Arkansas verdict against creation science

But battle now to move to Louisiana

Washington

Last week's ruling by a federal judge in Little Rock, Arkansas, that a state law requiring equal treatment of "creation science" and Darwinian evolution in public schools is unconstitutional, represented a significant victory for those who have argued that, even without any explicit reference to the Bible, such laws violate the required separation of church and state.

Yet if this particular battle has been won, the war against the creationists is far from over. Indeed both the publicity given to last month's trial in Arkansas and the apparent reasonableness of the demand for "balanced treatment" have in some ways helped the creationists' case. Only minutes after Judge William Overton had announced his verdict, the state Senate in Mississippi passed by a substantial majority a virtually identical bill to the one which had just been declared unconstitutional in Arkansas.

Judge Overton was uncompromising in his criticisms of Act 590, passed hurriedly by the state legislature in March during the closing hours of its 1981 session. Declaring creation science as having "no scientific merit or educational value", he said that "the conclusion is inescapable that the only real effect of Act 590 is the advancement of religion".

The verdict came on a suit against the state which had been brought by the American Civil Liberties Union (ACLU) on behalf of 23 local religious organizations, biology teachers and school children. ACLU had asked that the judge overturn the law on the grounds that the act constitutes an establishment of religion, abridges the academic freedom of both teachers and students, and is impermissibly vague, "all in violation of the constitution and laws of the United States".

During ten days of hearings at the beginning of December, ACLU produced a series of religious and scientific witnesses to support its arguments. The former developed the claim that, whatever the wording of the act, they felt its intention to be clearly religious, since the particular set of circumstances which it implied for the origins of the Earth was only compatible, among available descriptions, with the version that appears in the Bible.

Scientists called to testify on behalf of ACLU disputed claims made by creationist groups that conventional evolutionary theory is so full of holes that the alternative hypotheses they support are at least sufficiently plausible to deserve a hearing in a public school classroom. They also claimed that creation science did not meet the criteria for scientific theories generally accepted by the scientific community, although this was disputed by some of the creationist witnesses produced by state attorney general Steve Clark as part of his defence of the law.

In the end Judge Overton — as had been widely expected — agreed with ACLU's position. But the strength of his criticisms of the supporters of the bill surprised even those who had been expecting a favourable verdict. In a 38-page written opinion, the judge provided a detailed description of the reasons why he found none of the creationists' claims convincing and said that they had admitted that the law was "a religious crusade coupled with a desire to conceal this fact".

The judge criticized the creationists for not taking data and weighing them against alternative scientific data in an empirical way to reach their conclusions. Rather, he said, "they take the literal wording of *Genesis* and attempt to find scientific support for it".

The verdict was, predictably, welcomed with relief by the scientific community. The American Association for the Advancement of Science, whose annual meeting in Washington last week had spent much time discussing the implications of the creationist controversy, issued a statement saying that, in Arkansas at least, "teachers now can get back to teaching science, and students can get back to learning".

Similarly the National Association of Biology Teachers, co-plaintiffs in the ACLU suit, said that it was "gratified" by

Creationism judged a religion, not science

Washington

In his verdict, Judge William Overton said that the evidence presented during the ten-day trial "established that the definition of 'creation science' has as its unmentioned reference the first 11 chapters of *Genesis*", and that "references to the pervasive nature of religious concepts in creation science texts amply demonstrate why state entanglement with religion is inevitable" under the Arkansas law, referred to as Act 590.

"The two-model approach of the creationists is simply a contrived dualism which has no scientific factual basis or legitimate educational purpose", Judge Overton wrote. "The emphasis on origins as an aspect of the theory of evolution is peculiar to creationist literature. Although the subject of origins of life is within the province of biology, the scientific community does not consider origins of life a part of evolutionary theory."

In line with arguments that had been presented by the American Civil Liberties Union, Judge Overton stated that the essential characteristics of science were: (1) that it is guided by natural law; (2) that it has to be explanatory by reference to natural law; (3) that it is testable against the empirical world; (4) that its conclusions are tentative, that is, are not necessarily the final word; and (5) that it is falsifiable. Creation science, he said, as defined in the Arkansas act, failed to meet these essential requirements.

"Some of the state's witnesses suggested that the scientific community was 'close-minded' on the subject of creationism and that explained the lack of acceptance of the creation science arguments," Judge Overton wrote. "Yet no witness produced a scientific article for which publication had been refused. Perhaps some members of the scientific community are resistant to new ideas. It is, however, inconceivable that such a loose-knit group of independent thinkers in all the varied fields of science could, or would, so effectively censor new scientific thought.

"The methodology employed by creationists is another factor which is indicative that their work is not science. A scientific theory must be tentative and always subject to revision or abandonment in the light of facts that are inconsistent with, or falsify, a theory. A theory that is by its own terms dogmatic, absolutist and never subject to revision is not a scientific theory."

The next biology lesson is taken from the Book of Revelations....

As he had indicated during the court proceedings last month, Judge Overton made no direct reference in his ruling to the status of evolutionary theory as a science.

David Dickson

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the ruling, claiming that "school boards can now resist pressure to include creationism in science classes". Indeed, as a result of the Little Rock decision, a school board in Tacoma, Washington, last week stopped requiring the teaching of creationism in biology classes.

