will provide the opportunity for a better, more diversified curriculum, as well as a more interesting and more informative classroom atmosphere. The project will add a new dimension to research, teaching, and learning, affecting each in ways as revolutionary as the invention of the *trochos* affected society. □

The McNeary Effect

by Scott Knox

A small building on the west end of the engineering campus holds a small but exceptional portion of the engineering curriculum. It has evolved from the Engineering Concepts Curriculum Project, E.C.C.P. (see p. 20. W.E., Oct. '68) to a department known for innovative teaching methods. The Faculty of General Engineering and Professor James J. McNeary have combined the courses of Technical Writing and Descriptive Geometery with the technology of microcomputing to pave a new road in engineering education. The origin of this project is an interesting story.

What was the E.C.C.P.? In 1964, the Commission on Engineering Education in Washington, D.C., with sponsorship from the National Science Foundation and the National Academy of Engineering, developed a course for high school students. The course combined the physical sciences and engineering concepts from solving problems of a "man-made world." The project goal was to provide to high school students of all backgrounds and interests an understanding of the application and impact of current technology. The University of Wisconsin-Madison, along with four other leading universities, was a training ground for high school teachers in the Project.

During this time the Drawing Department, dreaded by most freshman and sophomore engineering students, was experiencing declining enrollment. Then many positive events began to occur, possibly by chance. A turnover of faculty in the department resulted in an influx of new and creative educators. A number of courses that embraced the ideas of the E.C.C.P. were offered. Finally a clever young man who came as a participant in the Project, and then developed equipment, analog and logic circuits, and experiments, joined the department. These events and others were significant and proved to be a uniquely lively combination of individuals, ideas, and interests. The Drawing Department was becoming the General Engineering Department.

An IBM program provides equipment for integrating computers in the classroom.

Today, the General Engineering building has changed dramatically. The exterior has been resided. Only two rooms remain as drafting laboratories, one of them will soon be a hybrid drafting/computer graphics facility. The rest of the rooms seem to have taken on a "U" shape, with microcomputers at every other seat. Even the bathrooms have been renovated! Some might be tempted to say the Department is no longer the same, but it is. The foundation has not changed, the basic ideas are now benefiting from application of new tools and a unique design of the classrooms. Among the various courses offered through General Engineering, two of special interest are Descriptive Geometry and Technical Writing.

James McNeary, Professor of Descriptive Geometry, and Chairman of the Department, was that young lad who was developing equipment and experiments for the Engineering Concepts Curriculum Project. From his list of inventions and other accomplishments Professor McNeary might be considered mainly a research professor. He isn't. He contends that he is a teacher first and foremost. With thirty-seven teachers in his family tree, and thirty-four years of teaching experience under his belt, he has ample evidence to support his contention.

McNeary deals with the foundations of Descriptive Geometry from the opening class session. Topics including Gaspard Monge (the original pioneer of Descriptive Geometry: circa late 1700's), Plane and Analytic Geometry, and graphical problems, (true length, true size, piercing point, etc.), are expounded clearly, with relevance and examples. The basics are clearly important. What makes his classroom unusual? Tools!

Professor McNeary's use of tools constitutes his revolutionary approach. He states in the introduction of the text, *Introductory Descriptive Geometry via Microcomputer*, that "you must recognize that this is not a 'Computer Science' course. It is an Engineering-Graphics course—pure and simple!" The computer has been adapted to many teaching situations. Far too often it is introduced as an advanced logic machine. Professor McNeary introduces the computer as simply a "TOOL". His awareness of the society in which we live and its fast pace are reflected in what he emphasizes: "The computer is a tool. An engineering artifact which is much faster, more accurate, and much more versatile than any previous engineering aid." Most people are aware of this fact, but this educator is practicing it. The success of this method lies in the understanding and application of Descriptive Geometry learned "through the elbow" by some five hundred students per year.

This is not a one-person effort. The course is actually run by a small army of thirteen teaching staff and indispensable individuals. Another unique

Professor McNeary introduces the computer as simply a "TOOL."

quality of the course has something to do with "logging."

