Job Demand for Engineers at All Levels Has Presented A Paradox in Enrollment

On the surface, enrollment this fall at most engineering schools is a paradox: undergraduate admissions increased while the number of graduate students declined.

WU's School of Engineering and Applied Science is no exception. This fall, there are 555 undergraduates, an increase of 27; graduate students total 318, a drop of 49. (Last week's Record had one error in its general WU enrollment story, which failed to note a new method of grouping engineering undergraduates; this reorganization will be explained later.)

The reason for the apparent paradox may be traced to the economy. During the past two years, Dean James M. McKelvey pointed out, industries have been hiring engineers with degrees at all levels, undergraduate and graduate. Jobs have been so readily available—in fact, there is a shortage of engineers to students with bachelor of science degrees that they are deciding to put off, or to not get master or doctor of science degrees. "Most of these students probably know that in the long run, engineers with advanced degrees will secure the more responsible and better paying jobs," Dean McKelvey said. "When jobs are available now, it's easy for students to rationalize that they will return to school later on to complete an advanced degree."

Dean McKelvey explained that the previously mentioned reorganization in the WU Engineering School is partially based on an educated guess that more and more students will eventually opt for a coordinated program of studies leading to both bachelor and master of science degrees. To pave the way for this course, the School has grouped its third and fourth year undergraduates in its graduate or professional division, the Sever Institute of Technology. "Right now, this is little more than an organizational change," Dean McKelvey said. "But in the future, we plan to make curriculum changes which will offer the strongest possible three-year program for the third-year student who decides to take a master's degree."

To explain the current demand for engineers at all degree levels, Dean McKelvey pointed to three trends: "In the past couple of years, general industrial expansion has greatly increased. In response to the energy crisis, the power industry is planning more facilities. The environmental problem also has been an important factor. More engineers are needed to help meet governmental regulations to protect our environment." He recalled that three years ago, the demand for engineers was low and enrollment dropped at engineering schools; so, today fewer engineers are being graduated "to meet what is really an acute shortage."

If men had continued to enroll at the rate women have over the past few years, there wouldn't be a shortage. WU's current 74 women undergraduates represent a 70 per cent increase over the 1970 figure. About 20 per cent of the freshman class are women, compared to an average of one per cent in the 1960's. According to a Society of Women Engineers survey, WU, Northwestern, and Vanderbilt are among the top schools in the number of women enrolled.

Additional Lighting, South 40 Security Implemented at WU

Additional sidewalk and parking lot lighting for the Hilltop campus is scheduled for completion by mid-November, according to Assistant Vice Chancellor Robert Reinhardt.

"People feel insecure with our present levels of lighting," Mr. Reinhardt said, "and that's reason enough to increase the levels." The improved sidewalk lighting will consist of new 24-inch globe lights installed atop the old concrete poles along the sidewalks from January Hall to the Forsyth underpass. Mr. Reinhardt said that the new lights are four to five times brighter than the old lights. New metal arc lights on steel poles will be installed in the parking lots from Monsanto Laboratory east almost to Brown Hall. Mr. Reinhardt said that no additional lighting is planned for the South 40 parking lots, as the original incandescent lights were already replaced with brighter mercury-vapor lights about five years ago.

Mr. Reinhardt added that "although there was a 15 per cent increase in campus crime in the first six months of 1974, there is no indication that the increase is due to inadequate lighting. Bicycle and vending machine thefts are the most common campus crimes. There have been no reported rapes on campus since November, 1971, and the few crimes against persons which have occurred were ordinarily minor altercations. We had two such reported incidents in September."

Lt. Ronald Schuchardt of the Campus Police said that additional campus police have been activated to night duty, and that a scooter is being used to patrol the South 40 in the evening. He also said that a student auxiliary escort service was implemented last Saturday. The service is primarily for the dorm area, but does extend to Olin Library. Persons who want more details on the auxiliary service should call Assistant Vice Chancellor Paul Smith's office at ext. 4998.

Lt. Schuchardt offered a few sugges-

(Continued on page 2)
Professor deCharms Outlines Theory Of Motivation Among School Children

By King McElroy

Research by Richard deCharms, professor of education at Washington University, has shown that many children can be pawns in the environment of the traditional elementary school.

For the past decade, Professor deCharms, in the Graduate Institute of Education at Washington University, has been doing research on what motivates children to learn.

