RANDOM SAMPLES

edited by CONSTANCE HOLDEN

H. LEONARD/BAS

Light show. Aurora Australis at Halley station during austral winter.

Antarctic Radar Gap To Be Filled

Last week in Pretoria, researchers from Britain, South Africa, and the United States signed an agreement to build a radar station in the Antarctic to measure the hot, ionized gas, or plasma, streaming into the Earth's upper atmosphere.

The station will fill a remaining gap in two radar networks, one on each pole, designed to yield a three-dimensional picture of the flow of plasma as it surges into the atmosphere along Earth's magnetic field lines, which converge at the poles. The plasma flow is driven by violent events on the sun, which generate a solar wind of particles that streams through the solar system, buffeting the Earth's magnetosphere—an envelope of plasma trapped by the magnetic field. This heats the plasma, which multiplies as it is accelerated by the magnetic field toward the poles. When solar activity is particularly violent, it creates storms in the magnetosphere that can jam radio transmissions, causing power blackouts and disrupting navigation.

Atmospheric researchers realized in the 1980s that they could learn more about the interaction between the solar wind and the magnetosphere through the use of high-frequency radar. Such stations were built in Labrador and Antarctica so that researchers could correlate events at both poles.

But to get three-dimensional data, more locations are needed. A string of stations stretching from Iceland to Canada now keeps a three-dimensional watch over the Arctic sky, and the new radar—which should be in operation by January 1995—will open the same kind of vista in the Antarctic. The researchers who will have to sit through long Antarctic nights tending the radar can take comfort from the fact that they will be in a peerless position to watch the Aurora Australis, the spectacular light show—equivalent to the Arctic's Aurora Borealis—that the plasma generates.

Research Funding Crosses the Border

The newly established United States-Mexico Foundation for Science has made its first 12 grants. The awards, ranging up to $100,000 over 2 years, are to foster collaboration between Mexican and U.S. scientists in chemistry, engineering, the environment, health, and the social sciencies.

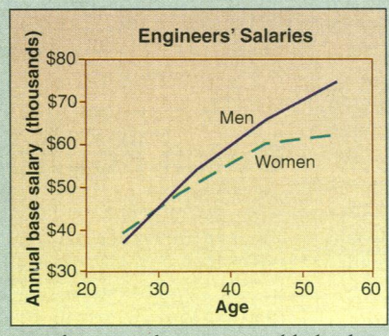
The National Academy of Sciences (NAS) is coordinating the U.S. end, with $2 million for initial activities from the Agency for International Development. The Fundacion Para La Salud in Mexico City is also kicking in $2 million. David Hambric of NAS says the foundation is emphasizing research relating to the "social and economic integration" of the United States and Mexico. Projects must have a principal investigator from each country.

Foundation vice president Ernest Eliel, a chemist at the University of North Carolina at Chapel Hill, says there's more Mexican-American collaboration out there than had been thought—150 proposals at most were expected, but about 430 poured in. The deadline for the next round is 15 January. Interested scientists may contact Gerardo Bueno, executive secretary, U.S.-Mexico Science Foundation, Colonia Lomas Altas 11950 Mexico D.F.

Portrait of a Woman Engineer

"More mentors!" is a standard cry among those trying to get more women into science and engineering. But a new poll of 2000 engineers, half of them women, suggests that mentors and role models may be somewhat overrated. Only 13% of the female respondents said that having "friends/mentors in engineering" was important in their career choice. But 31% said an important factor was that they "wanted to be different."

That finding, however, is open to various interpretations, cautions Richard Ellis of the American Association of Engineering Societies, who wrote a report* for the poll's sponsor, the Society for Women in Engineering. The answer might be different if addressed to women now in the pipeline, he says—or if the question were rephrased to find "what was helpful in getting them through" their engineering training.



But there's no surprise in the salary data: Women are still getting paid less than men (see chart). And they are differently distributed—women, for example, are more likely than men to be in big companies, and are still sparse in fields such as aerospace and civil engineering.

The survey also indicated the two sexes have different concerns at different times of life. What bugs the under-30 crowd of women engineers most is attempts by colleagues to "offload secretarial work." Men of that age gripe about lack of job opportunities. Economic concerns come to the fore for women over 50, and they report more tangles with management as they discover the "glass ceiling." Men over 50, in contrast, "are the only group that expresses frustration with government restrictions and regulations," according to the report. There was at least one note of equality in the responses: Both genders see sexism as being more of a problem than racism.

*A National Study of Women and Men Engineers, Society of Women Engineers, 120 Wall St., New York, NY 10005-3902.

Asteroidal Magnetism

Late last year the space probe Galileo, on its way to Jupiter, beamed back a startling finding: The city-sized asteroid Gaspra—which many scientists had assumed to be nothing but a bunch of rocks—appeared to have a strong magnetic field. Now Galileo has found that a second asteroid, Ida, may also be magnetic.

As Galileo flew past the 52-kilometer asteroid last August, it detected a magnetic disturbance in the solar wind that seems to have emanated from the asteroid, says investigator Margaret Kivelson of the University of California, Los Angeles. That doesn't prove Ida is magnetic, however, since the asteroid may be able to create such a disturbance by its size alone.

But if Ida does prove to have a magnetic field, says Richard Binzel of the Massachusetts Institute of Technology, researchers will have a harder time dismissing these kinds of asteroids as stony jumbles. To have preserved a magnetic field, says Binzel, "These must be coherent fragments of larger bodies."