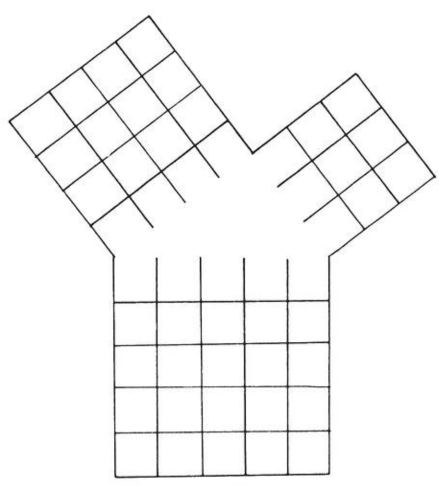
The term logging does not refer to signing on or off of a computer. Instead it refers to the basics of the teaching learning interaction. Professor McNeary firmly believes that the best communication occurs when people sit on a log facing each other. Unfortunately, shaven timber is a little too rustic, even for Wisconsin classrooms. So McNeary settled for a "U"-shaped arrangement which approximates sitting on logs around a campfire.

The reasons for this layout are simple. First, everyone is in the "front row" which promotes discussion. Second, this helps both teacher-student interaction and, more importantly, student-student interaction. No one sits behind someone else! Interaction is also enhanced because students work in pairs: two students to one computer terminal. This increases group effort and teamwork skills and minimizes equipment expense.

The Technical Writing course, GE-397, uses the triple "I" approach: Individuals who have Ideas and Interest. The basic goal is to help students learn communication skills, and this goal is seldom out of sight. It has been taught in General Engineering for ten years. The purpose of the course hasn't changed much over the years. In spite of this there has been a R/Evolution in the classroom. Technical Writing is being enhanced by the use of a "TOOL." Again, the microcomputer! This time it is programmed for word processing instead of graphics.

The word processor is rapidly becoming a standard tool for anyone who would otherwise use a typewriter. It's as important to the engineer as it is to the writer. The word processor is an important step from the typewriter in allowing the user to update and manipulate the written communication, whether it be data reports or text.

The first section of the Technical Writing course made the transition to using microcomputers two summer ago. Professors Don Woolston, and Terry Reynolds were quick to complete the transition. All ten sections of the course are now using both the classroom and the word processing room. The classroom portion is devoted to lectures, presentations, discussions, and group work in the computer portion of the class, the students become familiar with the computer and its word processing capabilities. Outside of class time, the students have access to the computer room six days a week, until 9 p.m.



Originally the computer room had twelve Apple IIe computers that used the Applewriter wordprocessing software. In the process of upgrading the facilities, the Apples were replaced with the same number of IBM-PCs using an improved software package called Volkswriter Deluxe. The computer facility is also unique in the way the computers are interconnected. A switching unit connects the instructor's computer, the twelve student computers, and an overhead video display. The unit allows the instructor to switch what is on his screen onto all the student monitors, or to the overhead display. Similarly, if a student has a question or a good example on her screen, it can be transferred to the other student monitors or to the overhead display. The system, designed by Professor McNeary, has enhanced both instructor and student productivity.

In addition to these two courses, all the other courses in the General Engineering Department together contribute to its success. Is this success accidental? No. Above the striking diversity among the faculty of this Department there exists a common thread: a deep concern for the undergraduate engineering student. Departmental

The success lies in the understanding and applications of descriptive geometry learned "through the elbow" by some five hundred students per year.

goals are planned in five year missions, which are periodically updated. Their pursuit of this goal has been remarkably successful.

From our exploration of the activities of the General Engineering faculty over the last ten years it can be shown that, per full time employee, this staff has produced more new and pertinent material; incorporated more state-of-the-art technologies; and served more students than any other department within the College of Engineering! Their success is not accidental. Some people see the quality of this Department as an ingredient to another goal. A Persian proverb suggests "Thinking well is wise; planning well, wiser; doing well, wisest and best of all." Perhaps those who do best are those who know best!

This is by no means the last R/Evolution in the classrooms of this small building on the west end of the engineering campus. In conclusion, Professor James J. McNeary offers this poem.

All things by immortal power
Near or far
Hidden to each other linked are,
That tho canst not stir a flower
without troubling a star.