"A child who does not actively engage his environment is a pawn to it," he said. "And in many cases, the children are pawns because teachers dominate them. On the other hand, if teachers have no influence, the result is chaos."

Learning is high in classes where teachers and children work together in a spirit of cooperation, he said.

"Where both teachers and students share responsibility for the activities in the classroom, both can have a feeling of purpose and be properly motivated," he said. "In terms of my theory, both students and teachers can have a feeling of personal causation."

"Motivation is not an objectively observable thing," Professor deCharms asserted. "It is personal causation. Some notion of causation is necessary in science, yet the philosophers find the concept impossible to reconcile with objectivity. I had to go back to the philosophy of the early nineteenth century to find a concept of cause on which to base a theory of human motivation."

"My theory of motivation suggests that the human conception of motivation derives from the experience of being a cause—not from some objective knowledge of causation. Some people feel more effective than others and those who do are more productive and more satisfied. Children experience the immediate effects of their behavior. What they must learn is the long-term effects so that they can connect their behavior to those remote but desired effects."

Professor deCharms has used his theory in tests at the Graduate Institute of Education and with teachers and elementary school pupils to demonstrate that increased feelings of personal causation help people to be more productive and help children in their school work.

Each year Professor deCharms and his colleague, Professor Dennis Shea of the Department of Sociology, conduct a seminar for teachers designed to share ideas about motivation and to learn from the teachers how to make the ideas most useful in the classroom. One technique is to use simple games to help teachers experience their own motives. In one game they are first allowed to do anything they want and then be strictly controlled by a "teacher" so that they feel like pawns.

In another one, a person is blindfolded and asked to make a large stack of blocks. A second person can help him verbally but not physically. Professor deCharms says, "In this situation you find that you appreciate some help, but if your actions are completely controlled you feel like throwing the blocks at the person who is controlling you. Teachers soon begin to think about how much control is needed and that too much will stifle motivation in their pupils."

Security

(Continued from page 1)

tions for all persons walking or driving on the campus at night. "Avoid dark, vacant areas. Never walk alone; use the buddy system. When dropping friends off at a dorm or other building, either watch to see that they get inside safely or walk them to the door. Park in lighted, designated parking areas. Lock car doors and roll up windows, and look into vehicles before entering. Report any suspicious activity to the Campus Police immediately."

Mr. Reinhardt said that three years ago the Board of Trustees' buildings and grounds committee recommended, among other improvements, spending $50,000 per year for five years on additional campus lighting. However, until this year there was no budget for the lights.

He added that the planning of campus renovations such as the lighting projects has been supported by a 3-year, $75,000 grant from the St. Louis Regional Planning and Construction Foundation. He said that the architectural firm of Hellmuth, Obata and Kassabaum is designing a master plan for improved campus lighting so that the University will be able to move quickly when additional funds are available.

$60,000 Raised for Arthur Hughes Lecture Room

Eighty alumni, former students, faculty and friends of Arthur L. Hughes, Wayman Crow professor emeritus of physics and consultant in physics to the Mallinckrodt Institute of Radiology, have contributed almost $60,000 to a fund for the renovation of a Wayman Crow Hall lecture room named in honor of Professor Hughes.

Many of Professor Hughes's former students have won distinction as scientists and educators including Lee A. DuBridge, president emeritus of the California Institute of Technology. On Professor Hughes's eightieth birthday, DuBridge wrote: "I can think of no more wonderful place to have begun my career in physics than with you in your department in 1928."

Professor Hughes, who celebrated his ninetieth birthday in December, 1973, told guests at a party in his honor at that time that he would be glad to have them join him for his 100th anniversary in 1983 if they were still alive and ambulatory.

ANNOUNCEMENTS

MRS. IRENE THIELE, receptionist and appointment secretary at the WU School of Dental Medicine’s clinic, retired Oct. 24 after a 44-year career at the University. Mrs. Thiele worked in the Treasurer’s Office on the Hilltop campus for seven years, then joined the clinic as a cashier. She held that position until 1966, when she assumed her most recent duties.

THE OFFICE OF CAMPUS PROGRAMMING will offer a series of six free midnight concerts at WU beginning Saturday, Nov. 2. The series will offer a variety of music ranging from classical to jazz and will be performed by Bruce Berri, a graduate of WU’s Music Department. The Saturday concert, which is in the Women’s Bldg. Lounge, will feature music for one piano-four hands, played by Mr. Berri and Ms. Melanie Harvey, a music department senior. The program will include works by Rachmaninoff, Debussy and Mozart. Call Barry Bergery at 863-0100, ext. 4996 for details.

