From The Chairman

This is my first chance to communicate with most of you since becoming the new chairman of the IOE Department. The opportunity to work with the quality faculty, staff, and alumni at U-M and to be connected with one of the Nation's premier departments of industrial engineering is truly exciting. Your department has a wonderfully bright future, and I will do all I can to make it even brighter.

I have inherited a remarkably well-organized and well-run department from Steve Pollock, who stepped down this summer as Chairman after 9 years of holding, in his words “one of the best jobs in academia.” The Department’s bright future is in large part due to Steve’s superlative leadership.

Let me also invite each of you to visit us when you are in the Ann Arbor area and find out about the many accomplishments of the Department’s students and faculty. Alumni (both current and future) are playing an increasingly important role in the health and vibrancy of educational institutions and their component administrative units. One of our departmental goals is to enhance the quantity and quality of our interactions with you. Your ideas as to how we can better accomplish this goal would be welcomed and appreciated. I look forward to the opportunity to hear from you and to have a chance to meet as many of you as possible.

Let me provide you with some details about the national recognition that the Department has recently (and very proudly) received. The 1987 Gourman Report for undergraduate programs provided the following rankings (with scores) for industrial engineering:

1. Stanford (4.91)
2. Michigan (4.90)
3. U.C. Berkeley (4.84)
4. Purdue (4.79)

For graduate programs in industrial engineering, the 1989 Gourman Report rankings were as follows:

1. Michigan (4.94)
2. U.C. Berkeley (4.93)
3. Stanford (4.91)
4. Purdue (4.90)
5. Wisconsin (4.88).

In their 19 March 1990 edition, U.S. News & World Report ranked graduate engineering schools and departments. Michigan’s College of Engineering was ranked 9th (4th in public institutions behind Illinois, Berkeley, and Texas at Austin), and the
IOE Department was ranked 3rd among industrial engineering departments (behind Georgia Tech and Purdue and ahead of Stanford and U.C. Berkeley). The criteria on which the departmental rankings were based tended to favor larger departments over smaller ones; it is worthy to note that both Georgia Tech's and Purdue's departments are significantly larger than IOE.

I think a confident conclusion that can be drawn from the above rankings is that IOE is clearly one of the two or three premier departments of industrial engineering in the Nation. Given continued faculty and research staff success in attracting R&D support from private and public sources and sufficient support from the College and donors, I am confident that the Department will continue to enjoy an enviable level of success.

It is also important to remark that the Department has continued to exhibit leadership in the national engineering policy arena over the past year through Tony Woo and Jack Lohmann, both IOE faculty who have been on assignment in Washington, D.C., at the National Science Foundation.

A few comments regarding the relevance and future of engineering education, and in particular industrial engineering, are appropriate at this point. The engineering disciplines are meant to address technological issues that are of importance to society, and as these issues change, so must the focus of engineering in order to remain relevant. One goal of engineering education must be to ensure that the Nation's system of engineering education produces engineers capable of successfully challenging our economic and technological competitors in the 21st century.

Although crystal ball gazing is dangerous, there are some things that can be confidently said about the future. Certainly, information science and technology will be playing increasingly larger roles in tomorrow's world, and our students will be competing in a world, not just a national, economy. We are expanding from an economy based largely on production of energy, food and goods to one critically dependent on high-speed computer-based creation, organization, flow and control of information. Emerging technologies are presenting opportunities and problems of increasing scale and complexity. Many problems that have a large technological aspect are invariably linked inextricably with economic, environmental, political, and social concerns.

Perhaps the key to improved productivity, economic growth, social stability, and enhancement of the global environment is technologically enlightened leadership. We will indeed need individuals who have a broad understanding of both current and emerging technologies and of the socioeconomic factors that affect and are affected by them, individuals who can successfully work in groups and are capable of communicating with more than just a technically trained audience.

As we look to our current product (our students) and we examine the process which transforms them from entering student to graduate (primarily our curriculum), IOE is particularly well-positioned, perhaps uniquely so, to contribute to the pool of broadly-trained, technologically-competent leaders who will be well-equipped to face tomorrow's complex problems and their concomitant opportunities.

