

nology varies considerably from applied science to a rather diffuse sort of sociology. The forty participants, from universities, colleges of education, the Schools Council and the research councils, also disagreed about whether technology should be taught for its own sake—with all the disciplines that embraces—or whether teachers in all subjects upon which technology impinges should be made more aware of technological implications and should then cooperate to encourage children to tackle suitable projects. This second view that technology should be taught by a change of attitude rather than a change of subject was the more popular at the conference and was clearly seen by some as part of a more broadly based approach to education as a whole, so that subjects that interrelate are taught together, in the humanities as well as the sciences.

The Open University's proposed course was cheered on, but if technology is to be introduced into schools by retraining teachers some of the participants were clearly apprehensive about the amounts of equipment that will be needed. Professor Holister suggested the provision of kits of the type to be used for the Open University technology course might help. But others argued that kits are limiting and tend to become an end in themselves as Professor Carter of Salford University claimed the Nuffield Science O- and A-level kits have become. Should technology in schools be the solving on paper of problems with as many social and economic aspects as technical ones, or should it be the understanding and use of computers and other technical equipment? Either way there were warnings that technology in schools will cost money. Those involved in A-level courses in engineering claim that a teacher cannot handle classes bigger than twelve if open ended problems are to be studied like the technical, social and economic problems of high rise flats.

At present technology in schools is encouraged largely by the Schools Council's Project Technology — which began life in 1967 and which provides teaching material to 1,000 schools. This material is soon to be published in book form. After Project Technology's demise in August 1972, there will be little active encouragement of school technology other than by a number of bodies that intend to carry on Project Technology's work, although, to date, they have more enthusiasm than money. There are also fourteen technology advisers to local education authorities and four (there are more planned) local science and technology centres which provide schools with facilities. But with 163 local education authorities in England and Wales alone, these are only

a drop in the ocean, unless something like teacher retraining is undertaken.

What emerged from the conference was a rather hazy conviction that more must be done to introduce technology into schools. But what that technology in fact is, and how it should be taught, have yet to be defined.

#### ANTI-VIVISECTION

### Cells do not Suffer

THE Anti-vivisection Society's bandwagon rolls on with the release of a film last week to promote opposition to experiments on living animals and a campaign for a national centre to investigate methods of research without vivisection. When the society was formed in 1875, 300 experiments a year were carried out on live animals; last year the figure was just over 5½ million. The society opposes in principle all painful experiments on live animals even where man benefits directly, but appreciates that these cannot be stopped overnight. Its first object is therefore to change the law so that no animal may be subjected to vivisection if there are alternative methods—such as cell culture—available.

The society claims that support for its cause is growing. One hundred and thirty Members of Parliament are said to have pledged their support, and the society claims that a letter sent to the 14,000 researchers licensed by the Home Office to work on living animals produced 1,000 replies supporting in principle the research centre they propose. They also admit to receiving 1,000 letters against their proposal.

Asked to put a figure on the cost of such a centre, the society estimates that the first step in such a scheme—the collation of all known material on research methods other than vivisection—would cost £0.5 million, but that the actual cost of building the centre is anybody's guess.

Mr Richard Body, MP, one of the society's vice-presidents, claims that Britain is "far behind countries such as Turkey, Yugoslavia and even Russia" in concentrating on cell and tissue culture rather than vivisection, although in fact the legal controls in Britain are among the stiffest in the world. Every laboratory has to be licensed by the Home Office (there are about 600) before it can experiment on animals, and every researcher within a laboratory has to have a personal licence. Whether the anti-vivisectionists will ever command enough public and parliamentary opinion to achieve their aims remains to be seen, but the adoption of a resolution by the Consultative Assembly of the Council of Europe last January recommending a study of alternative methods to vivi-

section may lend some support to Mr Body's claim that the movement is "rapidly gaining ground".

#### EUROPEAN LABORATORY

### Still Waiting

THE absence through ill health of Professor G. Puppi, chairman of the Esro council, from the council meeting held in Paris on November 23 and 24, caused the expected press conference to be cancelled and probably saved Esro a great deal of embarrassment. The Esro council continued its meeting this week and it is expected that an announcement about the future of the European Space Research Institute (Esrin) will be made today (December 10).

The meeting held two weeks ago was notable for the measure of disagreement among the delegates on the future course of Esro. In particular, no decision was reached on the vexed question of whether Esro is to continue supporting Esrin and the Italian plan for the future of the laboratory (see *Nature*, 234, 165; 1971) was not discussed—ostensibly because of the absence of Professor Puppi who has been personally conducting negotiations with the interested parties. In spite of there being no detailed discussion on the future of Esrin, the Italian delegation confirmed reports that they were determined to keep some Esro activity at Esrin—according to the plan that was discussed this week, the Italian delegation suggested that the Centro Nazionale delle Ricerche (CNR) contribute \$1.7 million towards the running costs of Esrin and Esro the remainder—which would amount to \$1.0 million.

The original objection to the continued existence of Esrin within the Esro framework was that it carried out research that was not compatible with the present aims of the organization. It was therefore surprising at the meeting on November 23 and 24 that both the German and Dutch delegations made statements to the effect that the continued support of Esrin in its present form amounted to a financial problem for the organization.

The threat of the Italian withdrawal from Esro hung over the meeting (see *Nature*, 234, 3; 1971) and although it was agreed at the Esro council meeting held in July that Germany, France, Italy and Britain would continue to support the applications satellite programme, the Italians now mentioned that they were reserving their support—probably until a decision was made on the future of Esrin. As a result of the Italian change of heart the Esro council this week reconsidered the future plan for Esro that was mapped out in July.