ANDREW J. EATON, WU Director of Libraries, who has returned to campus after a two-year leave of absence as a Fulbright Lecturer in Teheran, now has responsibilities in the areas of training for librarianship, interlibrary cooperation and fund-raising. He will coordinate the present University College course offerings in library science and study other ways in which WU might increase educational opportunities for St. Louis area library personnel. William H. Kurth, University Librarian, serves as chief executive officer of all hilltop libraries and library personnel. William H. Kurth, a graduate of the University of Illinois, is responsible for policy development and management. He serves as liaison between the libraries and the central WU administration.

THE WU FEMINIST COALITION will sponsor a symposium on rape prevention from noon-5 p.m. Sunday, Nov. 10 in the Women’s Bldg. on campus. The program will include lectures, films, and self-defense techniques. Call Kathy Birk at 727-5922 for details.

The WU Record is published weekly during the academic year by the Office of Information, director, Roger Signor; editor, Kathy Pearson; contributing editors, Dorothy Brockhoff, King McElroy; calendar editor, Anne Hallett. Photographs by Herb Weitman, Rick Levine and Gail Cisna. Address all communications to the editor, Box 1142.

Named Scholarships
Go to 15 Freshmen

Fifteen entering students at Washington University have been awarded special scholarships named in honor of five illustrious faculty members, one of whom, George Mylonas, is still alive and active as a researcher. These full tuition awards, which also include a stipend, are competitive and given to the most qualified of applicants, all of them top high school students.

Four members of the class of 1974-75 received Arthur Holly Compton Science Fellowships. They are: Dennis H. Caplan of Albuquerque, N.M.; Peter Hart Heinicke of Elgin, Ill.; Stephen H. Lockhart of St. Louis; and Edward F. Wood of Kansas City, Mo. The Compton Fellowships are named in honor of the late Nobel Laureate Arthur Holly Compton, a member of the faculty from 1920-23, 1954-1962 and Chancellor from 1945-53.

Fred Conway Scholarship winners are Gail Cadden, Woodstock, N.Y., and Elizabeth Jennings, Wichita, Kan. The late Fred Conway, nationally known muralist and easel painter, was a member of the School of Fine Arts faculty for more than 50 years.

The four 1974 Langsdorf Fellows are: Andrew Bursky, Indianapolis, Ind.; Leona Chen, Milwaukee, Wis.; Kenneth D. Noel, Boise, Idaho; and Ira C. Specter, Allentown, Pa. The late Alexander S. Langsdorf was Dean, School of Engineering, 1910-20, 1928-48.

Two students were selected as winners of the Arnold J. Lien scholarship competition. They are Stephen Eide, Minneapolis, Minn., and Sara L. Johnson, Cedar Rapids, Iowa. The late Arnold J. Lien, head of the Department of Political Science from 1924-52, made it a custom to provide, in confidence, financial aid to students from his personal funds.

The three George E. Mylonas scholarship winners are: Neil B. Caesar, Philadelphia, Pa.; Edna Hayes Harrison, Germantown, Tenn.; and Elizabeth G. Knoll, Lincoln, Nebraska. George E. Mylonas, one of the world’s leading Greek archaeologists, headed the Department of Art and Archaeology from 1937-1964. Now residing in Athens, the noted authority on Mycenae is Rosa May Distinguished University Professor Emeritus in the Humanities.

Most of the 50 states are represented at Washington University in these general proportions: New England, 5 per cent; Mid-Atlantic, 27 per cent; North Central, 25 per cent; South, 9 per cent; Southwest, 7 per cent, West, 3 per cent, and Missouri, 24 per cent.

RECOGNITIONS

JEAN M. PENNINGTON, director of Continuing Education for Women at WU, has been named to the steering committee of CAEL (Cooperative Assessment of Experiential Learning), a joint project of Educational Testing Service and a group of colleges and universities, with initial funding by the Carnegie Corporation. CAEL activities are based on recommendations made by the Commission on Non-Traditional Study.

