Big science

German doubts

WEST Germany is in the process of reviewing ten major scientific projects which would cost more than £500 million if all were funded now. They range from a continental deep drilling project which would reach the Mohorovic discontinuity at a cost of £30-75 million per hole to the possible commitment to the European proposal to build a large electron-positron ring (LEP) at CERN, Geneva at an estimated cost to Germany of £90 million.

The German research ministry, the BMFT, has set up an *ad hoc* committee of seven distinguished scientists and one journalist (to give "the people's view") which has already begun taking evidence. The cases have been heard for LEP, HERA (an electron-proton ring proposed for the DESY laboratory near Hamburg) and a relativistic heavy ion accelerator (10 GeV per nucleon) for the nuclear laboratory GSI at Darmstadt.

The chairman of the committee, Professor Klaus Pinkau of the Max-Planck-Institute für Physik und Astrophysik, Munich, said last week that he would make "a brave attempt" to finish all the hearings before August; the committee's views are not requested before mid-1981, but the sooner they are received by the new government after the October 1980 general elections, the more likely they are to affect policy, Pinkau believes.

It is not possible, says Pinkau, to make a linear list of priorities through the projects; rather the committee must "model a research landscape". The committee has been given no financial guidelines, so that it will be "a piece of artistry" to work out what the government can afford. Pinkau sees the committee as one lying between scientists and government rather than a part of government: it will make judgements among the projects on their merits, and then turn around and plead with government on behalf of those it supports.

Despite the strength of the German economy and the scale of the package of proposals now being reviewed, financial pressures are now making themselves felt. Recently, the minister for universities, Dr J Schmude, said in a speech at the Deutches Forschungs Gemeinschaft (which funds most German university research) that scientists would have to be prepared to spend less. The national budget is being pressed by the world recession, the increasing defence budget and an increased contribution to the European Community budget to offset Britain's soon-to-be-reduced subscription as negotiated by Mrs Margaret Thatcher. "Research won't be exempted" from the cuts to come, said Pinkau.

One result will probably be that the biggest projects on the list will not be funded simultaneously. And the most direct conflict now seems to be between HERA (for Hamburg) and the relativistic heavy ion accelerator (for Darmstadt). LEP is an international project which would be paid for if the current budget for CERN at Geneva can be maintained at something like its present level. Germany has said that, on terms like these, it will not object.

HERA (electron-proton) and GSI (relativistic nuclei) are, however, both national projects in closely adjacent fields. HERA would probe the structure of the proton and the quark, and the GSI device would create, for example, regions of extreme nuclear density which in principle could simulate neutron star conditions (although it would be difficult to extract the relevant information from the experiments). And, said Pinkau cryptically, "one should be aware that DESY", where HERA would go "is an internationally important laboratory". **Robert Walgate**

Major projects under review

	Cost (million DM)*	Timescale (yr)	Proposer
Spallation neutron source	400-570	8-15	Karlsruhe and Julich
BER II reactor improvement	47	2	Hahn-Meitner Inst., Berlin
Relativistic heavy ion accelerator	190	6	Darmstadt
Superconducting nuclear cyclotron, 250-300 MeV per nucleon	a) 44 b) 33	4-6	a) Julich b) Technical Univ., Munich
Ion beam fusion accelerator	100	5	Karlsruhe; *proposal withdrawn*
LEP	350 (for Germany)	6-8	CERN, Geneva
HERA	600	7	DESY, Hamburg
European synchrotron radiation source	100-230	5	European Science Foundation
Research vessel	75	2	DFG; to replace 'Meteor'
Continental deep drilling	120-300	1-5	DFG; price is per hole

* £1 sterling = 4.14 DM

Genetic manipulation

Soviet claims

On at least two occasions in the past month, the foreign services of Moscow Radio have put forward the startling claim that a team of geneticists at the Institute of Genetics and Cytology of the Byelorussian Academy of Sciences in Minsk have succeeded in manipulating the symbiotic bacteria of cereals to yield nitrogen-fixing properties.