—*Francis Thompson*

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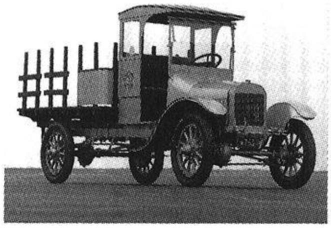

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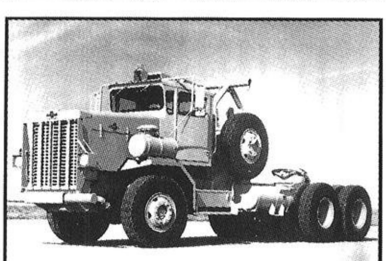

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- application and impact of technology
- social issues regarding technology

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1. Length: 500-2000 words.
2. All entries must orient the reader and be useful to a broad audience.
3. All entries must be typed and double-spaced.
4. Entries will be judged by appropriateness of topic, organization, clarity, and use of standard English.
5. All entries must be turned in to the Wisconsin Engineer mailbox, located on the first floor of the Mechanical Engineering building, by April 15, 1985. Please include name, address, telephone number, and major.
6. The Wisconsin Engineer magazine reserves the right to publish any and all entries.

PRIZES

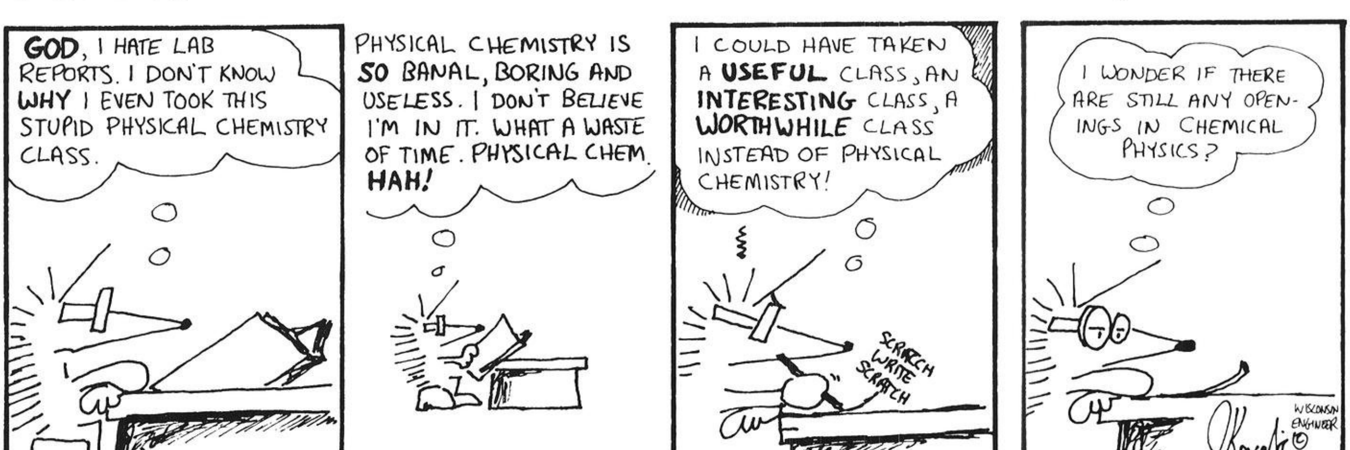
First place: $150.00

Second place: $100.00

Third place: $50.00

If you have any questions, stop by or call the Wisconsin Engineer magazine, Room 101, T-21 (corner of University and Breese Terrace), 262-3494.

WILD LIFE — **By John Kovalic**



Makin' WUPPE

by Chris Olson

Astronomer Kenneth H. Nordsieck has set his sights on the space shuttle.

The 38-year-old associate professor at the University of Wisconsin-Madison was selected to accompany a university telescope on two space flights beginning in March 1986.

The National Aeronautics and Space Administration contracted with the UW to build an ultraviolet telescope as part of a $6.5-million project in 1979. The Wisconsin Ultraviolet Photo-Polarimeter Experiment, called WUPPE, will join similar telescopes made by Johns Hopkins University and the Goddard Space Center, both in Maryland, aboard three space shuttle flights.

"The telescope was home-built entirely at Wisconsin," Nordsieck said. The Astronomy Department, under contract with NASA, operates the Space Astronomy Laboratory. The Laboratory has excellent electronic and optical facilities, which are used to

"Of course, the chance to ride in the shuttle is something you'd not let slip by."

fabricate space flight instruments. Students have the opportunity of participating in space astronomy programs utilizing sounding rockets and the space shuttle. Staff members are directly involved with three of the five focal plane instruments aboard the NASA Space Telescope. Staff and students are also involved in the interpretation of ultraviolet observations of a wide variety of celestial objects made by the International Ultraviolet Explorer satellite.

