

Way to the Future

Women Engineers in Training Focused, Satisfied with AAE Choice

In this issue, we focus on women who are aeronautical and astronautical engineers and those who are training to be in this field. The three alumnae we have featured afford us a representative look at AAE women in the workplace. Two other articles, on the Women in Engineering (WIE) and Women in Math, Science, and Engineering (WIMSE) programs (see pages 3 and 5), highlight the university's efforts to recruit, support, and retain women students in the sciences.

Undergraduate and graduate students currently enrolled were also polled in an informal survey on how they came to choose this major. It seems that the fight for women's rights in the last three decades has borne fruit. The respondents revealed themselves

to be bright, focused, hardworking, and happy with their choice of major. Even many of the first-year undergraduate students, who said that it was too early to say anything definite about their choice, said they were happy with their first courses and happy that they chose AAE.

Sixteen of the 43 women undergraduates and 6 of the 10 graduate students replied to these questions: Why did they choose AAE? Who was instrumental in leading them to this field? Have classroom and lab experiences been positive or negative? One of the questions was especially revealing of both the editor's frame of reference (college in the '70s) and the respondents': Has the fact of being a woman worked against them in courses that are predomi-

nantly male? The women said that it was almost a nonissue. However, Susan Linnemeyer, the director of the Women in Engineering program, said discrimination is still a hurdle at the graduate level and in industry.

Many respondents mentioned that they performed well in science and math in high school, and engineering was the logical career choice. What led them to aeronautical and astronautical engineering in particular was their childhood dream of flying a plane or being an astronaut or wanting to be able to design aircraft and spacecraft. Several women said they were hooked after attending U.S. Space Camp or the Illinois Aerospace Institute. Leslie Fockler, a second-year graduate student, said that she can't pinpoint why she chose aero engineering. "However, I did see the movie *Top Gun* many times. I would say it was, and still is, a curiosity about how things work, especially aircraft, spacecraft, and rockets. I was good at math and science in high school

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Photo courtesy of Antonio Filippone

Departmental research in aerodynamics is applied to auto racing. See article on page 10.

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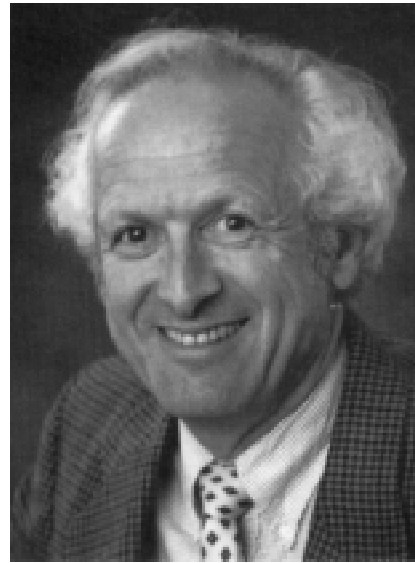
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From the Department Head

I would like to take a little space in this issue to talk about our progress in the 10 years that I have had the privilege of heading the department. I will be leaving this position when a new head is appointed. We believe that the department is in very good shape today and ready to tackle the



issues of the 21st century. In Talbot Lab, we have a much improved location with the department space centrally located. We have new undergraduate and graduate curricula, and our design labs accommodate a number of new courses. We now support 20 new research laboratories, wind tunnels, and computer labs. Most of these facilities are running at near capacity. Our graduate programs are more structured and oriented along industry lines. Our research programs are growing at an annual rate of 20 percent, and many of them are well integrated with those of the College of Engineering and other units of the campus. This issue, fea-

turing women of AAE, would have been difficult to write 10 years ago but is highly relevant today when 20 percent of our student ranks are women.

We are a modest department in a large, active engineering college, but we contribute to its excellence in ways that make our linkage very significant and visible. The opportunities for leadership by the students and faculty have never been stronger. One of the great pleasures of my job has been getting to know our alumni and seeing the strength of the institution reflected by their accomplishments.

Many challenges remain, and we will be making significant changes as we move into the year 2000 and beyond. I am very confident that the next 10 years will be even better than those which I have enjoyed. I have found serving AAE, as head, rewarding to me personally and can visualize the department moving to a higher plateau in the future.