The claimed success is surprising, especially because Minsk has no particular renown as a centre for genetic engineering, and even the most prestigious of the Comecon molecular biological establishments — Szeged — admits that its own work in this field still has a very long way to go. There is, however, a possibility that the reported discovery was not made at Minsk at all.

Indeed, the claim seems to be based on a paper by a team headed by M.A. Troicki entitled "Nitrogen fixing activity of hybrids between *Bacillus oligonitrophilus* and *E. coli*" (*Viesci Akademii Navuk BSSR, Serija Bijalahicnych navuk*, 3, 1980). This describes a fairly routine procedure — nitrogen-fixing hybrids of *E. coli* with soil bacteria were produced at the University of Sussex nitrogen fixation unit as early as 1972, and the only novelty seems to be the use of *B. oligonitrophilus*, a name unknown to Western taxonomy, but which Troicki *et al.* state that they themselves isolated from the soil.

The authors themselves claim merely to have demonstrated the possibility of transferring nitrogen fixation genes from *B. oligonitrophilus* to *E. coli*, although the fact that their paper was published in Russian, whereas previous papers had appeared in Byelorussian, may suggest that they felt it merited All-Union rather than local attention.

Why, then, did TASS make such inflated claims? It is possible that the TASS science commentators simply misunderstood the paper, though it is difficult to see how they could do so, since Troicki's team does not mention cereal crops at all — the work reported relates to nitrogen fixation *in vitro*. It is not impossible, however, that the claim, coming at this particular time, has political overtones.

The first announcement was made on 25 May. The following day, *Pravda* published a major article on the Warsaw conference of the Warsaw Pact states entitled "Disarmament: Real Measures are Possible". Ostensibly an appeal for military detente, it contained claims that the United Kingdom and the United States are stepping up work on bacteriological weapons. In particular, said *Pravda*, the United States is working on "ethnic viruses" — bacteriological weapons which would selectively attack members of particular races or ethnic groups.

The case is cited of a black American, Eli

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Mayji, who allegedly developed a throat tumour after working as a guard at a secret US naval installation at West Oakland, where, it was alleged, Rift Valley Fever, which causes inflammation and malignant tumours, was used as a basis for an "ethnic" weapon.

Such allegations are not entirely new. Reports of alleged research on an "ethnic bomb" and other bacteriological weapons were put out by Soviet radio in 1978 (apparently in connection with the Robert Toth affair) and again earlier this year, to counter Western intelligence reports of a fatal epidemic in April 1979 emanating from a Soviet military bacteriological research station outside Sverdlovsk. (Soviet official sources said the incident was a natural outbreak of anthrax.)

Hitherto, the specific bugbear of a US "ethnic" killer has been restricted to transmissions on "Radio Peace and Progress", the Soviet service beamed to the Third World. The appearance of such charges in *Pravda*, the leading Party newspaper, is a new departure.

Vera Rich

Dioxin

ASTMS says no

The UK Health and Safety Executive came in for some sharp criticism last week from the Association of Scientific, Technical and Managerial Staffs (ASTMS). The union, with a strong following among scientists, accused the HSE of being "sluggish and ineffective" in its handling of the case of workers exposed to dioxin during an explosion at the Derbyshire plant of the Coalite and Chemical Products Company in 1968 (*Nature*, 6 March).

In 1976, after a similar accident at Seveso, Italy, the Employment Medical Advisory Service of the HSE persuaded the Coalite company to carry out studies of the workers exposed in the accident. Full reports of those studies, however, were not released to the HSE until last April in spite of several previous requests from the medical advisory service for all the information available.

