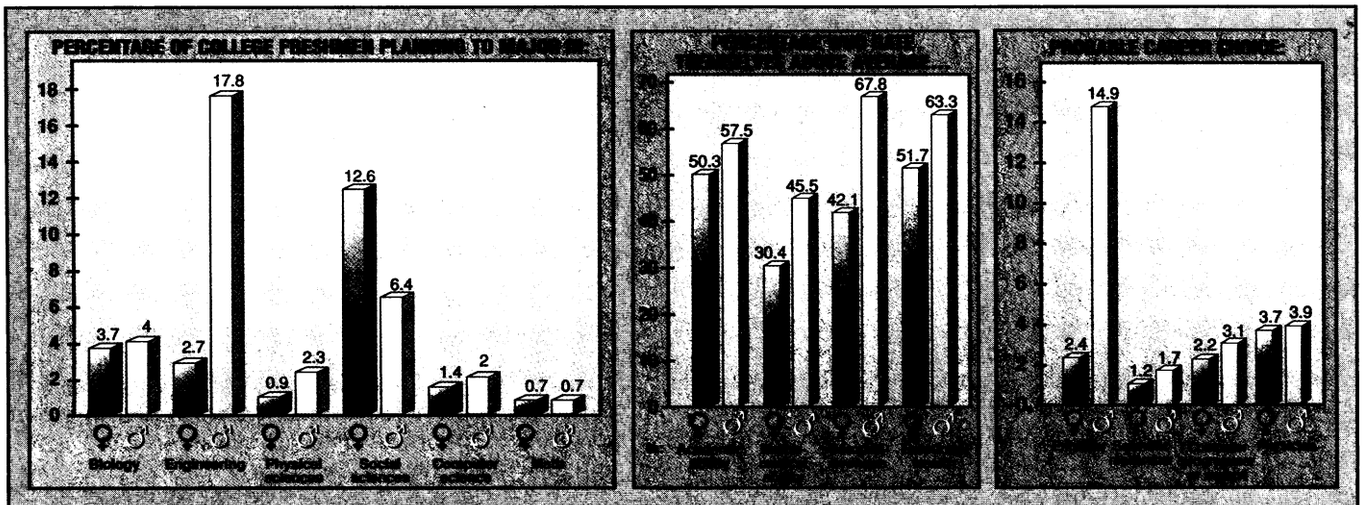


A cross-section of the science manpower "pipeline." The latest statistics on last fall's entering college freshmen show that large gender differences persist in the physical and social sciences, as well as in engineering, where males predominate by more than 6 to 1. Males are also much more likely to rank themselves favorably on mathematical ability—as well as on competitiveness and emotional fitness. Source: "The American Freshman: National Norms for Fall 1990," by the Cooperative Institutional Research Program of the American Council on Education and the Higher Education Research Center, UCLA.

he usually rejects it. But he'll think twice if the third reviewer is an "assassin."

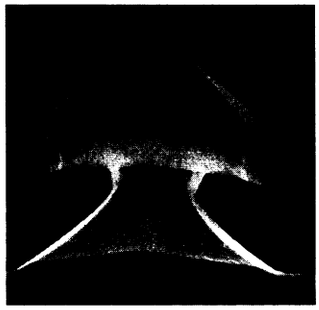
Then why send papers to assassins at all? They're "very careful," says Siegelman. "In a sense they're my best reviewers." And the zealots are helpful too: They'll point up the merit in a paper and often have good suggestions for revisions.

The World's Greatest Invention Goes Micro

When Michael Reed began talking to people in the medical community about his idea for miniature flow sensors that could fit inside blood vessels, he learned that what surgeons really wanted was a better way to connect the vessels themselves, reducing the formation of scar tissue and shortening a patient's time under general anesthesia.

That started Reed thinking, and soon he and Hongtao Han, both electrical engineers at Carnegie-Mellon University, began developing what they came to call "microvelcro." With help from the National Nanofabrication Facility at Cornell University, they used lithographic and etching techniques to carve dense arrays of minuscule mushroom- or barb-shaped structures into the surface of silicon wafers.

Each micromushroom is about the size of a grain of flour—about 17 microns wide and 12 microns tall. When a pair of micromushroom-studded silicon surfaces are pushed together, the mushrooms' edges deform, pass each other, and then spring back, interlocking the surfaces. Unfortunately for doctors, the barb structures designed to stick the "microvelcro" onto blood vessel walls soon came undone when tested on a piece of human vena cava—a problem Reed is working to overcome.



Magic mushroom. *One of 180,000 silicon barbs on a square centimeter of microvelcro.*

Until then, he is planning other uses for his new substance. He thinks micromushroom-covered surfaces might provide just the sort of micromechanical adhesion needed to bond chips to circuit boards or to each other. And applications in other less likely arenas are coming up. One manufacturer of resealable bags, intended to hold deer urine for hunters to use as a lure, wrote to Reed for information about the new product. Reed had to turn him away, explaining that micromachined silicon strips "would be an awfully expensive way to close a bag."

Deforestation Slows

The Brazilian government is spreading the word that tropical deforestation in the Amazon basin has slowed over the last few years. The good news is attributed chiefly to the elimination of government subsidies to cattle ranchers, who routinely cut back forests for grazing land.

The size of the decline, however, seems to depend on who's talking. Brazilian environmental secretary José Lutzenberger, speaking last month at the New York Botanical Garden, said the amount of cleared forest land may have dropped more than 90%—from 90,000 square kilometers in 1987 to between 5,000 and 10,000 square kilometers in 1990. But a few days later, Brazilian secretary of state for science and technology José Goldemberg told a session at the annual meeting of the AAAS that deforestation had slowed by 30% over the past 2 years. A third figure comes from the Brazilian space agency INPE, which recently estimated that 19,000 square kilometers of land were cleared in 1989—an impressive decline over the 1987 figures.

Much of the confusion arises from the fact that good figures on deforestation are hard to come by. According to the World Resources Institute, most estimates are probably on the high side because they were calculated from activities not specifically designed to measure deforestation rates. The recent INPE study, based on Landsat images, is more precise, but has only compiled data since 1988.

Whatever the true facts, even Lutzenberger admits that Brazil hasn't turned the corner yet, saying that 5,000 square kilometers is still far too much forested land to lose.

Correction

Solomon Buchsbaum has graciously informed *Science* that he is still a senior vice president at Bell Laboratories—not a "former executive," as we incorrectly described him several issues ago (25 January, p. 377).