A handwritten signature in red ink that reads "Wayne".

Wayne Solomon
Department Head

Women Engineers

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and going to engineering school seemed to be the thing to do.”

Mentors were decidedly important in many students’ decisions about a major. Parents encouraging their daughters to persevere, science teachers in high school, and university faculty members were positive influences. Theresa Hiromi Kidd, a first-year student, fondly remembers her father’s passion for airplanes: “When (my dad) had days off, we would go to the Air and Space Museum in Washington, D.C. And every once in a while we would have air shows come by, and my dad would take me to those. I got to sit in the old airplanes and to watch the other ones do their aerial stunts.” In 1996, she met Buzz Aldrin at a book signing. “I got him to sign (his new book) for me.” In Leslie Fockler’s case, it was a fleeting chance meeting with an engineer: “I met a woman (a friend’s grandmother) in high school whom I believe had worked for NASA on the Apollo missions (in the ’60s and early ’70s). I only saw her for about two minutes. I didn’t even get her name, but I will always remember meeting her.”

Very few of the women have had negative experiences in class or with their classmates. A sophomore did say that, as a minority and a Latina, she had been “in a few situations where it feels like other people really don’t want to hear what I have to say.” Some have encountered one or two isolated incidences of wisecracks from other students, but the women seem self-confident enough to brush off these remarks. According to Linnemeyer, “There is a tendency and a need (in female engineering students) to desensitize themselves to the lack of female peers and possible implications.” She said what

commonly prevails is that women are called upon less frequently in classes, and they drop out more often than their male counterparts despite their higher GPAs.

On the positive side, many women commented on the team spirit that is fostered through projects and in study groups. Another positive development is the establishment of support programs (WIE and WIMSE) that extend help to women in engineering and the sciences. First-year student Kelly McAllister is an enthusiastic WIMSE resident: “It is great having other women who are taking similar classes—or have already taken them—to talk to and ask for advice. I’ve already made a lot of friends.”

Established in 1944, the AAE department did not see a woman graduate until 1950. Helen Kava Zabinsky (see *Alumni Spotlight*, page 4) was the lone aero engineer of the 18 women graduating (all degrees included) from the College of Engineering in the ’50s. There were no other AAE women graduates until 1964. The ’60s saw three women graduate from AAE, and the number has increased in the decades since: 11 in the ’70s, 55 in the ’80s, and 62 so far in the ’90s.

Some other statistics, provided by Susan Linnemeyer, WIE program director:

- In spring 1997, 22 percent of undergraduates enrolled in AAE were women, compared with 18 percent for the College of Engineering (COE). In fall 1997, 21 percent of undergraduates and 13 percent of graduates enrolled were women, making this department fourth in the percentage of women enrolled, behind chemical engineering, general engineering, and civil engineering. The overall COE enrollment rate for women was 19 percent for undergraduate students and 15 percent for graduate students.

- In 1996–97, 20 percent of BS degrees awarded in AAE were to women, compared with the national average of 14 percent in 1995–96 (the most recent figures available). No MS or PhD degrees were awarded during 1996–97, although there are eight women currently pursuing second and third degrees. Thirteen percent of MS degrees awarded in 1995–96 were to AAE women, compared with 12 percent nationally. There were no PhD degrees awarded to AAE women in 1995–96.

- The department has one woman faculty member; there are 29 women (8 percent) out of a faculty total of 389 in the College of Engineering.

—Alison Fong Weingartner, editor

Program Provides Support For Women in Engineering

The College of Engineering recently established the Women in Engineering (WIE) program, a resource for women in the engineering disciplines. Established in 1995, WIE aims to recruit and retain women in this field.

