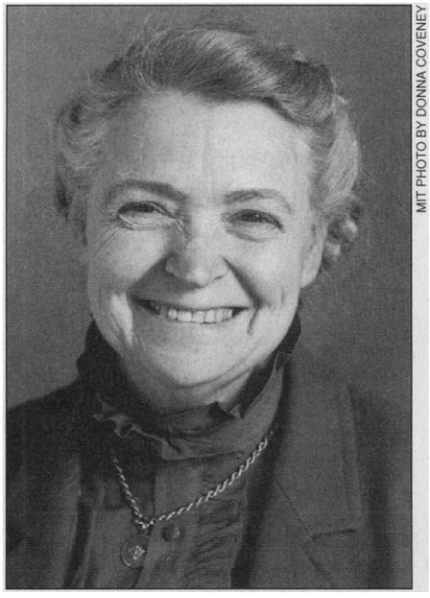
edited by CYNTHIA LOLLAR

Mildred S. Dresselhaus—1997 AAAS President

It's not surprising that Mildred S. Dresselhaus accepted an invitation to be guest lecturer to her granddaughter's third-grade class earlier this year. "The public doesn't fully appreciate that Americans are winning Nobel prizes today because of work that others did 30 years ago—work that attracted those now well-known researchers to science," says the solid-state physicist who will become president of the American Association for the Advancement of Science (AAAS) in 1997.



MIT PHOTO BY DONNA COVENEY

Mildred S. Dresselhaus

Interesting young people in science and continuing the work AAAS has done to increase scientific literacy will be among the areas Dresselhaus says she will focus on as AAAS president. Her hand will also be out to young scientists who face a much more challenging job market than she did 40 years ago as a young scholar with an interest in superconductivity and magnetism. "With the advent of Sputnik [the satellite launched in 1957 by the Soviet Union], my generation began a honeymoon with science," Dresselhaus says. "Making your way in science today is going to be more difficult."

The problem is not that the nation is producing too many scientists, Dresselhaus says. "Rather, we are failing to inform young people about the realities of career opportunities. Young people are ready to face reality if you explain it to them. We should be telling them the reality and encouraging them at the same time."

An Institute Professor of electrical engineering and physics at MIT, Dresselhaus is a solid-state physicist and materials scientist with a worldwide reputation. She has conducted research in superconductivity, the electronic and optical properties of semimetals, and semiconductors and metals, but she is perhaps best known for her work on carbon-related materials. The National Medal of Science and 13 honorary doctorates are among the awards the new AAAS president has received. A recently published graduate text book on fullerenes called *The Science of Fullerenes and Carbon Nanotubes* is one of three books Dresselhaus has co-authored on carbon science. She is working on a fourth.

Sometimes it takes a request for help from a colleague to remind her of what she has accomplished. "It's when people call and say, 'I have a problem, and you are the first person I thought of,' that I feel I've had some impact on the field," Dresselhaus says.

In her work as researcher and academic, Dresselhaus is also known for opening doors to women in science and engineering. She founded the MIT Women's Forum in 1970 to support the careers of women in science and engineering at the Institute. "It was so successful that it has continued ever since, focusing now on a broad range of issues of interest to all women at MIT," notes a 1985 article in MIT's *Tech Talk*.

Like most modern researchers, Dresselhaus collaborates with scientists in other parts of the world, an experience that has awakened her to the growing internationalization of science. "Although science and technology have had an international dimension for a long time, the Internet and new information technologies are having a tremendous impact in breaking down national barriers," Dresselhaus says. "This offers AAAS an unprecedented opportunity to extend its reach." She cites the role of *Science* and its Cambridge office in increasing AAAS membership in Europe, and "thus enlarging the scope of what the journal covers."

Another goal during her AAAS tenure is to further educate the scientific community about the federal budget process. "AAAS has a very high level of interest in the federal budget process, and the present AAAS operation is highly respected on the Washington scene," Dresselhaus says. She would like to see the Association board review the budget at every board meeting, "looking for soft spots and potential dangers to the future of science. And when legislators are heading toward a potential mistake with serious consequences, the scientific community should organize itself and speak up." The educational process would help scientists think about how best to use the funds that are available, Dresselhaus says.

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To explain why she feels "pretty comfortable" in taking on the role of AAAS president, Dresselhaus cites her past experiences as president of the American Physical Society and as treasurer of the National Academy of Sciences, a term that ended in June of this year. She has also been a AAAS Fellow and served on the Association board.

At 6 a.m. most mornings, Dresselhaus is already in her office at MIT, which has allowed her to be home in the evenings with her family. She says her secret to juggling work and family life has been "a supportive husband."

The third woman to head AAAS in 3 years, the mother of four illustrates how a successful woman scientist can both raise a family and be successful in science. "I would say that success is within reach, but it is not easy. At least half our women faculty members at MIT have children. But it requires we be organized and make certain choices. And it requires us to set priorities."

All four of Dresselhaus's now-adult children have a strong grasp of scientific principles, which she and her husband helped them develop early in life. "Children respond well to science when it relates to their lives in a concrete fashion," Dresselhaus says. To prepare for her talk to her granddaughter's class, she borrowed a soccer ball from the playground. "They told me it was a soccer ball, and I told them it was a real-life model of a fullerene. I could see their eyes get big. Then I brought in chemistry, physics, and math and talked about how it all fit together. I believe that if children don't get exposed to science, they will miss out on something that is so useful for living and for thinking about how things work." **–Coimbra Sirica**