The current IOE undergraduate curriculum is a very flexible and broadly based curriculum, relative to other engineering curricula; to use Steve Pollock's phrase, "a liberal arts curriculum for a technological age." I might remark that we are embarking on a re-examination of the undergraduate curriculum (we intend to look at the graduate curriculum in the near future) with the intent of increasing its efficiency and relevance in order to prepare our students to better meet tomorrow's challenges.
We are hoping and expecting to receive comments that will be useful in giving direction to this curricular revision from the IOE alumni who attended the Department's very successful 35th Anniversary Celebration (which took place on 19 October). I also look forward to receiving comments from any of you in this regard.

In general, we are interested to hear from you on all subjects of interest and to print observations that you wish to share with your fellow alumni. When you write, we would appreciate your continued support of the Department by lending your financial support to the Department.

If you wish to donate in response to mail or phone solicitations from the College, we urge you to specify that you wish your gift to go to IOE. These gifts are important to the Department's scholarship and fellowship funds, special projects, seminar series, undergraduate student society support, etc., and will be deeply appreciated.

Let me thank all of you for your continued interest in, and support of, the Department. The welcome mat is out whenever you are in the Ann Arbor area, and I look forward to working with you in the years ahead to continue the excellent tradition of engineering education in IOE and at the U-M.

—Chip White
The Alumni Academy Report

The past year has been the most active yet for the IOE Alumni Academy. At the semi-annual meeting held in May 1990, Academy members reviewed the future direction of the organization and summarized its mission with three underlying purposes:

1. To represent alumni and business-industry views to the department;
2. To provide a direct link to the students through alumni participation in academics;
3. To provide a link to the department faculty and chairman for all alumni.

This focus on communications resulted in the formation of several subcommittees, to initiate interactions with each of these IOE groups. Members of the Academy's Alumni Subcommittee worked closely with the IOE Department representatives in planning and execution of the IOE 35th Anniversary Celebration which took place October 19. This event was an important first step in providing the Department with a link to the entire alumni, and we look forward to being involved in similar activities again in the future.

The Academy continues to support the Senior Projects Course (IOE 424) by providing project sites for the students. Students taking this course must work with their site sponsor to define and make recommendations for solving a "real world" manufacturing problem. Sponsorship involves coming up with a challenging problem that is manageable within a single semester and then providing students with access to data and ongoing guidance. At the end of the course, the students make a formal presentation. This type of design and practicum experience will be a requirement for graduation beginning Fall semester 1990. Anyone wishing to provide a project site should contact Pam Linderman (313-764-3297) for further information.

The next meeting of the Alumni Academy is Saturday, May 11, 1991 at the IOE Building on North Campus. Alumni and faculty are all encouraged to attend, find out what is happening with the Academy, and renew acquaintances with friends. Alumni interested in membership in the Academy can contact Mike Zonnevyle (Secretary) at (313) 487-6122, George Perrett (President) at (313) 769-5900, or Jeff Liker, Faculty Liaison at (313) 763-0166 for more information.

—Monica Fox, Vice President
Alumni Visit Campus on IOE 35th Anniversary

Walton Hancock Conversing with Robert Brown

Krista Bergin, Steve Pollock and Marlin Thomas
IOE 35th Anniversary

George Ferrett, Alumni Academy President (2nd from left)

Richard Wilson Greets Former Students
The Student Organizations

Alpha Pi Mu

Alpha Pi Mu has been very active this year in sponsoring events focused on improving the image and understanding of industrial engineering as a discipline. As the national IE honor society, APM has held two important annual events intended to inform IE students and prospective IE students of options in both undergraduate and graduate studies. The first of these was the "MBA vs. MSIOE" night. Professor James Bean of the IOE department and Natalie Grinblatt, assistant director of Admissions and Student Services from the Michigan Business School each presented the advantages and requirements of pursuing a master's degree in their respective schools. The other event, "IOE Options Night", was targeted towards informing first year IOE and undeclared engineering students. In this presentation, five IOE professors were invited to talk about their areas of specialization including topics such as types of jobs, job prospects, and specific classes that are applicable to the field. The areas covered included operations research, human factors/ergonomics, manufacturing, management, and information processing. Also, APM co-sponsored a booth with IIE in the Engineering College’s “Tech Day”, in which high school seniors were invited to North Campus to explore options in each of the engineering disciplines.

An important activity that APM has undertaken in order to help the community of Ann Arbor is the "Cans for Kids" project. Members devoted considerable time and energy this semester to the building and maintaining of a box in the EECS Atrium to collect returnable cans. Proceeds are donated to the Ozone House, and the Ann Arbor orphanage. A major philanthropic event is also being planned for Winter Term.