In fall 1997, 19 percent of the undergraduate students, 15 percent of the graduate students, and 8 percent of the faculty members in the college were women,

according to Susan Linnemeyer, the program’s director. “For the first time in UIUC’s history, we have more than 1,000 women undergraduates in engineering (citing fall 1997 figures). By default, that places us, in absolute numbers, in the top 10 universities in the nation for women students enrolled, but our percentage of women is slightly below the national

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Class Notes

1950s

Ronald J. Delismon, '59, retired in May 1996 as a senior principal engineer after 37 years with The Boeing Company (plus a year at Northrop after graduation). At Boeing, Delismon worked on projects such as the Minuteman, Short-Range Attack Missile, Multiple Independent Re-Entry Vehicles ("when the word 'MIRV' itself was classified"), and the Air Launched Cruise Missile. During that period, he worked half of the time at the Air Force Strategic Air Command Headquarters in Omaha, Nebraska, as Boeing's representative for mission planning. He also worked on the development of the B-2 bomber "when the project did not publicly exist." In his last decade at Boeing, Delismon worked in the advanced projects area. "My last project was Darkstar, a crewless aerial reconnaissance vehicle. First flight was in March 1996, when it took off, cruised, and landed, completely under autonomous, on-board computer control." He says he misses the excitement of working on cutting-edge projects, but he's ready "to explore the opportunities for self-fulfillment." He and his wife, Jan, ski and travel. "It's hard to believe that 38 years have passed since Jan and I were students at Illinois, a time we fondly remember. **Lee Sentman** ('58) and I were on the varsity fencing team together, and Harry Hilton was happily casting pearls before swine (the undergraduates)." He invites students and faculty to contact him if they are ever in the Seattle area.

Donald J. Katz, '50, retired in 1994 as manager of quality engineering for the Defense Contract Management Command, which is part of the Defense Logistics Agency. He was assigned to work at the Rocketdyne Division of Rockwell Incorporated in Canoga Park, California. "I was selected (by

WIE Program

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average," she stated. "WIE is striving to create a climate conducive for academic pursuit and personal growth that allows for equal opportunities for women in engineering education."

Recruitment activities already under way include Engineering Advocates (an outreach program to high school students) and Merit Awards for incoming freshmen. GEMS (Girls in Engineering, Mathematics, and Science), a mentoring program for middle school girls, began in February. A high school career day is planned for May 1998.

Women students enrolled in engineering disciplines at the university will have access to counseling, advising, and other services

related to personal, academic, and employment matters. The program will offer a Women Seminar Series in spring 1998 and plans to start an electronic mentoring system linking women graduate students with women in industry.

For more information about the program or if you wish to help in any way (for example, to serve as a speaker for career days, to serve as an electronic mentor, or to offer financial support for a specific aspect of the program), contact Susan Linnemeyer, Assistant Dean and Director of Women in Engineering, 202 Engineering Hall, 1308 West Green Street, Urbana, IL 61801; phone 217-244-3517; fax 217-244-4974; or email linnemey@uiuc.edu. Information about the program can also be found on the Internet at <http://www.wie.uiuc.edu>.

ALUMNI SPOTLIGHT

Helen Kava Zabinsky, '50

It was just after the Second World War, and Helen Kava Zabinsky wanted to attend college to be an engineer. The response to her applications was less than encouraging.

New York University told her that she couldn't attend normal daytime classes but that she could attend classes in the evening. "Other schools just said outright they did not accept women in the engineering departments," said Kava Zabinsky, who holds the distinction of being the first woman to graduate from the Department of Aeronautical and Astronautical Engineering at the University of Illinois.

"When I entered the field of aeronautics, ... I was just a shade too young to enlist in the WAAF (Women's Auxiliary Air Force). So the next best thing, I figured, was to learn to design planes," Kava Zabinsky recalled. "I had had a job with the Signal Corps as a draftsman and knew that engineering was my field."

After two years in a junior college, she transferred to Illinois, which did accept her application. "The years at Illinois were good ones: I ran into no discrimination; the faculty were very helpful; and the male students were supportive. At that time, the majority of students were returning veterans, who had more on their minds than worrying about a woman entering a male-dominated field," she said.

While at Illinois, she met and in 1949, married a fellow AAE student, **Joe Zabinsky** ('49, MS '50). Kava Zabinsky marvels at the increasing



Helen Kava Zabinsky and her husband, Joe, also an AAE graduate.