One payload specialist was selected from each telescope's design team. Riding two at a time, the researchers will take turns on the three flights, with each getting to ride twice. Joining Professor Nordsieck will be Samuel T. Durrance, an associate research scientist in the Department of Physics and Astronomy at Johns Hopkins University. Also selected was Ronald A. Praise of the Computer Science Corporation. Praise developed his research interests in binary star systems while working for the Goddard Space Flight Center.

Nordsieck said he was the chief mover ehind the Photo-Polarimeter, having worked on the project for five years. The device cost about $6 million to build at the UW-Madison laboratory and the total cost of the project is estimated at about $50 million.

Professor Nordsieck said he applied for one of the three payload specialist slots because he wanted to see the tele-

Wisconsin's Professor Nordsieck performs research on shuttle flight with Madison-built UW telescope.

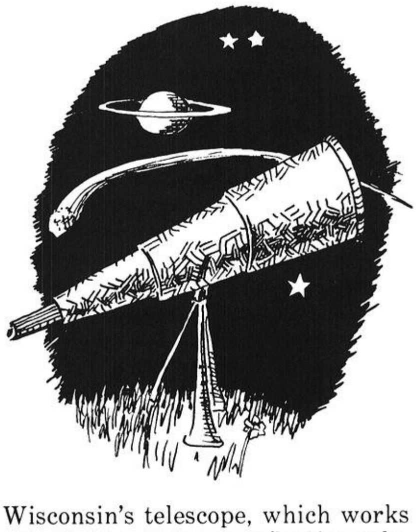
scope work. "Of course, the chance to ride in the shuttle is not something you'd let slip by, especially if you're an astronomer," he said.

"In some cases we have a pretty good idea of what we ought to see. In others, it is pretty much guesswork."

A former UW astronomy professor, Robert Parker, who is now a veteran NASA astronaut, will be the mission specialist responsible for directing the telescopes' general focus.

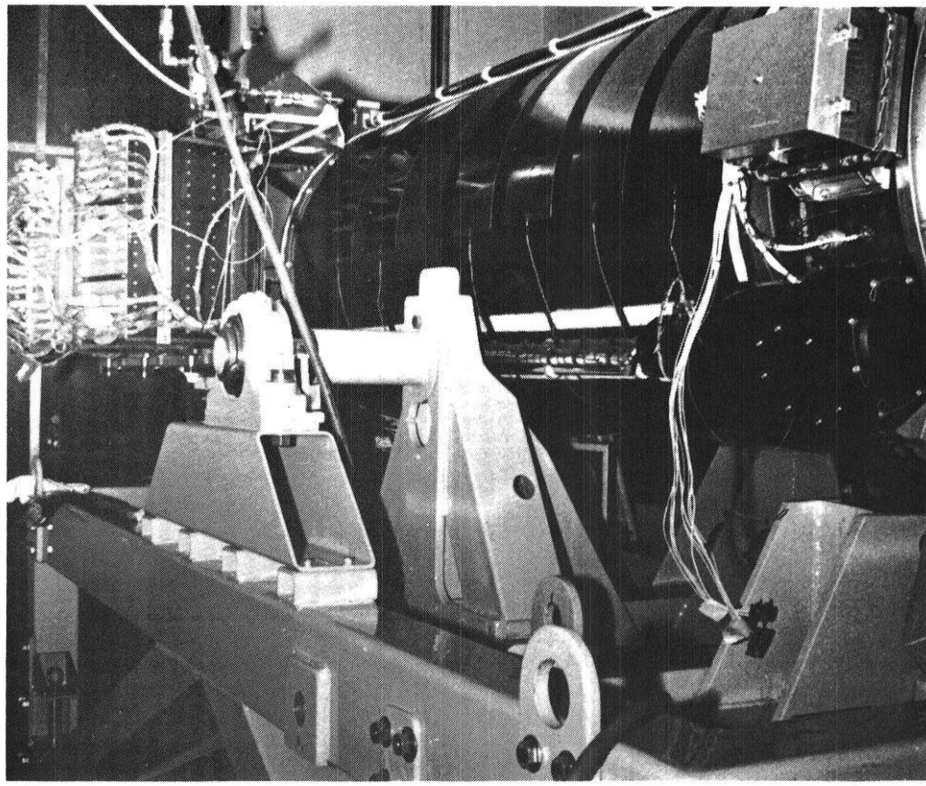
As a payload specialist, Nordsieck will undergo a relatively scant 80 hours of space training. NASA has decided that shuttle travel is safe and anyone in good health and possessing needed skills can be sent. Nordsieck's special skills will be used to focus the delicate instrumentation on 100 selected sites in order to study the surrounding ultraviolet radiation.

