their study under the auspices of the Scientists Institute for Public Information.

● **Alastair Hay adds:** At the time of the Seveso explosion, 150 women resident in the area were in the first trimester of pregnancy. Most of the women applied for a therapeutic abortion when informed of the teratogenic properties of dioxin. Following examination by health officials of 730 pregnant women formerly resident in the contaminated area, only 29 have had the operation. The fetuses removed from these women are currently being examined for any signs of abnormality.

Professor Francesco Cefis of the *Istituto Clinico di Perfezionamento* in Milan, and Professor Alfred Gropp, Head of the Pathology Department of Lübeck Medical School in Germany, are in charge of the investigations. Neither would comment last week on the results of their observations so far. Only five of the 29 fetuses have been examined and Professor Cefis estimated that it would take another two months to complete the study. By then women who were in the earlier stages of pregnancy in July will be six or seven months pregnant—too late for an abortion to be performed.

The rate of spontaneous abortions in the Seveso area is reported to have increased to twice the Italian national average since July. The rate of miscarriage was reported to have increased similarly in Vietnam following spraying with the herbicide 2,4,5-T. Both the trichlorophenol discharged at Seveso and the 2,4,5-T used in Vietnam contained dioxin. The Vietnamese authorities maintain that dioxin was responsible for the miscarriages

Towards anticipating disaster

In Britain last week the Insurance Technical Bureau (ITB), which leading insurance groups established in 1972 as a non-profit making organisation with "technical expertise in the field of industrial loss prevention", demonstrated 'Anticipator', a new system designed to alert managers of chemical plants to potential hazards in their site installations.

One of the recommendations made by the 1974 Court of Inquiry into the Flixborough disaster was that some form of recorder should be made available to monitor operating conditions in industrial installations. This would perform a function similar to that of the 'black box' flight recorder in aircraft. 'Anticipator' is a sophisticated monitoring system with its own computer which will register information about pressure, temperature, flow rates,

gas leaks, vibrations and other factors relevant to the safe operation of a chemical plant. It can be pre-programmed to record only data which fall outside normal working parameters, making interpretation a relatively simple process.

The designers argue that incidents usually "cast their shadows before them", and feel certain that Anticipator would have prevented accidents such as those at Flixborough and Seveso. With the primary research and development work now completed at a total cost of £50,000, the ITB propose to find a commercial concern to develop the system for marketing. The trouble is, the biggest firms do their own monitoring, and the smaller ones may not be able to afford the new device.

Alastair Hay

which they recorded.

Meanwhile, the scientific commission responsible for formulating a policy to decontaminate the area containing dioxin has still not agreed upon methods to be employed. Frustration at the apparent inactivity has been expressed both by experts anxious to begin the work of decontamination, and by former residents of the area who last week tore down protective fences in protest at the delay.

The work of the commission has been hampered by the disagreement among experts concerning the amount of dioxin to be dealt with. Dr Donald Lee of the Plant Pathology Laboratory at Harpenden, UK, suggests that 130 kg of dioxin was released in the explosion, and Professor Samuel Ep-

stein of the University of Illinois, considers the figure of 300 lb of dioxin to be "about right". But a group of chemical engineers invited by the commission to submit a programme for decontamination estimate that 1-3 kg of dioxin was released, a figure based on results obtained from a simulation of the explosion.

The two top officials of ICMESA, who after being arrested and charged with culpably causing a disaster were released on bail to supervise decontamination work within the ICMESA plant, have since been rearrested and criminal proceedings have begun. The criminal prosecution will be conducted at the same time as the civil proceedings brought against Hoffman-La Roche, ICMESA's owners, by the Italian authorities. □

EEC

Manoeuvring for agreement

The EEC's Council of Research Ministers met in Brussels last week to discuss once again the Joint European Torus (JET), the Community's fusion project, and the research programme for the Community's Joint Research Centre (JRC). Chris Sherwell reports

So near and yet so far. The EEC now looks sufficiently close to agreement on the site for JET that the small step the Council of Research Ministers took at their meeting last week may in retrospect come to look like a giant leap for the Community. But because there is still ample scope for more than one hitch, the prospect could be as much for a leap backwards as a leap for-

wards.

On paper the progress that everyone is keen to say really did occur in Brussels certainly looks very slight. The Council reached just one firm decision with any consequence in terms of action or expenditure. This was that the Community's fusion programme, which is undertaken by a number of associated laboratories in the member states but does not include JET, could go ahead for another four years.

To call that insignificant, though, is to reckon without the intricacies and nuances of Community deliberations. Until now there has been no agreement on expenditure for the full five years of the fusion programme. When the programme first came up for discussion

last December, Italy refused consent, saying she could not agree without a decision on a site for JET. She modified this position at a February Council meeting, allowing just one year's expenditure. In the view of one senior official in Brussels, therefore, the absence last week of continued further blocking of the programme from Italy means that the decision can be interpreted as a positive sign for JET.

What changed Italy's mind? The answer is to be found in the way the JET argument has developed. Italy's concern has always been principally over the fate of Ispra, one of the four establishments constituting the JRC—the others are in Germany, Belgium and the Netherlands, but Ispra is the largest with two-thirds of the JRC staff. By the last Council meeting in October it had become clear that progress on

JET might be possible if the Council would sanction in full the four-year (1977–1980) JRC research programme put up by the European Commission during the summer, much of which would go to Ispra.

