

(Continued from page 626)

Oroszlan and others, the "R protein" is merely a 16-amino-acid peptide, whose general existence was already known, which is cleaved off another viral protein. Lerner agrees the R protein is only a 16 unit peptide after all, but believes that it is a new discovery which could not have been made without the synthetic antigen technology.

Doolittle and Walter won the publication race they didn't know they were in, even though by the narrowest of margins. Modern research being a competitive enterprise, their rivals were doubtless not obliged to tell them of the race, although it surely would have been a friendly act to have done so. Doolittle's belief that Walter's work was not fairly acknowledged is not an unusual event in academic research; scientists frequently feel, with varying degrees of justification, that their colleagues do not cite their work sufficiently. It was for just this reason that Doolittle initially decided to let the matter slip.

Only when Scripps announced it expected to make a lot of money out of the idea did Doolittle protest what he saw as a breach of scientific etiquette. The syn-

thetic antigen case graphically illustrates how tangible a threat commercialization poses to the exchange of information among molecular biologists. "Ideas are a dime a dozen" is a common phrase by which molecular biologists indicate the readiness of their circulation. But when these dime-a-dozen ideas can be converted so quickly into multimillion dollar deals, circulation is likely to be somewhat inhibited, particularly when the etiquette of acknowledging ownership remains subject to different interpretations.

Doolittle has clearly stated the nature of the problem: "There used to be a good, healthy exchange of ideas and information among researchers at UCSD, the Salk Institute and Scripps Clinic. Now we are locking our doors. The threat to scholarship is serious, indeed," he wrote in a letter to the University of California's Board of Patents. Lerner, on the other hand, believes that fears of what commercialization may do to biology have been much exaggerated and that it is in industry's own interest to change academic patterns as little as possible: "Both industry and university people understand that this is a game

that must be played by preserving academic values. Good research begets good research regardless of the source of funds. That is why it is counterproductive if people start locking doors against what is an essentially healthy development for everyone," he says.

Simultaneous independent discoveries are by no means rare events in science. What makes the synthetic antigen case unusual is the fact of the interchange between the two laboratories, as well as the remarkable degree of closeness between the Scripps team's decision to put their idea into practice and their being told that their rivals had done so. Given these circumstances, and the commercial value of the idea, an element of controversy may have been inevitable. In such an atmosphere, even small matters can assume significance. A more explicit style of acknowledgment to Doolittle and Walter by the Scripps group might not have averted the dispute, but could not but have helped to reduce friction and to maintain the basis of trust upon which colleagues in academic research freely exchange ideas of all sorts, whether they be worth a farthing or a fortune.—NICHOLAS WADE

## Louisiana Puts God into Biology Lessons

*The Governor has signed a "creation science" bill, a move that will probably fuel the nationwide creationist fervor*

Over the stiff opposition of believers in evolution, a second state in the Union has adopted a law requiring that "creation science" be elaborated in the classroom whenever a science teacher makes mention of Charles Darwin and his century-old and surprisingly controversial theory that links the origin of monkey and man. On 21 July Louisiana Governor David C. Treen signed the "Balanced Treatment" bill into law, saying he had received "hundreds of communications on the subject" and was "not free of doubt" about his decision, but that "academic freedom cannot be harmed by inclusion, only by exclusion of differing points of view."

Up in arms over the law is the local educational establishment. The Louisiana Federation of Teachers says it will file suit, the School Board Association says it is considering the same, and individual instructors are irate. Says Miles Richardson, a professor of anthropology at Louisiana State University who teach-

es a course on human evolution: "I've already decided in my own mind that I am not going to teach creationism. Instead, I've sent a copy of the bill to the American Civil Liberties Union."

The new high in the creationist tide is significant in two respects. First, in sharp contrast to an Arkansas bill which was passed with little fanfare or discussion in March, the Louisiana bill was vigorously debated by scientists, creationists, and the press before its adoption. The *State Times* of Baton Rouge called it "a confusion of faith and science" and branded the bill as "half-baked." Second, both the Louisiana and Arkansas bills are based on a model bill being circulated around the country by a conservative group in South Carolina, and its adoption by two states is likely to fuel the creationist drive in other legislatures.

The question is whether the bills, which mirror the nationwide tilt to the right and are widely seen by evolution-

ists as violating the First Amendment separation of church and state, will stand up in court. The American Civil Liberties Union (ACLU) has sued the state of Arkansas over its law in federal court; the trial is scheduled to begin in late October. The ACLU is also considering a lawsuit in Louisiana.

Serving as a peg for much of the creationist fervor is the model bill supplied by the South Carolina group known as Citizens for Fairness in Education. According to Paul Ellwanger, head of the group, 21 states are currently considering creationist legislation, and "the majority of those bills are modeled on ours." He says that many groups have tried and failed to pass their own bills, and that they end up coming to him. "Our bill," he says, "is constitutionally very strong." Ellwanger denies connection with any religious group, an oft-heard statement these days from creationists intent on removing from "creation science" as much metaphysics as

possible. "We are a citizen group, national in scope, who favor academic freedom and are opposed to suppression of information about evolution and creation." Although Ellwanger would not reveal the extent of the group's membership, he did volunteer that he is "in touch with legislators in all 50 states."