Other activities planned for next semester include the "Resume Drop" service. This is designed to help APM members get summer internships that provide experience critical to helping them both make career
decisions and also make themselves more attractive in today's competitive job market. APM will also continue to bring in guest speakers to discuss a wide variety of topics pertinent to IOEs.

—William Chuang

The American Society of Safety Engineers

In 1989, the American Society of Safety Engineers student group was added to the IOE department. The group was formed under the sponsorship of the Greater Detroit Chapter of ASSE, which is a national professional society for people working in safety and health fields and related disciplines. The focus of the student group, sponsored by Professors James Miller and Monroe Keyserling, has been to expose students interested in a career in safety to the many facets that the field has to offer. This has been accomplished through plant tours and guest speakers dealing with topics ranging from ergonomics to product safety and liability.

Next semester, in order to diversify A.S.S.E.'s outlook on the field of safety, joint meetings and presentations are being planned with the Industrial Hygiene Society, the Environmental Law Society, and other similar student groups. These meetings and tours have proven quite popular with student members of A.S.S.E., not only for their interesting subject matter, but as a source of careers in the field. Several students have received job offers through the society. As a professional society, A.S.S.E. continues to offer valuable resources to its student members.

—Mat Saleski

Institute of Industrial Engineers

The student chapter of the Institute of Industrial Engineers (IIE) grows stronger and more alive each day. The officers have dedicated this year to gaining active membership, as well as providing many activities and events for the entire IOE department. We have been very pleased with our successes thus far.

At least thirty student members are very active in IIE, an increase of about twenty people from last year. New committees and chairpersonships have encouraged this involvement. Responsibilities are diverse, ranging from attending IOE curriculum committee meetings to submitting an article for the RAG, the IOE student newsletter.

A service that IIE provides IOE undergraduates is information about possible careers. Luncheons and other gatherings are an almost weekly function to provide future job information for students. New this year will be an "IOE Career Fair" where U of M Industrial Engineering alumni will talk about the career their degree led to. In our "Summer Job File" we compiled information on many students' internships. This file also serves as a complement to our job description guide, a collection of the entry level position and contacts at every IOE recruiting company that comes to the Engineering Placement Office. A "plant trip" to the U.S. Post Office in Detroit gave insight into another way our Industrial Engineering skills may be applied.

Faculty/student relations and social gatherings are other priorities for the organization. In order to instill better communication between the faculty and students, we will be holding an "IOE Curriculum and Undergraduate Program Luncheon" during the winter term, where faculty and students may discuss issues of concern. We also would like to put together an IOE stu-
dent yearbook, with pictures, which will promote recognition of fellow classmates (or students), as well as spread the IOE name around campus. T-shirts sales have served as a fund raiser to support our Happy Hours and other social events.

We are always open to ideas, speakers, and new members. Our new "office" in room 225 IOE Building, as well as the undergraduate office (240 IOE), has posted flyers and membership forms. Please feel free to visit or write to me in care of the IOE Department.

—Julie Beusterien, President

Operations Research Society

The University of Michigan’s student chapter of the Operations Research Society of America (ORSA), is a diverse group of both graduate and undergraduate students. Since our re-establishment at the University of Michigan last year, we have concentrated on solving OR related projects, and promoting interactions between students, faculty, and staff.

Presently, we are working on an optimization problem concerning the scheduling of classes in the IOE department and are investigating the use of expert systems to solve this problem. On a more social level, last month we held our 2nd Annual Putt-Putt golf tournament with the Electrical Engineering and Computer Science Honor Society. For next semester we are planning our 2nd Annual bowling tournament. By sponsoring both of these activities we hope to acquaint students with faculty and staff. The society meets weekly on Friday afternoons and always welcomes new students and their ideas. The faculty adviser is Professor Srinivasan.

Note: The student groups are always interested in having alums return to campus and present a short luncheon topic about their company or current topic in the area.

Any alumni wishing to contact any of the student organizations may do so through Jolene Glaspie at (313) 763-1332.

Program in Occupational Safety Engineering

The IOE graduate program in Occupational Safety Engineering has received two grants from the National Institute for Occupational Safety and Health (NIOSH) totaling $150,000 for the 1990-91 academic year. While funding for these competitive grants has been reduced by the government in recent years, the IOE department continues to receive the largest award in the nation among all competing safety engineering programs.