The three telescopes will study the ultraviolet light that bounces off the Earth's ozone layer and can't be seen from the ground. Johns Hopkins' telescope will study the extreme ultraviolet waves. The Goddard telescope will take images of the ultraviolet light waves that the other two telescopes view.



Wisconsin's telescope, which works similarly to a common reflecting telescope, will focus on the direction of the ultraviolet waves seen around some objects in space, like comets and stars forming planetary systems, according to Nordsieck.

Scientists hope the experiments will



The space shuttle flight will be the first opportunity for UW astronomy experimenters to observe Halley's comet.

tell them something new about the composition of comets, the formation of solar systems, and the accuracy of current methods of observing space phenomena from the earth.

"In some cases we have a pretty good idea of what we ought to see," Nordsieck said. "In other cases, it's pretty much guesswork."

The telescope will study Halley's Comet when it crosses into the Sun's orbit about 80 million miles away from the shuttle. The famous comet speeds past the earth once every 76.1 years. The last time around, in 1910, astronomers could do little more than gaze at it through telescopes.

For scientists around the world, it will be their closest look ever at the itinerant ball of ice and dust. With Halley's return, as many as four space probes may get a close-up look at the comet.

The plan is for the Japanese and European groups to launch their own missions, although there is a possibility the United States might do it for them, with a more powerful rocket. It is also believed the Russians are working with the French on a joint mission, using Soviet rockets to place French balloons in the atmosphere of Venus. After this mission is completed, the craft would continue on to Halley's comet.

The comet itself is basically a wandering iceball. The nucleus is believed to be ice, dust, and frozen gases preserved from the creation of the solar system billions of years ago. Surrounding the nucleus is the coma, a layer of gases melted as it approaches the Sun. Only about three miles across, Halley's is one of the most spectacular of comets. Its long tail of dust and ionized particles stretches thousands of miles from the small nucleus. The tail, swept by the solar wind, always points away from the sun whether the comet is approaching or retreating, and shrinks away as the comet recedes millions of miles into space.

Scientists hope to compare the data from the nearer crafts and the telescope aboard the low-Earth orbiting shuttle to discover how accurately they have been seeing the comet from a distance.

As 1986 and the shuttle launch grow nearer, we step towards the next age in astronomy. The utilization of ultraviolet radiation will add yet another sense with which we can view the heavens. Expectations loom large for this project, christened "Astro-1." For now, we can only sit and wait to see if the massive monetary investments in the space shuttle program will yield still more dividends for our scientific community. □

Interview Time!

Company Interview Dates

SO YOU WANT A JOB, EH?

COMPANY INTERVIEW DATES

This schedule is the latest up-to-date list of on-campus interviews for second semester. However, it is subject to change; check the bulletin boards in the Placement office, Room 1150, Engineering Building, or call 262-3471 to confirm dates of interviews. Sign-up folders are placed on the rack in the Placement Office one week in advance, and students must sign up by 4:00 p.m. one full day before the scheduled visit. So comb your hair, tie your tie, don't run your nylons and GOOD LUCK!!

FEBRUARY

Monday, 25
- FMC Corporation
- Henkel Corporation
- Madison Gas and Electric
- Joseph T. Ryerson & Son
- Sperry Computer Systems/ Semiconductors
- Travenol Labs

Tuesday, 26
- Barber Coleman
- Data General Corporation
- Evco Plastics
- Procter & Gamble (Manufacturing Mgt.)
- Wisconsin State Government (group meetings)

Wednesday, 27
- Johnson Controls/Control Products (1 of 2)
- Johnson Controls/Globe Union (1 of 2)
- Johnson Controls/Systems & Services (1 of 2)
- Texas Instruments (1 of 2)
- Xerox Corporation