AL PARKER, head baker in WU’s Food Service, won an honorable mention for a gingerbread house cake he entered in the Annual Midwestern Foodservice and Equipment Exposition’s gourmet foods contest Oct. 14 in Kiel Auditorium. There were 430 entries in 25 categories in the show, which is representative of all facets of food service in the Midwest. This is the first year that WU has entered the show. Other participants included Ramada Inns, Marriott Motor Hotels, the St. Louis Stadium Club, and Miss Hullings restaurant. The awards were based on appearance, taste, originality, and execution.

DR. HERMAN T. BLUMENTHAL, research professor of gerontology in WU’s Psychology Department, was invited to participate in a symposium on “Criteria for the Determination of Biological Age in Man” held in Leningrad, U.S.S.R., from Oct. 22-24, and sponsored by the U.S.S.R. Academy of Sciences. Professor Blumenthal presented two papers at the parley: “Aging and Disease: A Causal Relationship?” — The Status of Atherosclerosis”; and “An Immunological Test Related to the Functional Status of the Nervous System: Possible Significance in the Determination of Biological Age.”

DAVID J. PITTMAN, professor and director of WU’s Social Science Institute, has been awarded the National Council on Alcoholism (NCA) Volunteer Service Award for his work on the NCA Research and Evaluation Advisory Committee. Dr. Pittman is a board member of the NCA. The committee, composed of volunteer members representing the multiple disciplines associated with alcoholism, is responsible for making recommendations on all grant applications to the NCA Board of Directors Research Committee for final approval. Dr. Pittman, an international authority on alcohol and drug dependence, has co-authored or edited six books and over 100 scientific articles related to these fields.
FRIDAY, NOVEMBER 1
8 p.m. The New York Theatre Company, "The Apple Tree." Edison Theatre. General admission, $4.50; WU faculty/staff, $3.50; WU students, $2.50.

SATURDAY, NOVEMBER 2
8 p.m. The New York Theatre Company, "The Fantasticks." Edison Theatre. General admission, $4.50; WU faculty/staff, $3.50; WU students, $2.

SUNDAY, NOVEMBER 3
8 p.m. The New York Theatre Company, "Berlin to Broadway With Kurt Weill." Edison Theatre. General admission, $4.50; WU faculty/staff, $3.50; WU students, $2.

EXHIBITIONS
"Faculty Show 74," featuring WU artists and designers, will open in Steinberg Hall on Monday, Nov. 4. Sponsored by the School of Fine Arts. Weekly Tues.-Sat., 1 p.m.-5 p.m.; Saturday, 10 a.m.-4 p.m.; Sunday, 1-5 p.m. Through Dec. 2.

"Berlin to Broadway: Kurt Weill," featuring various sets, costumes, and props from the original production, will open in Steinberg Hall on Monday, Nov. 4. Sponsored by the School of Fine Arts. Weekly Tues.-Sat., 1 p.m.-5 p.m.; Saturday, 10 a.m.-4 p.m.; Sunday, 1-5 p.m. Through Dec. 2.

"Faculty Show 74," featuring WU artists and designers, will open in Steinberg Hall on Monday, Nov. 4. Sponsored by the School of Fine Arts. Weekly Tues.-Sat., 1 p.m.-5 p.m.; Saturday, 10 a.m.-4 p.m.; Sunday, 1-5 p.m. Through Dec. 2.

"Berlin to Broadway: Kurt Weill," featuring various sets, costumes, and props from the original production, will open in Steinberg Hall on Monday, Nov. 4. Sponsored by the School of Fine Arts. Weekly Tues.-Sat., 1 p.m.-5 p.m.; Saturday, 10 a.m.-4 p.m.; Sunday, 1-5 p.m. Through Dec. 2.

MUSIC
SATURDAY, NOVEMBER 2
Midnight Office of Campus Programming Piano Concert, by Bruce L, a WU Music Department graduate, and Melanie Harvey, WU faculty/staff, and Mozart. Women's Bldg. Lounge.

MONDAY, NOVEMBER 4
8 p.m. St. Louis Symphony Chamber Music Concert Series, "A Musical Offering," featuring the St. Louis Symphony Orchestra, with guest conductor, Leonard Slatkin. Sponsored by the School of Music. General admission, $4.50; WU faculty/staff, $3.50; WU students, $2.

SPORTS
SATURDAY, NOVEMBER 2
1 p.m. Soccer, WU vs. MacMurray College at Jacksonville, Ill.

WEDNESDAY, NOVEMBER 6
4 p.m. Soccer, WU vs. UMSL. Francis Field.