NIOSH grants are used to support the training of Masters, Ph.D., and post-Doctoral students who plan professional or research careers in Occupational Safety and ergonomics. Trainees receive full tuition and a monthly stipend to partially offset educational and living costs. In addition, the grant supports library and laboratory facilities in the IOE Building. Five IOE graduate students are appointed as NIOSH trainees this year.

For additional information on this program and current students contact Professor Monroe Keyserling.

Woo Receives Fulbright Scholar Award

Professor Tony C. Woo, is a recipient of the Fulbright Scholar Award for 1990-1991. He will be conducting research on Precision Engineering and Mechanical Tolerancing at the Norwegian Institute of Technology, in Trondheim, Norway next summer. As a Fulbright Scholar, he will also be visiting other research centers in Europe and Asia.
to assess their capabilities in manufacturing research.

The Fulbright Program invites competition from fields such as American History, American Literature, Journalism, Education, Engineering, Linguistics, Law, Music and Political Science. Each application is reviewed by a national panel then by an international panel. Awards are given in lecturing or research.

The Department is proud to have Dr. Woo as the first Fulbright Scholar in the College of Engineering in the past fifteen years. We wish him every success in his future endeavors.

Grant From Ford Motor Co. Has Goal of Controlling Physical Stress in Plants

The Center for Ergonomics is beginning its second year of a four year grant from Ford Motor Company. The 1990-91 funds will support six ergonomics research projects geared toward minimizing physical stress on the job.

—Creating design guidelines for workstations where hand tools are used.
—Developing faster, more accurate methods of entering worker postures into CAD (computer-aided design) systems.
—Refining methods to measure hand force in the use of material handling devices and analyzing the biomechanics, energy expenditure and time required by the different devices.
—Evaluating and measuring a variety of postures in manufacturing operations.
—Studying the effects of poor ergonomic design on product quality.
—Developing and evaluating job analysis procedures to identify ergonomic problems in the workplace.

"The grant from Ford Motor Co. provides a means by which U-M faculty and students can focus their intellectual energies on manufacturing problems that are critical to the automotive industry," says Don B. Chaffin, director of the Center. "We have had a long and successful collaboration with Ford Motor Co.," he adds, "and are pleased that they are continuing their generous support of our research."

John H. Triebwasser, Ford's director of occupational health and safety said that: "We recognize The University of Michigan as a research leader in the field of occupational ergonomics and want to encourage the University to continue and broaden its work."

"In association with the University, Ford and the United Auto Workers have already conducted several pilot projects in the 1980s, and have been working together to make ergonomic changes called 'fitting jobs to people' in our plants," he added. "We believe such changes not only will help reduce employee injury and illness, but will serve as models for all of American industry. This work with the University will facilitate the movement of ergonomics from the plant floor to the engineering processes involving the future designs of our facilities and products."

Chaffin noted that application of ergonomics principles can reduce the stooping, bending, twisting and reaching that can lead to cumulative trauma injuries such as tendonitis, carpal tunnel syndrome and back strain, and an effective ergonomics program can reduce the costs of worker injury, illness and absenteeism by at least one-third.

Faculty Focus

James Bean continues to direct a large grant from the U.S. Department of Education to provide fellowships for students in all areas of the department.
John Birge was a Visiting Fellow in the School of Mathematics at the University of New South Wales, Sydney, Australia, during the summer of 1990. He and Katta Murty have proposed to host the 1994 International Mathematical Programming Symposium in Ann Arbor. The site selection committee for this event will either choose Michigan or Georgia Tech sometime in early 1991.

Yavuz A. Bozer continued his work on material flow systems through his NSF Principal Young Investigator’s grant, and two grants from the General Electric Co. and General Motors. The GE project is concerned with multi-floor layout and location-allocation models for vertical handling devices such as reciprocating conveyers. The GM project is concerned with developing good participations for tandem AGV systems. He continues to serve on the College-Industry Council on Material Handling Education (CIC-MHE).

Don Chaffin was honored with the very prestigious Paul M. Fitts Award by the Human Factors Society. The award was presented at its October 1990 annual meeting in Orlando and is given in recognition of outstanding contributions to the education and training of human factors specialists. During his 22 years in the field of industrial ergonomics and biomechanics Chaffin has directed more than 24 students in their doctoral studies, 17 of whom have pursued academic careers on the faculties of universities in the United States and abroad.

