

# California Backs Evolution Education

California's board of education has issued a new science teaching guideline for public schools, which it is touting as the strongest document to come out of any state on the teaching of evolution. And despite complaints from those who felt the board had bowed to pressure from religious fundamentalists and watered down the guideline, the fact is that this is the first such guideline ever to include evolution as one of the core themes that are central to the understanding of science.

Because California, along with Texas, orders a large proportion of the textbooks used in U.S. classrooms, the guideline will wield extra clout with publishers and therefore is likely to have a major influence on the way science textbooks are written nationwide.

"This is a very strong, very scientifically accurate, pedagogically progressive document that's going to make a real difference in science education in this state and by extension in other states as well," says Eugenie Scott, executive director of the Berkeley-based National Center for Science Education.

The controversy that has been alluded to in the national press stems from the fact that political pressure from Christian fundamentalists, who have been lobbying for the teaching of creationism in science classes, affected last-minute negotiations on the language in the guidelines. California superintendent of schools Bill Honig—a strong supporter of the teaching of evolution—deleted several passages from the 190-page document and drew criticism for having

knuckled under to the religious right.

Honig removed one sentence that referred to evolution as a "scientific fact." He also deleted two paragraphs that discussed a 1984 National Academy of Sciences book called *Science and Creationism* and omitted a reference to a 1987 U.S. Supreme Court decision that found the term "creation science" to embody a religious belief.

But despite these deletions, the document goes beyond any former policy in stressing the importance of evolution. It calls evolution "the central organizing principle of biology" with important implications for other areas of science as well. "Nothing in biology makes sense without [evolution]," says another passage in the document. "It is accepted scientific fact, and has been since the mid-1800s, that organisms are descended with modification from other organisms."

The former California science-teaching framework, passed in 1978, mandated that evolution, and not creationism, be taught in the science classroom, but its wording left textbook publishers the option of mentioning evolution only as an aside. Four years ago, California rejected all candidate 7th- and 8th-grade science textbooks for doing just that.

Thus, some of the most vocal proponents of a tough line in support of evolution see the Honig deletions as a step backward. But Scott, whose organization has fought long and hard to strengthen the teaching of evolution in public schools, says that, while the concessions made by Honig are evidence that the religious right wing is still a force that can't be ignored, the deletions are of little consequence and apparently were necessary for Honig to get approval from the predominantly conservative school board. "Bill Honig is taking it on the chin for this," she says, "but if we had left it up to the board, goodness knows what would have happened."

■ MARCIA BARINAGA

## Court Blocks German Biotech Plant

Frankfurt

A West German state court has dealt a blow to the country's biotechnology industry. On 15 November, the administrative court for the state of Hesse blocked the chemical company Hoechst AG from completing a plant to manufacture genetically engineered human insulin. The court ruled that because the law at present does not "expressly permit the application of genetic engineering, such facilities may not be built and operated." The verdict is binding on all states in the Federal Republic of Germany.

"This verdict stops genetic research in West Germany," says Hellmuth Mehnert of the Community Hospital in Munich, an expert on diabetes. Arnold Gries, of the University of Dusseldorf, another diabetes researcher, said, "Experts in the field will have difficulty understanding the court's decision."

Hoechst received preliminary permits from the Hesse state government in 1985 and 1987 to operate the facility. The company has so far invested about \$35 million in the plant, which is almost complete. A spokesman for Hoechst said the verdict was "frightening," adding that the company was "greatly worried" about the future of industrial genetic engineering in Germany.

Scientists and industrialists are concerned that the decision will add to the exodus of genetic engineering research from Germany. Already, German pharmaceutical companies do much of their research in other countries

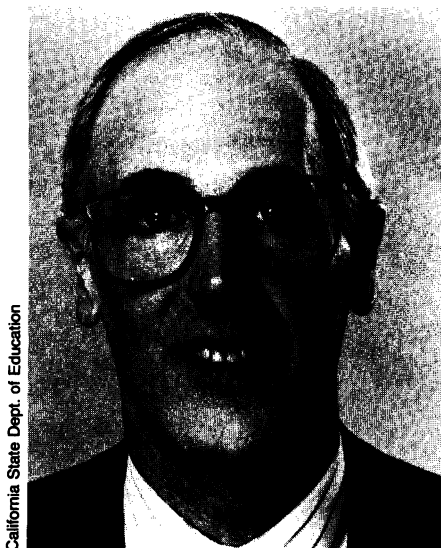
to escape Germany's chilly regulatory climate (*Science*, 16 June, p. 1251). Hoechst itself, for example, has since 1983 been investing about \$6 million a year in research at Massachusetts General Hospital in Boston. And Bayer has been operating two research institutes in West Haven, Connecticut, since 1982. It plans to invest a further \$50 million there in the next 3 years and to establish a group in Japan.

BASF applied a couple of months ago for permission to manufacture human tumor necrosis factor at its plant on the Rhine. But Erdwig Meyer, a spokesman for the company, said that BASF now "does not feel secure." He said the company was already thinking about moving this plant to another European country or to the United States. "The verdict is so shocking," Meyer said, "no one is going to invest in West Germany any more."

Industry officials are looking to the federal government for some relief. A government report published in January 1987 was supposed to pave the way for a federal bill on genetic engineering that would establish rules for approving production facilities. But the government did not issue a draft bill until the day after the verdict against Hoechst. If passed, the bill would require public hearings on proposals to build genetic engineering facilities.

■ BARBARA BACHTLER

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California State Dept. of Education

**Under pressure.** Schools superintendent Bill Honig shepherded guidelines through.