Thursday, 28
- Chicago Bridge and Iron
- Johnson Controls/Control Products (2 of 2)
- Johnson Controls/Globe Union (2 of 2)
- Johnson Controls/ Systems & Services (2 of 2)
- Texas Instruments (2 of 2)
- Toledo Edison
- Wisconsin Dept. of Transportation

MARCH

Friday, 1
- Applied Physics Labs
- Andrew Corporation
- Bell Communications Research
- Eaton/Cutler Hammer
- Gould, Incorporated
- Institute of Paper Chemistry
- Nekoosa Papers
- Racal-Milgo
- Strapdown Associates

Monday, 4
- American Electric Power
- Hughes Aircraft
- MCC Powers
- Marathon Electric
- Mostek
- Motorola (Semiconductor, A2)
- NCR Corporation
- Xicor (1 of 2)
- Motorola (Semiconductor, A2) International

Tuesday, 5
- Lawrence Livermore Labs
- Motorola, Incorporated
- Northern States Power (Eau Claire)
- Sperry Corporation/Computer Systems
- Xicor (2 of 2)

Wednesday, 6
- Amsted Industries
- Battelle Columbus Labs
- Litton Systems
- Ohmeda (Ohio Medical Products)
- Quaker Oats
- Weyerhaeuser Company (1 of 2)
- Whirlpool Corporation
- Peace Corps
- U.S Navy Avionics Center

Thursday, 7
- Boeing Company (Seattle) (1 of 2)
- GTE Corporation
- Intel Corporation (1 of 2)
- Northern States Power (MN) (1 of 2)
- Shure Brothers, Incorporated
- Weyerhaeuser Company (2 of 2)

Friday, 8
- Boeing Company (Seattle) (2 of 2)
- CAI Recon/Optical, Incorporated
- Cray Research
- Foseco, Incorporated
- Intel Corporation (2 of 2)
- MIT Lincoln Labs (open house March 6)
- Northern States Power (MN) (2 of 2)
- Northrop Corporation
- Presto Products

Monday, 11
- Donohue and Associates
- Electronic Data Systems
- Harnischfeger Company (1 of 2)
- Impell Corporation
- Miller Electric Manufacturing
- Oshkosh Truck Corporation
- Snap-On Tools
- Standard Microsystems
- Timken Corporation
- Wisconsin Public Service (1 of 2)

Tuesday, 12
- Harnishfeger Company (2 of 2)
- Ipsen Industries
- International Harvester (Ft. Wayne, IN)
- Litton Microwave Cooking
- Residuals Management Technology
- Rosemount, Inc. (1 of 2)
- Wisconsin Public Service (2 of 2)
- U.S. Army Corps of Engineers

Wednesday, 13
- Advanced Micro Devices
- Application Engineering
- Gleason Works
- Owens Corning Fiberglass
- Rosemount Incorporated (2 of 2)
- Schlumberger Wells Services (1 of 2)
- U.S. Navy (1 of 2)

Thursday, 14
- Aqua-Chem, Incorporated
- Beech Aircraft (Wichita) (tentative)
- Bell Northern Research (ENR)
- Convergent Technologies
- Intergraph Corporation
- Schlumberger International
- Schlumberger Wells Services (2 of 2)
- Federal Bureau of Investigation
- U.S. Air Force
- U.S. Navy (2 of 2)

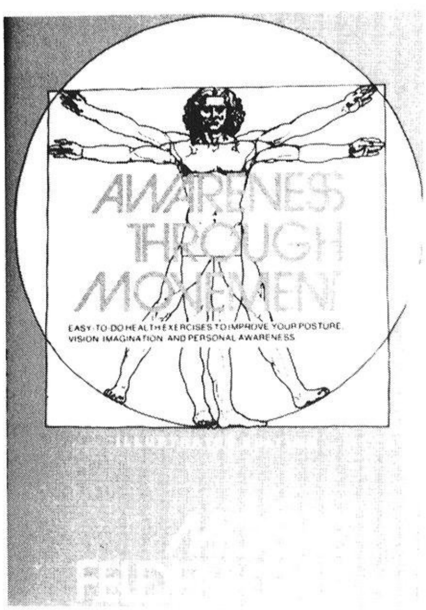
March 16-24: Spring Recess

Thursday, 28
- Analytic Services (ANSER)
- Allied Bendix Aerospace
- Fisher Controls (1 of 2)
- International Hough (Div. Dresser Inds.)
- International Paper Company
- New England Electric (open house March 27)
- Sunmen Products
- Riley Stoker Corporation
- Uarco, Incorporated
- Wisconsin Power and Light

Awareness Through Movement

by Jeaneen Haley

For those of us who are always looking for ways to improve ourselves, *Awareness Through Movement* provides a logical and extremely effective approach to improvement of the mind and body. The author places emphasis on our mental awareness. He suggests before our physical aspects can be changed, we must first realize what our muscles are doing at a given moment and how to alter their movements.