Walton Hancock has completed his tenure as Associate Dean and director of the College’s Center for Research on Integrated Manufacturing. This year he is serving in the William Clay Ford Professorship of Product Manufacturing.

Monroe Keyserling is on sabbatical during Fall 1990 and will return to the department in January. He is spending the sabbatical at the School of Public Health where he is collaborating with faculty and students in the preparation of several manuscripts in the area of occupational safety and ergonomics. He is presently involved in two research projects sponsored by Ford Motor Company; one is concerned with evaluating ergonomic stresses in the workplace and the second is concerned with predicting posture during materials handling tasks such as lifting, carrying and pushing. He continues to serve as the Director of the Occupational Safety Engineering Program which received two five-year training grants from the National Institute for Occupational Safety and Health effective July 1, 1990.

Bernard Martin is a new assistant professor in the department, joining us from France where he recently completed a "Doctor of Science". His research interest is focussed on the study of human sensory-motor control systems. Vibration-induced perturbations are used to analyze the functional aspects of the different neurological systems involved in movement control. The occupational aspect of vibration exposure is also of concern in these investigations. Another area of investigation is the quantification of visual fatigue. Professor Martin is teaching IOE 533 Fall term.

James Miller has followed up his book Instructions and Warnings (1990) with research in product information systems. This involved the design and user testing of warnings and consumer instructions on a diversity of products such as alcoholic beverages, soft drinks, flammable adhesives, recreational boating equipment and industrial cleaners. The research is supported by private companies and manufacturing organizations. He has also been lecturing in Europe and the US on his recently released scholarly art history book Vincent and Theo Van Gogh: A Dual Biography. This book has been reviewed in several publications, including a front page feature in the New York Times Book Review (August 12, 1990).
Katta Murty has been working on iterative methods for large systems of linear inequalities, with graduate student Kai Yang, who is expected to graduate soon. Such systems arise in image reconstruction and several other applications. They developed new methods called surrogate constraint methods that have the advantage of being amenable to massively parallel implementations, which seem to work very well.

Steve Pollock is back to a regular routine of teaching and research. He and PhD alum Jeff Alden are excited about a method they are developing for GM which uses machine monitoring in a “predictive maintenance” strategy. He is also co-investigator, with Tony Woo, on an NSF pursued project that is combining the fundamentals of statistical deviation theory with geometric modelling in order to analyze and synthesize tolerance-assignment decisions.

Medini Singh is a new assistant professor in the production and operational systems area. He received an M.S. and a PhD in industrial administration from Carnegie Mellon University. His research focuses on planning and control decisions in manufacturing systems. He is examining issues ranging from cell control and design to multi-plant coordination and logistics. His current research activities include the economic analysis of investment decisions in flexible manufacturing systems, job prioritization and release control in VLSI fabrication lines, and production policies for multi-stage system with uncertain yields.

Robert L. Smith is leading the Traffic Modeling group of the Intelligent Vehicle Highway Systems Program at the University of Michigan. They are developing models and algorithms to assist in Advanced Driver Information Systems. These are technologies to provide route guidance for drivers to reduce congestion and delays using existing freeways and surface streets. He is also directing a project under contract with the General Motors Systems Engineering Center to help with vehicle design through global optimization.

Tony Woo has returned to the Department after having served for three years as Program Director at the National Science Foundation (NSF) in Washington, D.C. where he was also awarded for Outstanding Performance for each of the three years there. While he was with the NSF, he has maintained his duties at the Department by offering a course each of the six terms and counseling undergraduates and Ph.D. students.

Candace Yano is continuing research on scheduling and inventory problems, focusing on issues of coordinating schedules across multiple departments or plants. This work is being supported by a gift from Ford Motor Company. She is also continuing work on several other topics, including production control under random production yields, models for analyzing the cost of product diversity, and transportation planning for just-in-time systems.

Co-appointment, Visiting, and Adjunct Faculty

Co-Appointment Faculty

These faculty participate in our department’s teaching and research but have a primary affiliation with another University department:

Thomas Armstrong, also Associate Professor of Industrial Health teaches IOE 433 Fall Terms.

David Kieras, also Associate Professor of Technical Communications teaches IOE 333 (Human Performance).
Adjunct Faculty

Our adjunct faculty have their primary employment outside the university. They bring to the students the realities of the outside world in the selection of courses they teach for us. We are interested in other alumni in the area who might also be willing to serve in this capacity.

