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Information for contributors appears on pages 36–38 of the 3 January 1992 issue. Editorial correspondence, including requests for permission to reprint and reprint orders, should be sent to 1333 H Street, NW, Washington, DC 20005. Telephone: 202-326-6500. London office: 071-494-0062. **Subscription/Member Benefits Questions:** 202-326-6417. **Science:** 202-326-6500. **Other AAAS Programs:** 202-326-6400.

Women in Science: From Panes to Ceilings

When I was in medical school in the 1960s, it was a widely held view that women should have children before age thirty. Illnesses like endometriosis were seen as punishment for delaying. Today, few in the biomedical professions would admit to holding such unscientific views. In fact, now the punishments come to women who do have their children while in their 20s, at least among women in the sciences.

One study of 460 former National Science Foundation postdoctoral fellows showed that women who had children during their postdoctoral years did not attain as high academic and leadership positions as other women and men. But let's not blame the babies. Both married and single women scientists and engineers also have higher rates of underemployment than do their male counterparts. As in so many other fields, women in science eventually hit either the "mommy track" or a "glass ceiling."

There is some heartening news: The disparity between men's and women's career advancement is lowest in biology, but high in physics, engineering, and mathematics. It is no mere coincidence that more women pursue careers in the biological sciences: Success leads to success. Thus, it is clear that one way to help women get ahead is to increase the numbers of women in other fields. Yet fewer women than men declare science as a major in college, and a greater proportion of women abandon science. Why do women drop out of science? A study by AAAS found that women in science classes are subject to more negative treatment than their male colleagues—by both faculty and other students. This is easier to understand—if not condone—when one considers that most science faculty are men. A 1990 NSF report shows a total of 151,400 men teaching in science departments at 4-year colleges and universities, and only 34,900 women; 68% of the men had tenure, but only 36% of the women.

My own field of medicine mirrors these trends. Although women now make up 38% of medical students, and women's academic performance is virtually indistinguishable from that of men, women rarely achieve leadership positions. With some 14,171 women now teaching in medical schools, women represent 21.5% of all medical school faculty. However, they occupy what might be called an academic ghetto: 49.8% are clustered at the assistant professor level, only 9.8% are full professors, and there are no women deans.

Once they have survived the rigors of their education, the laboratory, and the faculty lounge, how do women scientists and M.D.'s fare in securing support for their research? The good news is that women's share of research grant money from the National Institutes of Health has doubled since 1981 and, in 1990–91, women's and men's success rates for competing research project grants (RPG's) became virtually equal. However, women submitted and received only 19% of these awards. Women's research is a bargain: Women applicants for competing RPG's request less money than their male colleagues, on average about \$30,000 less. Thus, in 1990–91, women received a mere 16% of competing RPG funds.

In view of some negative treatment in the classroom and discouraging employment and funding prospects, the astonishing thing is that young women pursue careers in science and medicine at all! But it is fortunate—and important—that they do. By the year 2000, women and minorities will account for 68% of new workers. And, if current trends continue, the United States will face a shortage of scientists and physicians by the end of the century. It is safe to say that sustaining America's scientific preeminence will depend on attracting—and retaining—talented women and minorities.

When British women were trying to win the right to vote 80 years ago they played by men's rules: They broke windows in Parliament Square. Their leader, Emmeline Pankhurst, defended the women's action, saying, "Why should women go to Parliament Square and be battered about and insulted, and...produce less effect than when they throw stones?... After all, is not a woman's life, is not her health, are not her limbs more valuable than panes of glass? There is no doubt of that, but most important of all, does not the breaking of glass produce more effect upon the Government?"*

Although I am not advocating that American women resort to such behaviors—or even to the breaking of test tubes—it is clear that all of us in the scientific community have a lot of breaking to do—especially old rules, self-defeating habits, and glass ceilings.[†]

—BERNADINE HEALY, *Director, National Institutes of Health, Bethesda, MD 20892*

*A longer version of Dr. Healy's essay, including complete references, is available from *Science*. Request by fax: 202-371-9821. *E. Pankhurst, *My Own Story* (Hearst's International Library, New York, 1914), pp. 212–213.