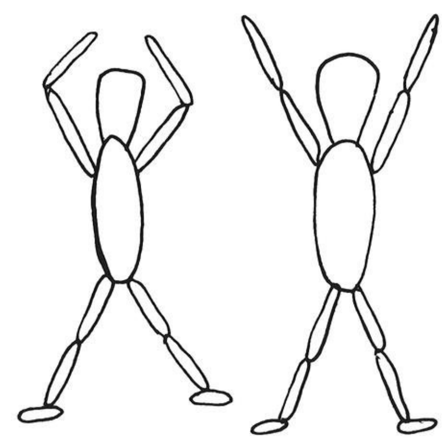
The self-image becomes increasingly important here, as the self-image consists of four components: movement, sensation, feeling, and thought. The extent to which these components are present in an action may vary, but each will be present to some extent. Quite often people don't realize that bad physical habits can easily be altered by feeling the sensation of an unprecise body movement, knowing the correct movement, then executing it until the body has learned the less stressful method.

According to the author, no one's body is truly symmetrical. Therefore, correct posture is all relative to the individual. The author offers a simple mental exercise for becoming conscious of your own body's arrangement. He suggests you lie on your back with your legs comfortably apart, and arms relaxed at your side. Now think of your body in halves—being divided down the middle. Take notice of where each part of your body touches the ground and compare it with the other side. Notice how the hip lies on the ground, and how the heel sets. Does it turn outwards? This process of mental awareness of your body's own symmetry is of the utmost importance when it comes to making muscle movement the least stressful to the body, and eliminating superfluous motions. Once this mental awareness has been achieved, the reader then progresses to the physical applications of this knowledge.

The spine, which is truly the ruler of our body's symmetry, is the first part which to work on. Lie on your stomach with feet comfortably apart, head lying on one cheek, and arms placed above the head, bent at the elbows. See Figure A. Gently lift one arm, pivoting at the shoulder joint only (the elbow will generally be higher up than the rest of the arm.) Finger-tips should be lax; try to attain no tenseness below the elbow. Lift your arm two or three inches off the floor, making each movement separate and complete. Do 25 lifts, then switch arms.

Next, roll over onto your back, feet apart and arms straight above the head and approximately the distance apart that your legs are. See Figure B. Slip your hand under your spine and see how much space you have between the floor and the small of your back. If these exercises are done properly, the gap should be eliminated. Now lift one arm, pivoting at the shoulder. Keep the arm straight and use only the shoulder muscles. Breathing here becomes important; you should be exhaling as you lift, and inhaling as your arm returns to the floor. Do 25 lifts, then proceed to the other arm.

Now it is time for the legs to become participants. Notice the way the leg/hip rests on the floor. Turn your hip gently outward so that the feet are generally pointing away from one another. It is in this position that the arm-leg lifts are to be done. Lift arm and legs simultaneously, remembering to exhale as you lift. Try to achieve the degree of precision in which your arm and leg touch the floor at the same time



Considering the vast number of self-improvement books on the market, "Awareness Through Movement" is in a class by itself.

after each individual lift. Repeat 25 times and switch sides. Next, do the same exercise but with one arm and the opposite leg. Repeat with other side. Remember to do the exercise with proper breathing and simultaneous leg-arm movement. After this is through, relax, arms at sides. Notice the difference in how the body touches the floor compared with before. These exercises provide an immediate awareness of what simple movements can do to reduce superfluous movement.