The legislative drive is fundamentally different from the tactic pursued by California creationists over the teaching of evolution in public schools (*Science*, 20 March 1981, p. 1331). In Louisiana, creationism is being hailed as a science, while in California evolution was attacked as religion. Both tactics attempt to put creation and evolution on the same footing.

Louisiana is a case study of a state where local creationists tried to pass their own bill, failed, turned to Ellwanger's model bill, and succeeded. The original creationist bill was introduced in 1980 by first-term Louisiana State Senator William Keith, a former newspaper man who teaches Sunday school and derides the fact that Louisiana schoolchildren are taught "that they came from monkeys."

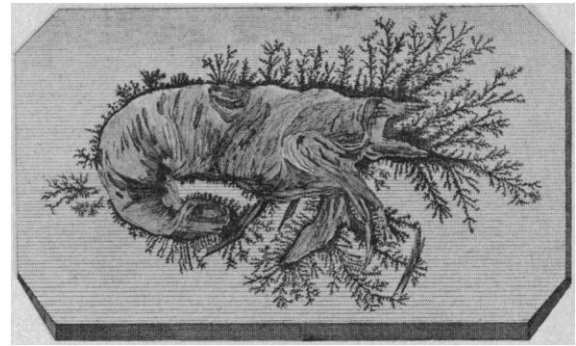
Northern Louisiana, which Keith represents, is part of the Deep South and has none of the Creole ambience of New Orleans or the French accents of the Cajun country. For 150 years Baptist farmers have worked the hills around Shreveport, where Keith has his office. Keith's first bill was easily defeated in 1980, and afterwards Ellwanger's model bill miraculously arrived in the mail. Says Keith, "I took it to a judge friend of mine, the head of the appellate court in Georgia, who said the Ellwanger bill would stand any constitutional test. So I went with most of that language."

Carefully edited to remove any reference to God or religion, the Balanced Treatment for Creation-Science and Evolution-Science Act introduced by Keith in 1981 holds that "balanced treatment of these two models shall be given in classroom lectures taken as a whole for each course, in textbook materials taken as a whole for each course, in library materials taken as a whole for the sciences and taken as a whole for the humanities, and in other educational programs in public schools, to the extent that such lectures, textbooks, library materials, or educational programs deal in any way with the subject of the origin of man, life, the earth, or the universe. When creation or evolution is taught, each shall be taught as a theory, rather than as proven scientific fact."

One of the most popular sections, says Keith, was the one prohibiting discrimi-

### **Fossil fish**

*Evidence of evolutionary mechanism or the divine touch?*



nation. "We have quite a few creationists in the universities," he says, "and they were being harassed by their peers. We wanted to be sure in Louisiana that we had academic freedom. . . . Who is in charge of our public schools? The taxpayers pay for the buildings and the textbooks, and yet they get a lot of stuff taught that they don't agree with. Is it the taxpayer's education or the educator's education that is getting handed down to our children?"

The bill easily passed the legislature on 8 July. It made no attempt at defining "creation science," other than to say

---

**"I've totally given up on those who say we're going to teach the Genesis account."**

---

this "means the scientific evidences for creation and inferences from those scientific evidences." According to Keith, this is one reason the bill is so clean from a constitutional point of view. "I've totally given up on those who say we're going to teach the Genesis account. These eggheads have never even read the bill. The bill prohibits teaching the Biblical account of creation." Other alleged constitutional strengths are that it mandates the teaching of creationism only if and when evolution is taught. Also, the law requires balanced treatment, not special treatment for one point of view or the other.

Upon passage, letters and telephone calls protesting the bill swept down on the capitol in Baton Rouge, and Governor Treen waited until the last minute, 11 days, before signing. "Many of the hundreds of communications I have received lack a knowledge about the particulars of

the bill," said Treen in a four-page statement explaining why he did not veto the bill. "From my own Tulane University I have received letters from the faculty of the department of biology on both sides of the issue. . . . The power of the veto should be used sparingly, especially when the elected representatives of the people of this state have overwhelmingly approved legislation after full debate."

The act will not go into effect until the 1982-1983 school year.

In contrast to the hesitation of Governor Treen, Governor Frank White of Arkansas lost no time in signing their "Balanced Treatment" bill (which became law only 2 days after it was introduced), and apparently had few doubts after the fact. In response to an evolutionist who protested the law, Governor White wrote, "The churches of Arkansas had nothing to do with the creation science bill. The creation science bill will give equal treatment of creation science and evolution science. I enclose for your information an example that we find on evolution where experts can't even agree. My point is evolution is based on untestable assumptions. While your letter was offensive, it is an excellent example of the garbage theory you discussed. As a public official, I accept your criticism, and forgive you for your arrogance and ignorance."

The creationist fervor on the state level may soon be matched by a national legislative drive. Model-bill maker Ellwanger, who heads another group based in Anderson, South Carolina, known as Citizens Against Federal Establishment of Evolutionary Dogma, says that their group has drafted a national bill that would promote research support for "creation science" and would also outlaw lectures on evolution in national parks and close down displays on evolution in federally supported museums. Although he would not say which congressmen have expressed interest in the bill, he did say it would probably be introduced "any day now."

—WILLIAM J. BROAD