



BENJAMIN SANTER, lead author of chapter 8.

ceived on the 9 October draft] in order to produce the best possible and most clearly explained assessment of the science." A companion letter from Bert Bolin, the chair of the IPCC, showed clearly that the IPCC shares this view. "No one could have been more thorough and honest in undertaking [the] task [of the lead author of chapter 8]," wrote Bolin.

"The important message that the human signal was 'distinguishable beyond the noise' needed to be made more explicit" in chapter 8, says Michael MacCracken, director of the interagency Office of the US Global Change Research Program, and the US coordinator of the review process for the Working Group I report. "It was clear from comments [received both before and during the meeting] that the authors [of chapter 8] needed to more clearly express the level of confidence in their results." Also, in July 1995 (after completion of the full country review process) the authors of chapter 8 had decided to include some new and highly relevant information on vertical temperature change, recounts MacCracken. (See this issue, page 9.) "The period before the Madrid plenary would give reviewers a chance to consider the additional findings," he says. "It is beyond me why they [the detractors] claim it [the 9 October draft] should be considered the final version," he adds.

But some—such as Donald Pearlman, an attorney and executive director of the Climate Council (a group of energy and transportation concerns), an ally of the GCC and one of those who helped write the IPCC procedural rules—maintain that the 9 October draft was "final" and should not have been altered, except for minor editorial changes. Pearlman, who was at the meetings in Madrid and Rome, con-



JOHN SCHLAES, executive director of the Global Climate Coalition.

tends that "those changes were never proposed by the lead authors to the full working group, and they [the lead authors] had no unfettered right to make them."

"The changes to chapter 8 did not violate IPCC procedural rules," counters Kathy Maskell, a member of the WG I Technical Support Unit, which ensures that things proceed on schedule and according to the principles of the IPCC, and oversees coordination with the other two working groups. Maskell says that the draft of the entire WG I report was sent out on 9 October to IPCC governments and accredited nongovernmental organizations (of which the GCC is one) specifically so that they would have a chance to comment on it, and to check whether their comments from the earlier rounds of review had been taken into account. "That's why it was labeled 'DRAFT,'" she says.

One factor that has added to the confusion is that delegates to the full plenary meeting in Rome in December

received the pre-Madrid (9 October) version of the WG I report. That happened because of the tight timing of the plenary meetings, which were less than two weeks apart: Back in 1993, the IPCC had agreed on a concurrent review process by scientific experts and governments for WG I because of the group's other commitments, Maskell explains.

"Most important," Santer says, "the bottom-line conclusion of the chapter—that the balance of scientific evidence points towards a human influence on global climate—is the same in the 9 October and the published versions of chapter 8, and these conclusions were unanimously accepted by the IPCC governments at the Madrid meeting." Santer adds that key uncertainties, which are an integral part of the climate change and attribution problem, are discussed at length in the chapter, and that "claims that the chapter has been 'cleansed' of underlying uncertainties are just plain false."

"I am troubled that this controversy has surfaced. I had hoped that any controversy regarding the 1995 IPCC report would focus on the science itself, and not on the scientists," says Santer. A US government official who was a delegate to both the Madrid and Rome meetings says that all the procedural rules were followed legitimately, but that the rules themselves may be a bit sloppy. He adds that the scientists and policymakers should have—and still need to—adapt to each other to achieve better communication.

The hectoring is not yet over: Now the GCC is calling for an "independent review" of the changes made to chapter 8 of the WG I volume of the IPCC report. "They [the GCC and its allies] want to put a caveat on everything, rather than focus on what we have learned in the past five years," says Santer.

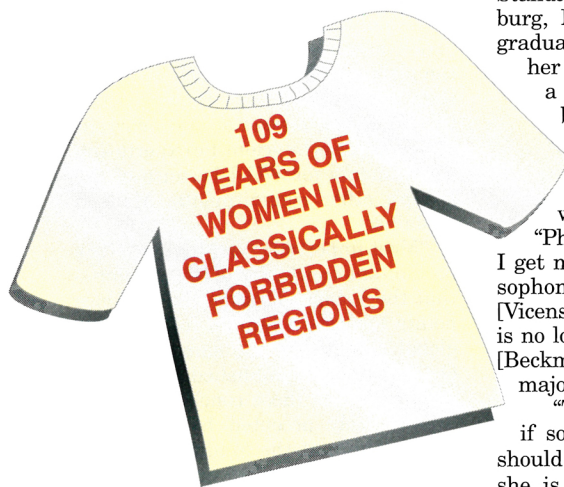
TONI FEDER

Bryn Mawr Physics Is Going Strong

A surprising thing about Bryn Mawr, a women's liberal arts college in a quiet suburb of Philadelphia, is the number of women who take bachelor's degrees in physics. The number has been climbing fairly steadily for the past 20 years, whereas the nationwide total for men and women combined has dropped 8% in the past 5 years. This spring, Bryn Mawr had 40 declared physics majors (sophomores, juniors and seniors) in a student body of only about 1200. In hard numbers, MIT and Harvard University are the only schools in the country that

graduated more women in physics during the 1990–94 period. "Simple projection shows that only the college's strict admissions limit precludes the day when all women physicists will have a degree from Bryn Mawr," jokes Neal Abraham, one of the department's four professors.