The difficulty, however, was that Britain, France and Germany had made various demands for cuts in staff and expenditure on the proposed JRC programme. Germany was seeking cuts of less than 100 in staff, France was looking for cuts of around 200, and Britain had proposed a figure in excess of 300. Modifications in these demands was plainly necessary if there was to be any relaxation in the Italian demand for JET at Ispra—a demand which the Commission had itself backed on the grounds that a Community project should go to a Community centre.

The flexibility was evidently there, and the key development last week was a provisional agreement on these matters. Britain and France went to Brussels apparently prepared to pare back their demands to around 100—the number which it was thought could be lost through “natural wastage”—and eventually conceded along with Germany that the figure could be 80. This was the compromise proposal put up by the Commission after no agreement could be gained on the Commission's original compromise proposal of 50. It is damaging to Italy's hopes for Ispra inasmuch as the staff cuts, details of which obviously have to be finalised, are likely to fall most heavily on Ispra.

The agreement makes for a reduction in operating expenditure from 175 million units of account (mua) to 146 mua and so cuts the overall JRC budget for the four years to something like 346 mua. But there is a catch in all this: the agreement is conditional on

a suitable agreement being reached over JET. Thus, although the JRC research programme is at last final, little if anything can be done about it without further progress on the matter of the JET site—and on this there was little progress in Brussels.

What chinks of light there are, though, suggest that the matter is now delicately poised. Seven of the nine countries agreed last week that the site ought to be at a location with previous practical fusion and plasma physics experience. Significantly, it was France and Italy who thought this not to be relevant. France's proposed site, Cadarache, does not have fusion experience. Ispra has fusion experience and is not officially withdrawn, even though it now looks a less strong candidate with the provisional agreement on the JRC programme. The cases of both Culham in Britain and Garching in West Germany are strengthened by their experience.

The uncertainty is thus tangible. There are differences between France and the other countries on the degree of Euratom staffing that JET ought to have. But these are thought not to be insuperable. More importantly, the Council could not even agree last week on a procedure by which agreement might be reached. As a result, the Dutch chairman, Mr Brinkhorst, and the EEC Research Commissioner, Mr Brunner, are to tour the countries concerned to discuss the sites still further. If they determine that the basis for an agreement exists—the agreement when it comes will have to be unanimous—they will call for another Council meeting, provisionally scheduled for December 20.

The Community's fusion director, Mr Palumbo, has a few illusions about

that meeting, since if it takes place it would be the last one as far as JET was concerned. If it doesn't take place, he stresses, the whole project could be seriously endangered. Officials concerned with the JRC are somewhat more sanguine about the impact of a delay on the research programme, even though it is due to start in January. But the delay could be enormous. A new country takes the Council chair in January. That is Britain. And a new president takes over at the European Commission. He is from Britain. The latter change could well exacerbate any delay. Both changes could, in the present circumstances, make a difference to the outcome over JET.

No one, of course, is saying that the changes will help Culham win JET. But it was generally agreed last week that the choice had now narrowed substantially. In fact the case for Culham may well be strengthening. If Ispra is now discounted, the argument goes, that leaves Cadarache and Garching as Culham's competitors. And the rather sudden strength in the previously quietening voice for Cadarache can be discounted because it comes too late, because seven countries think experience is important and because Britain wouldn't wear it.

Garching can also be discounted, the argument goes on, because the Germans once again did not push strongly for it at last week's meeting, because it has the biggest fusion programme of the nine countries and plans its own large machine (AZTEC) anyway, and because it already has a Community research establishment. But if Germany does not get JET, what would it get? Well, speculate the cynics, watch out for a German filling the post of JET project director. □

BRITAIN

Changing the framework

A UK parliamentary committee last week published a 96-page report on university-industry relations. Chris Sherwell reports on the various institutional proposals of what could become a controversial document

WITH friends like the House of Commons Select Committee on Science and Technology, those amongst Britain's science community looking for a bit of stability in the country's science policy framework may not need enemies. For at the very time when the projected evolution of that framework seems virtually complete, the committee has published a wide-ranging report going beyond the narrowest confines of its

subject to offer proposals for further substantial changes.

The report is the result of written submissions and a score of public hearings initiated by the committee's Science Sub-committee. It follows an interim report on scientific research in British universities published in July 1975 and a second report released at the end of last year, and is “concerned with the purposes of the institutions of advanced scientific education and research”. The committee, clearly inspired by the idea that science policy should relate to the general social and economic objectives of the community, says it is essential “that we should be prepared to re-examine the organisation of science and scientific education in

terms of our current needs”.

Its recommendations regarding the framework within which British science policy is conducted may not throw the whole matter into the melting pot again. But in focusing directly on the country's capacity to conduct research and development they seem certain to fuel the arguments over whether an explanation of Britain's economic performance is to be found in the areas of innovation, investment and productivity, and hence also in the very platform of its science policy.

The most far-reaching recommendations are for the appointment of a junior minister in the Department of Education and Science (DES) with responsibility for science, for the transfer of funds from the Science Research Council (SRC) to the Department of Industry (DoI), for a review of the