

and send up a replacement in December 1992. But last month Commerce officials, apparently weary of NASA's promises, told the agency to forget about 1992 and to concentrate instead on ironing out the bugs in the satellite program.

At the same time, Commerce announced that it would back up GOES-7 by borrowing the Meteosat-3 satellite from the two European organizations that control it. But Meteosat is only a partial solution: In its present position the satellite covers only the eastern half of the United States, and it can't be moved west until the United States builds a \$10-million ground station in Virginia to relay control signals from Europe. That station probably won't be completed until early 1993.

Even worse, Meteosat-3 itself will start drifting by the end of 1993. And the Europeans are reluctant to lend either of their next two satellites for fear of jeopardizing their own weather coverage. So Commerce could yet be forced to buy an American-made satellite ordered by the Japanese—if the Japanese are willing to await a replacement.

U.S. Still Balks at Greenhouse Talks

The globe may be warming, but U.S. intransigence is providing a chilly climate for efforts by a UN committee to agree on what to do about it. "It's a tough way to conduct negotiations," notes Scott Hajost of the Environmental Defense Fund, who has just returned from a trip to Nairobi to observe the committee's third session of deliberations. U.S. negotiators staunchly refused to consider making a commitment to reduce carbon dioxide emissions, even as the rest of the industrialized world solidified its stand for emission cuts. Hajost says he is still "optimistic that we will have an [agreement]. The question is just how far it will go."

Not very far, if the world's largest emitter of CO₂ has its

way. An effort by the United Kingdom and Japan to draw the United States toward controls through a voluntary "pledge and review" process collapsed as both sponsors withdrew the idea. Hajost says U.S. negotiators made it clear that the costs of cuts seemed too large and the benefits too uncertain for them to make any concessions.

Only two more negotiating sessions remain before the so-called framework convention is due for signing next June at the UN Conference on Environment and Development in Rio de Janeiro. Will the U.S. change its mind? Optimists look to George Bush, the self-proclaimed "Environment President," who hopes to be re-elected a few months after the Rio conference. So far, though, the greenhouse threat does not seem to be in his platform.

No Quick Fixes for Learning

Three years ago, a panel of the National Research Council punctured the dreams of New Age adherents by reporting that many of their favorite self-help technologies—such as "hemispheric synchronization"—are virtually worthless. Now, the same body, the Committee on Techniques for the Enhancement of Human Performance, has added a variety of widely used training and self-help techniques to its list of scientifically unfounded approaches.

The committee, headed by psychologist Robert A. Bjork of the University of California at Los Angeles, looked at techniques for training and career development, altering mental states, and enhancing performance. Among its findings:

- Meditation is fine for relaxation, but it "does not reduce arousal any more than does simply resting quietly."

- "At this time, there is neither theoretical foundation nor experimental evidence" to validate the usefulness of subliminal self-help tapes—used for everything from trying to quit

Water Couldn't Dash This BBQ



Deep-sea death. Tube worms wiped out by eruptions.

The carnage was everywhere. Bodies, scorched and baked through, were strewn as far as the eye could see. Whatever killed them had struck within days if not hours—bits of flesh and debris were suspended in the murk and scavengers had not yet arrived. Oceanographers who stumbled onto this eerie scene dubbed it the "tube worm barbecue"—a veritable holocaust of tube worms and snails 2500 meters deep in the eastern Pacific Ocean. The scientists concluded that they came as close as anyone ever to observing—live—a mid-ocean ridge volcanic eruption. Automated ocean-bottom surveys have found new lava flows that have formed within the past few years along the 60,000 kilometers of mid-ocean ridges (*Science*, 21 December 1990, p. 1661). But no one has actually witnessed an eruption as it formed oceanic crust, the outer skin of two-thirds of the planet.

Last April, though, in a bit of serendipity, the deep-diving submersible *Alvin* came very close while sampling the hot, mineral-laden springs that dot the East Pacific Rise off Central America. Its scientific party, led by Rachel Haymon of the University of California at Santa Barbara and Daniel Fornari of Columbia University's Lamont-Doherty Geological Observatory, found fresh lava flows partially burying scorched creatures that a year before had been living off the hot springs. Signs were that the eruption had been extremely recent. In addition to the murkiness of the water and the absence of crab scavengers, there were rarely seen mats of bacteria thought to be the first on the scene of an eruption. A seismic survey in May revealed that clusters of quakes—which could have been produced by continuing volcanic activity—were taking place on the ridge crest. Divers plan to return this month to the area. With some luck, they could catch an eruption. With some bad luck, it could catch them.

smoking to building self-confidence.

- The Myers-Briggs Type Indicator, a personality test widely used for training and employment, is useful only for gauging the test-taker's mood at the time: "Unfortunately...the popularity of the instrument is not coincident with supportive research results."

Perhaps the most important observation contained in the report is that while some techniques may "enhance performance during training," this may occur "at the expense of later performance in the real world."

For example, constant feedback may heighten performance temporarily, but it is not as effective as periodic feedback. And practice sessions held at intervals yield more lasting results than concentrated sessions.

The report also affirms that some things really do work—notably, techniques that help people feel in control. Thus, for instance, biofeedback helps people manage chronic pain.

*The 269-page report, "In the Mind's Eye," is available for \$29.95, plus \$3 for shipping, from the National Academy Press, 2101 Constitution Ave. NW, Washington, D.C. 20418-0001.