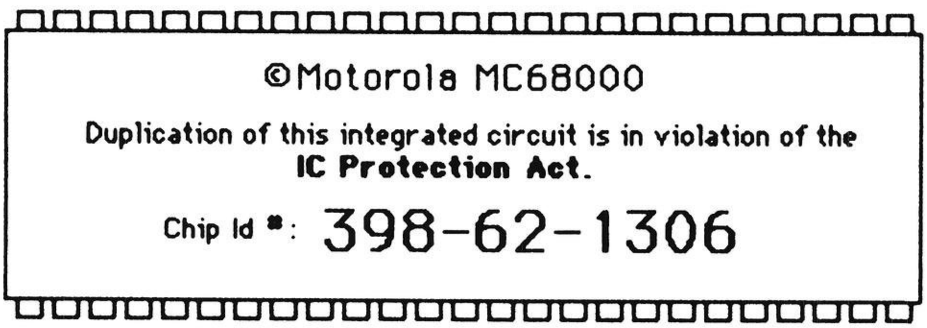
Considering the vast number of self-improvement books on the market, *Awareness Through Movement* is in a class by itself, because of the immediacy of the results. "Awareness is the highest stage in man's development, and when it is complete it maintains a harmonious 'rule' over the body's activities." □

IC Chip Protection Law

by Lisa Peschel

On January 7, 1985, Intel Corporation, a manufacturer of semiconductor memory and microprocessor components, registered the first integrated circuit (IC) protected under the new Chip Protection Act. This act, like copyright law, makes it illegal to copy the topographical patterns on integrated circuits introduced after July 1, 1983. The pattern cannot be reproduced for 10 years after the layout is registered or after the pattern is first introduced. In the latter case the pattern must be registered within two years after its introduction.

Tom Dunlap, Intel's general counsel and secretary, stated that unauthorized chip duplication—"IC piracy"—has been a problem for years, both in the U.S., and in Japan. Dunlap hopes the act will also encourage the development of chips that were previously considered economically marginal. □

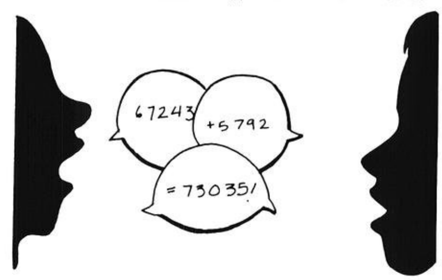


Graphic by Kurt Worrell

Engineers Are People, Too

by A. C. Diehl

"Hi, have you done your 430 yet?"
"Which, 3 or 4?"
"4."
"Yes, I've done 1 & 2 on 4."
"Did you get 225 on 1?"
"No, that's too high; I got 122 for 1 on 4."
"I must be missing a 2 somewhere."



"Yeah, I guess. Did you do 2 on 4?"
"I did 1/2 of 2. I got about 10 to the 6th."
"10 to the 6th! I got 10 to the 5th! Guess **I'm** missing a 10! I'll have to go back to square 1."
"Okay, see you in B103 for 221 at 1:20."
"Yeah, see you." □

Accident Blurbs

Prepared by Schneidman, Myers, Dowling, Blumenfield & Albert Law Firm

What you say **can** hurt you. In a crisis situation, whether it be an automobile accident, an incident involving the police, or other personal crisis, people who under normal circumstances might respond in a calm and collected manner often say things that may come back to haunt them. The following responses were **actual answers** on traffic forms from individuals involved in traffic mishaps:

A truck backed through my windshield into my wife's face.

A pedestrian hit me and went under my car.

The guy was all over the road; I had to swerve a number of times before I hit him.

In my attempt to kill a fly, I drove into a telephone pole.

I had been driving for forty years when I fell asleep at the wheel and had an accident.

I was on my way to the doctor with rear end trouble when my universal joint gave way causing me to have an accident.

As I approached the intersection, a sign suddenly appeared in a place where no stop sign had ever appeared before.

My car was legally parked as it backed into the other vehicle.

An invisible car came out of nowhere, struck my vehicle and vanished.

I told the police that I was not injured, but on removing my hat, I found that I had fractured my skull.

I was sure the old fellow would never make it to the other side of the road when I struck him.

I saw the slow-moving, sad faced gentleman as he bounced off the hood of my car.

The indirect cause of this accident was a little guy in a small car with a big mouth.

What you say in a time of crisis **can** hurt you, at least from a liability standpoint. Your Legal Service Plan attorneys are only a phone call away at 1-800-242-7222 or 414-271-8650. A call for legal advice when you need it may save you from problems later. □

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