What is Bryn Mawr doing right? Being a women's college—which for some women can provide an environment in which pursuit of traditionally male-dominated fields is more comfortable than at coed schools—surely plays a role in the remarkably high number



MOTTO on the t-shirt designed by Bryn Mawr's physics department in 1994.

of women in physics and the other natural sciences. Bryn Mawr is also the only US women's college that has a PhD program in physics. It is a small coed program, but physics professor Elizabeth McCormack believes it has a significant impact: "Undergraduates get to take part in sophisticated research and can see early on if they like it," she says. Bryn Mawr physics majors also go on to pursue doctorates in physics at a rate (52%) significantly higher than the average from women's colleges (35%), or the average of women from PhD-granting departments (41%). (These figures, for 1990–94, are from the American Institute of Physics.)

"Students like the sociology of the department," says department chair Peter Beckmann. "It's like a big family," says junior Heather Fleming. Emily Peterson, a 1996 graduate, believes that "the department's biggest strength is that they [the faculty] really care about the students' opinions." Student representatives get to participate in twice-monthly departmental meetings, at which issues such as course curricula, computer software purchases and space allocation are discussed.

The department also offers career counseling. "We have built up a wide network of contacts," says physics professor Alfonso Albano, adding that the department also succeeds in finding nearly all juniors, as well as many sophomores, summer jobs in labs throughout the country. Albano goes on to describe how faculty members actively recruit students: "If we see a student who seems promising, we try to convince her to major in physics." One example is Jennifer Mosher, a 1996 graduate who is working this summer at the National Institute of

Standards and Technology in Gaithersburg, Maryland, and plans to go to graduate school in physics. She had her "heart set on poli sci," and took a course in conceptual (nonmath-based) physics to satisfy a college requirement. "Physics was a gap in my education, and my friends said Neal [Abraham] was a god," explains Mosher. "Physics is harder than poli sci, but I get more out of it." At a dinner for sophomores, "talking with Aurora [Vicens, a visiting faculty member who is no longer at Bryn Mawr] and Peter [Beckmann] convinced me to switch majors," she continues.

"The attitude at Bryn Mawr is, if someone is interested, then she should be able to do physics, even if she is not a genius," says Peterson. But she adds that this attitude might be a mistake: "It may convince some people to major in physics who otherwise would not have considered it, and since other people in the field may not be as supportive as they are at Bryn Mawr, it would always be an uphill battle." Abraham takes a different view: "Why sacrifice interested students on the altar of toughness?" He adds that "rigor is not being traded for a caring and supportive environment."

Beckmann stresses that teaching is a high priority at Bryn Mawr: "There is no bad teaching here." And all of the physics faculty members believe that physics is a good education, "no matter what one decides to do later," as one says. They also encourage each student to pursue her own interests—graduate school, industry, medicine, school teaching, finance or anything else.

In the end, though, it is impossible to pinpoint why physics is so popular at Bryn Mawr. After all, many schools offer similar resources. Ted Ducas, a physics professor at Wellesley College, another women's college that has a strong physics department, may be on the mark when he says, "Sometimes one or more charismatic individuals can make all the difference."

TONI FEDER

Eastman Succeeds Schriesheim as Argonne Director

On 15 July, Dean E. Eastman became director of Argonne National Laboratory. He succeeded Alan Schriesheim, who retired on 1 July, which also happened to mark the date of the lab's founding 50 years earlier.

Eastman, who holds a PhD in elec-



DEAN E. EASTMAN

trical engineering from MIT, had worked at the IBM Corp since 1963. His rise through the ranks in the IBM research division included posts as manager of the photoemission and surface physics group, director of the advanced packaging laboratory and, most recently, vice president of systems technology and science. During the past several years, Eastman led IBM's development reengineering efforts to make its hardware business units more competitive. His research areas have included condensed matter physics, surface science and photoelectron spectroscopy using synchrotron radiation.

Located about 25 miles southwest of Chicago, Argonne is operated by the University of Chicago for the US Department of Energy. During Schriesheim's tenure, the lab's operating budget and staff nearly doubled. But like the rest of the DOE national lab complex, it has undergone close scrutiny in recent years and has also endured some funding cuts. This year, for example, the lab's operating budget dropped by 2%, to \$485 million, and the work force was pared by 6%, to about 4500 people. Even so, Schriesheim says, Argonne's future appears more secure than that of some other DOE labs.

Schriesheim, who now holds the position of director emeritus of Argonne, says he plans to continue working on science policy and technology transfer issues. Prior to joining Argonne in 1983, he worked for many years at Exxon Research and Engineering Co. Among the major projects to be undertaken during his tenure at Argonne was the construction of the Advanced Photon Source, a hard-x-ray synchrotron light source (see PHYSICS TODAY, May 1995, page 59). Experimentation