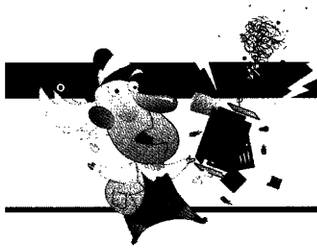
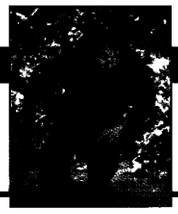


816 GPS to zero out

820 New cohesion in U.S. fusion



825 Long march for biodiversity

ciety of Plant Physiologists recently voted to talk to Varmus about adding this journal and *The Plant Cell* to E-biosci. "We are very interested," Chrispeels told *Science* in an e-mail, "but also worried" about the potential loss of revenue and need to charge authors for publication in E-biosci to offset potential losses in subscription revenues. Chrispeels calculates that the overhead charge for minimal review and editing would run to $1500 per article. This is "a hefty sum," he notes, and "prohibitive" for scientists in poorer countries. He worries also that it would drive authors into the arms of commercial publishers, which don't charge page fees. On the positive side, says Chrispeels, "we see a chance of integrating plant biology with the rest of the biological sciences" in one database. "Our stand," he adds, is to "see what the bigger players are going to do."

Like many editors and publishers, Chrispeels says his colleagues like E-biosci as a concept, but "an awful lot of details need to be worked out" before any final decision is made. **–ELIOT MARSHALL**

SCIENTIFIC PUBLISHING

## DOE Builds a Web Site For the Physical Sciences

By October, if a plan under development at the Department of Energy (DOE) works out, the public will be able to tap into a comprehensive new database of scientific papers in the physical sciences called PubSCIENCE. It will offer Internet access to titles, authors, and abstracts from hundreds of journals, according to Martha Krebs, director of DOE's Office of Science, the project's sponsor. The goal, according to her staff, is to index just about every scientific journal that isn't already indexed in PubMED—the online collection of medical information based at the National Institutes of Health (NIH)—and to link abstracts back to each publisher's Web site. Unlike the E-biosci proposal being discussed by NIH (see previous story), DOE is not asking publishers for free access to the full text of articles.

DOE has already signed up a few major publishers willing to help test the system. The initial participants include the American Association for the Advancement of Science (*Science*'s publisher), The American Physical Society, Elsevier Science, and the Institute for Scientific Information. By October, DOE hopes to make available current information from 400 journals. It aims to increase its coverage to 2000 later.

The project has a history that reaches all the way back to 1947, according to Walter Warnick, director of DOE's Office of Scientific and Technical Information, which is curating the database along with the Los Alamos National Laboratory in New Mexico. Half a century ago, the Atomic Energy Commission created "Nuclear Science Abstracts," a compendium of references for nuclear physicists. When DOE took over the portfolio in the 1970s, it broadened the scope and created the Energy Database. Its clients were chiefly the thousands of scientists who work at DOE research centers. Now, DOE is building on this base to create a digital index of all physical science articles in English, linked electronically to their publication sources. This should allow readers to jump from almost any citation that turns up in a literature search to the publisher's Web site.

Most DOE scientists can use this service now to access many full-text articles, either because physical science journals permit free use of archival material or because DOE has paid publishers for online access. Recently, according to DOE, the Government Printing Office expressed an interest in making PubSCIENCE available to the public as well, through the "GPO Access" Web site.

If a tentative agreement works out as planned, DOE says, anyone with access to the Internet will be able to do simple searches on PubSCIENCE records, retrieve abstracts, and jump directly into an archive. Depending on the conditions set by the publisher, the reader may get immediate access to the full text of articles, or be required to pay a fee or provide a password at an entry gate. "We're not trying to replace publishers; we're trying to make it easier to get to the published material," says Krebs.

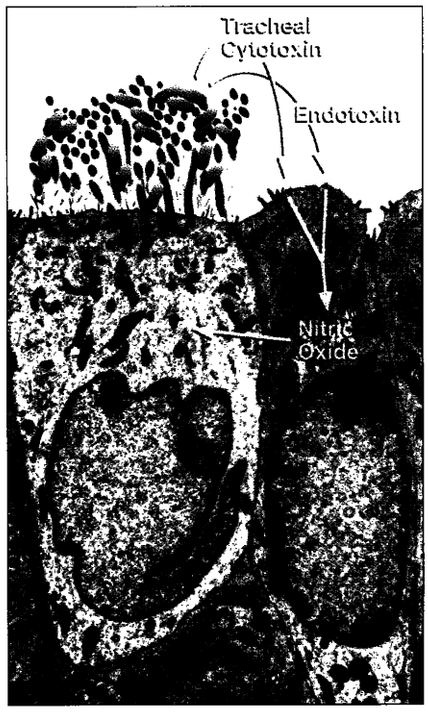
PubSCIENCE will overlap a bit with PubMED in the titles it indexes, Warnick concedes. Some topics like bioengineering will get double coverage. Publishers have responded enthusiastically, as PubSCIENCE is likely to bring customers to the door. DOE is preparing for a possible surge of interest. Warnick notes that data requests increased rapidly at PubMED when all barriers to public access were dropped in 1996. The number of searches climbed from a modest buzz of about 7.4 million per year to a torrent of 180 million this year. "We might not get that kind of usage at first," says Warnick, but the machines can handle it if it appears. **–ELIOT MARSHALL**

MICROBIOLOGY

## New Clues to Whooping Cough Pathology

The whooping cough bacterium, *Bordetella pertussis*, appears to be a master tactician. According to new findings, the pathogen, after invading the respiratory tract, induces some cells to kill certain of their neighbors with toxic gas. The result likely contributes to the intense gasping cough that not only gives the disease its name but also spreads the bacterium to other victims.

Physicians and researchers have known for decades that the pathogen destroys the ciliated cells in the epithelial lining of the respiratory tract. The hairlike cilia sweep away mucus, but when they die, coughing provides the only way to clear the airway. Exactly how *B. pertussis* kills these cells has been a mystery, however. Now, results described in the July issue of *Cellular Microbiology* by microbiologist William Goldman of Washington University School of Medicine in St. Louis and Tod Flak, Goldman's former graduate student, may have revealed the mi-




**Sabotage.** Using tracheal cytotoxin and endotoxin, *B. pertussis* provokes secretory cells in the respiratory tract to produce nitric oxide that kills the nearby ciliated cells.

CREDIT: W. GOLDMAN, L. HEISS, AND S. MOSER