However, the dispute is not going to wither away and the next major test will come later this year in Louisiana, which also passed a law requiring equal treatment for creation science and evolution in its public schools last year. Ms Martha Kegel, the executive director for the state's ACLU chapter which is mounting a comparable challenge to that raised in Arkansas, said last week that she was "elated" not only by Judge Overton's verdict, but by the detailed critique of creation science that he had developed on the basis of the testimony delivered during the Little Rock trial.

Yet the Louisiana case is far from clear-cut. In the first place, the local judge is under no legal obligation to take Judge Overton's verdict into account, since it is a separate jurisdiction.

Second, the Louisiana bill omits some of the detailed provisions of the Arkansas law, for example its stipulation that creation science must include the notion that the Universe, energy and life were created "from nothing", a requirement which several religious witnesses said clearly implied the necessary existence of a creator. ACLU claims that this change only exacerbates the extent to which the bill is unconstitutionally vague; the creationists hope that this revision will remove the basis for some of the strongest objections.

Third, leading members of the creationist movement are likely to take a much more active role in the prosecution of the Louisiana case than they were permitted to do in Little Rock.

Meanwhile in Arkansas the state attorney general has yet to decide whether to implement his previous promise that he would appeal against the verdict if it went against him. And in ACLU, contingency plans are being discussed for Mississippi, in case it is decided that the law should be contested there as well. **David Dickson**

University of London

Separatists emerge

The University of London, parts of which already live with the threat of bankruptcy, now faces balkanization as well. Last week, University College, the largest multidisciplinary college in the university (with 6,000 students) formally asked that it should in future be dealt with financially as if it were an independent university, with its own grant allocation from the University Grants Committee.

The demand is more like gauntlet thrown down before the university's management than a unilateral declaration of independence. Sir James Lighthill, Provost of University College, nevertheless says that the college would continue to play a full part in the university even if, like Imperial College, it were directly financed.

Especially since last summer's delayed allocation of funds to the London colleges by the court of the university, University College has been a fierce critic of the court's procedures. Last year, Sir James Lighthill won acceptance of the principle that a college's success in obtaining research grants should count — in its favour — in the annual distribution. The precedent for his latest move is Imperial College, which has been directly financed for the past two decades.

The problem now facing the university court, the ultimate authority which shares out funds among the colleges, is tricky. It is certain to regard financial independence for University College as a dangerous precedent. But the court must also be conscious that with the impending retirement of the principal (its chief officer), Mr J. R. Stewart, together with some of his more experienced colleagues, its ability to administer its funds intelligibly may be further impaired.

Discontent about the court's procedures has been simmering since the summer, when the court translated the grants committee's targets for 1983–84 into financial allocations for the present academic year and target student numbers for two years ahead. One difficulty for the colleges is that they are required to adjust to reduced budgets without knowing whether their individual plans for the future will add up to what the grants committee expects of the university as a whole. This gap will be bridged only after the publication (expected next week) of the reports of the committees set up in September to consider the balance of teaching in broad subject areas.

Meanwhile, the non-medical parts of the university have made little headway with reorganization. The announced bethrothal of King's College and Bedford College has not led to marriage but to an agreement to associate. The plan for an association between Queen Elizabeth College (the smallest in the university) and Imperial College has been put on ice, partly because Queen Elizabeth College could not accept that the association should be contingent on conditions, such as the provision of new buildings, that could not be satisfied for some time to come.

The late starters have on the whole done best. Chelsea College, faced with starkly reduced numbers and the continuing cost of buying its new site, began the academic year with a draconian plan which entailed the elimination of whole departments, and is now in a position to make substantial economies while softening its plan. And Royal Holloway College, blessed with a huge site 20 miles from central London, is being reluctantly courted by various suitors hopeful that they may be able to turn their city sites into handsome dowries.

Academic censorship

Shadow ahead

Washington

Admiral Bobby Inman, deputy director of the US Central Intelligence Agency, last week dismissed as "somewhat disingenuous" the blanket claims of scientists to scientific freedom in the light of arrangements routinely made with private, corporate sources of funding, and said that the overlap between technical information and national security "inevitably produces tension".

Admiral Inman, who as head of the National Security Agency under the Carter Administration started a dialogue with the scientific community over how to handle potentially sensitive but unclassified research in cryptography, also urged co-operation between scientists and security agencies to find a mutually acceptable relationship "before significant harm does occur which could well prompt the federal government to overreact". He suggested that a potential balance between national security and science "may lie in an agreement to include in the peer review process (prior to the start of research and prior to publication) the question of potential harm to the nation".

The admiral's remarks, delivered to a session forming part of the annual meeting of the American Association for the Advancement of Science (AAAS) in Washington, provoked a strong protest from some of the scientists present.

Professor Peter Denning, for example, professor of computing at Purdue University and president of the Association for Computing Machinery, claimed that efforts to restrict the publication of technical research data reflected a growing protectionist mood in the government which would stifle scientific communication and ultimately prove destructive to the growth of new technologies.

Responding to such concerns, the board of directors of the AAAS later passed unanimously a resolution opposing government restrictions on the dissemination, exchange or availability of unclassified knowledge. Others who took part in the AAAS session, however, accepted that the issue was not clear cut, and that many of the government's concerns were legitimate — even if they had occasionally been executed over-zealously, or had had their legal ambiguity exploited in the past.

Dr Mary Cheh, for example, professor of law at George Washington University, said in a paper on the government control of private ideas that the real question was not whether the government was justified in imposing secrecy on scientific research, but how far its efforts should be permitted to go.

Similarly, Congressman Paul McCloskey presented a paper, read in his absence, describing his legislative efforts to introduce a new bill aimed at clearing up

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