



journalists, editors and librarians.

The experiment is designed chiefly to identify the problems encountered by authors, editors, referees and readers in conducting editorial business on computers. Consideration will also be given to the possibility that electronic journals could fulfil the role of conventional journals. The experiment is also being used to investigate the role of computer networks for other less formal types of communication, such as newsletters, requests for comments on papers before submission to the journal, general communication between groups working on similar problems, the collaborative writing of papers and simply sending messages.

Members of the team working on the project say they are satisfied with the first year's results, ascribing their electronic journal's success in attracting papers to flexibility. In its purest form, an electronic journal would eliminate all paper; writing and editing would be done by means of VDUs (visual display units) and all transactions carried out over telecommunications links. Readers would also have access to the journal on their VDUs from a central computer memory.

Users of the journal preferring to see results on paper can get hard copy from printers at their terminals, and authors are also given flexibility by being allowed to submit papers either on-line or in the conventional way by posting typescripts to the editor. The editor can in-put perfect typescripts by optical character recognition but has to type in untidy ones on a word-processor. Of the 16 papers submitted so far, two have been on-line, and the rest came as typescript too untidy for optical character recognition.

The project, under editor Professor B. Shackel and his assistant Dr David Pullinger, is based at the University of Technology, Loughborough, and the central computer facility is provided by the University of Birmingham under the direction of Professor P. Jarratt. The 50 participants in the project, from universities throughout Britain, make up the journal's contributors and its only readers. Contributors are allowed to submit papers to conventional journals three months after submission to the electronic journal.

Although that option undermines the value of the electronic journal, its absence in the earlier United States experiment is thought to have dissuaded many potential contributors.

With two more years to run, the project is still at an early stage and the team is reluctant to draw many conclusions. Questions to be addressed, however, include the extent to which users can manage without paper, whether electronic journals could publish faster than conventional journals, the suitability of publishing papers and letters as soon as they are accepted rather than in batches as "issues" and alternative methods of refereeing.

Cost comparisons between electronic and conventional journals will be particularly difficult to assess. Capital cost could be minimized by using equipment initially acquired for other purposes, but running costs — chiefly the cost of using the telephone — will fall not only on the "publisher" but also heavily on users. One particular headache is how to compare the cost of reading time for conventional and electronic journals.

Even if this latest experiment demonstrates that electronic journals are feasible, the day when they become a practical reality in major subject areas is a long way off. The electronic journal, if it arrives, is likely to creep in gradually. Conventional journals, for example, may introduce new technology giving authors and readers the option of on-line access. But the problems of going entirely electronic are too formidable to be contemplated seriously for a few years yet.

Judy Redfearn

Creation science trial Verdict awaited

Washington

It may be another week before the verdict is known on the creationist trial which ended in Little Rock, Arkansas, last Thursday. Initially, Judge William Overton had promised an immediate verdict on whether a new state law requiring equal time for the teaching of evolution and "creation science" in state schools was unconstitutional.

At the end of the two-week trial, however, the judge announced that the amount of evidence presented was so large that his verdict would be delayed, although he has promised to deliver it by 31 December.

Despite the delay, the American Civil Liberties Union (ACLU), which brought the case on behalf of several local religious groups, biology teachers and school children, is confident that it has won. "It was no contest," Mr Bruce Ennis, the chief ACLU attorney, said after the trial had ended. "The state did what it could do. It was inadequate not because it did not do its job, but because creation science is a religion."

Supporters of creation science also

seemed to be accepting their defeat. But in this case the blame was being placed on the performance of state attorney general Steve Clark in defending the creation science law. The creationists promise a tougher fight in the next court case, which is likely to be a similar challenge against a creation science law passed in the state of Louisiana.

Although Judge Overton has yet to declare his verdict, he did say that it would be limited to the question of whether the creation science version of the origins of the world was religion, despite any explicit religious or biblical references in its description in the Arkansas law.

He added that he would not undertake to decide the validity of the biblical version of creation nor the theory of evolution. ACLU has asked the judge to determine various "findings of fact" — such as the definition of a scientific theory being based on natural laws and being "explanatory, testable and tentative" — which it hopes can be used in future court battles.

The second week of the trial was taken up largely by various witnesses called by the state to present a case in favour of creation science and the Arkansas bill, virtually identical copies of which are now pending before almost 20 other state legislatures.

Cross-examination by ACLU attorneys provided some colourful testimony. One supporter of creation science, having described how a creator could still be a scientific concept, perhaps comparable to Aristotle's "first cause", went on to describe his belief in exorcism and unidentified flying objects, claiming the latter to be attacks by Satan on God's world.

The star witness for the defence was Professor N.C. Wickramasinghe, head of the department of mathematics and astronomy at the University of Wales in Cardiff. Professor Wickramasinghe told the court that the odds against life originating by chance anywhere in the Universe were so high as to be virtually impossible. "One is driven almost inescapably to accept the possibility that life results from deliberate creation", he said.

He claimed that his own theories about the possible existence of microorganisms on comets bringing life to Earth had been rejected by other scientists largely because of their "indoctrination in Darwinism".

But if such statements were music to the ears of the creationists, there was less consolation when Professor Wickramasinghe was asked to comment on the creation science law, when he claimed that most of it was "claptrap", and that "certain parts of the law are demonstrably wrong".

One of the scientific witnesses who had been expected to appear for the defence unexpectedly left town shortly before he was due to testify. Another scientific witness whose appearance was cancelled by the state was Henry D. Voss, an electrical engineer who has published papers on space physics.

David Dickson