Richard Coffey will teach IOE 481 (Hospital Systems) during Fall and Winter terms.

Gary Baker and Andy Crawford are co-teaching an IOE 491 Special Topics course on Entrepreneurship. Andy is President of Ascott Corporation, Ann Arbor. Gary is President of Concord Companies, Inc. and a principal in numerous real estate partnerships.

Robert Hancock, Manufacturing Engineer, Ignition Engineering Dept., Ford Motor Company taught IOE 463 (Work Measurement and Prediction) during Winter term ’90.

Alumni News

This news is from alumni responses to the Fall 1989 IOE Newsletter.

Randall L. Albert (MBA ’86, BS ’82) is a Partner with Dannemiller Tyson Associates, Inc., a management consulting firm in Ann Arbor.

James W. Bishop (BSIE ’54) is Manager of Strategic Collaboration for Digital Equipment Corporation. He is responsible for establishing strategic relations with universities, government agencies, consortia, consultants and professional societies.

William Brinkerhoff (BS ’87, MS ’89) is with American Cyanamid and is responsible for production scheduling for pharmaceutical manufacturing.

Charles K. Callam (BS ’89) is a Management Engineer at St. Joseph Hospital.

David M. Carlson (Ph.D. ’75) was the recipient of the Partners in Leadership award given annually by the Society of Information Management. The award recognized the success of K mart’s massive retail automation programs expected to reduce K mart store expense by $300 million annually. Dr. Carlson has served as K mart’s Senior Vice President of Corporate Information Systems since early ’89.

Catherine Healy Creech (BS ’89) has joined Smith, Hinchman & Grylls Associates as a Graduate Engineer. She is currently contributing to a new auto plant layout for Chrysler.

Janice L. Hall (BS ’84) completed her MS at Stanford University in ’86 and joined Benham Capital Management Group as a senior Research Associate. She has responsibilities associated with quantitative research, product development and also strategy evaluation.
Paul A. Dolan (BS '88) is employed by Bain & Company, a management consulting firm in Boston. There he is an Associate Consultant involved with data collection and strategic planning.

Thomas A. Douglas (BS '69 and MBA) is EDI Project Manager for Sears Technology Services.

Howard Estes (BS '73) is a Senior Design Engineer with Chrysler Jeep and Truck Engineering.

John F. Kwant (BS '87) is a Commodity Analyst for General Motors, C-P-C. His current area of work is in manufacturing cost analysis and in-house consulting.

Steve Kuciemba (BS '87) is a Human Factors Engineer at GM Tech Center where he is participating in human factors applications to compact cars.

David W. Nelson (BS '72) is a Vice President and General Manager for Mannesmann Demag where he manages to material handling system division.

Robert W. Pethick (BS '84) finished his MBA at the University of Chicago in '89. Formerly he was with General Motors in Flint before returning to school. He is now a consultant with A.T. Kearney where he does strategic management consulting in the manufacturing area.

Lynn T. Rayle, Jr. (BS '63) has responsibilities for manufacturing planning systems at Whirlpool where as Manager of Manufacturing Systems.

Jim Robison (BS '82) has been promoted to Vice President of the Carman Group, a firm which specializes in the consulting and teaching of total quality management concepts. He urges alums interested in these approaches to call him at (214) 867-5089.

Leonard A. Sholtis (BS '71) has assumed the role of Plant Manager at Hindes Industries. Previously he was Director of Engineering Services at La-Z-Boy Chair Company. Since 1980 he has also regularly taught a business policy course at Eastern Michigan University.

Kevin Stout (BS '80) is a Senior Manager for Ernst & Young and is involved in management and systems consulting for various manufacturing companies.

David P. Tuck (MS '81) is a Technical Analyst with Exxon Central Services where he performs statistical modeling on energy commodity pricing behaviors.

Jon D. Veldman (BS '83) completed his MBA at Ashland College in '87. He is now a Senior Manufacturing Engineer at General Motors Delco. His responsibilities deal with computer based project management and plant maintenance as now being applied to a new GM plant in Cadiz, Spain.

Frank C. Watts (BS '86) was promoted in September 1989 to senior consultant at Andersen Consulting, a strategic business unit of Arthur Andersen & Company. He is currently working as a systems analyst for Andersen's mid-range manufacturing and distribution software packages.

—James M. Miller, Editor