In its document "Report on Coalite Chemicals", published last week, ASTMS criticizes the advisory service for not pressing harder for the earlier release of the studies. Results published in *The Lancet* early last year, it says, were sufficiently at variance with a summary of the studies released by the company to have persuaded the HSE to invoke its powers to secure the information. The HSE, however, says that increasing its pressure on the company would almost certainly have involved a lengthy legal case. Since manufacture of 2,4,5-T, of which dioxin is a contaminant, had already stopped at Coalite — indeed everywhere in the UK — the HSE did not consider release of the reports as its first priority, preferring instead to concentrate on current hazards.

The ASTMS document is also critical of the way in which Coalite conducted the studies. There was no properly matched control and not all the exposed workers were included, which means, says ASTMS, that little weight can be attached to the interpretation of the results.

The HSE is a little peeved that ASTMS appears to put the blame for these inadequacies on its shoulders, holding that Coalite must be held responsible. Both ASTMS and the HSE are agreed, however, that further studies need to be done. ASTMS is suggesting that they be carried out independently of Coalite and the advisory service under a joint union-steering committee. The advisory service is however persuading Coalite to re-do the studies, this time under tighter control.

Another specific point which ASTMS takes up is the lack of union participation at two key meetings. One was held last November to discuss the occurrence of chloracne, the disfiguring skin disease caused by dioxin and some other related chemicals, at three companies — Coalite, Stavely Chemicals and Monsanto in South Wales. According to ASTMS, the TUC medical adviser had pressed for union involvement in this meeting throughout 1979, but after some delay the HSE group finally decided that the meeting should be for "doctors only". The second meeting was held on 1 May between the advisory service and the Coalite workforce and management to discuss the preliminary assessment of the studies. ASTMS complains that the first it knew of the meeting was from that day's *Nature*.

All in all, ASTMS now says it has lost confidence in the HSE to make sure that sensible studies on workers are carried out. It asks that the HSE should compile a full report for the unions of the extent of recent contact with chloracnegenic chemicals, that the TUC and the HSE should draw up guidelines for union involvement in future studies of workers and that they should discuss what to do now about Coalite.

In the midst of these specific criticisms, the ASTMS document says that it is important not to lose sight of the most important issue, that of the inherent dangers of dioxin and the herbicide 2,4,5-T. It has now joined the growing group of unions calling for a complete ban on import into and use of the chemical in the UK. The most important thing, says Clive Jenkins, president of ASTMS, is to "get rid of the stuff". **Judy Redfearn**

Arctic voyage

Swedes set out

Stockholm

The Swedish icebreaker "Ymer" sailed for the Arctic on 24 June on an expedition which has been delayed for more than a year because of Russian sensitivities about the strategic importance of the Arctic Ocean. When the ship left last week, it carried a team of biologists; it will return later in the summer to pick up a group of earth scientists.

The expedition was originally planned to celebrate the centenary of the first circumnavigation in 1897 of Europe and Asia by the Swedish explorer Adolf Erik Nordenskiöld, who began his voyage by sailing from the Atlantic to the Pacific along the Siberian coast, through the Northwest Passage. The original plan had been to retrace this route as far as the Bering Strait, and then to circumnavigate the Arctic Ocean.

Permission was asked of the Russian authorities to sail along the Siberian coast and to take sediment cores from the continental shelf there. Although the Swedish Prime Minister Fälldin took up the matter with Mr Kosygin, the Russians never replied. Reconciling themselves to Russian views about the strategic importance of the area, the Swedes changed their route.

Under the revised plan, the "Ymer" will sail through the northern Barents Sea, the deep ocean north and northeast of Spitsbergen, the sea between Spitsbergen and Greenland and the waters off northern Greenland, some never sailed before. The research is being financed by the Natural Sciences Research Council, and will involve about 80 scientists from eight countries.

One of the chief objectives will be to tell to what extent the Arctic is polluted. An increase of the lead content of Greenland snow and ferns has been recorded after the introduction of high octane petrol in the USA; but the origins and extent of other pollutants (aerosols, gases and particles) in the Arctic atmosphere, are not known. Atmospheric pollution may however affect the delicate radiation balance of the Arctic, which could in turn affect climate in neighbouring latitudes.

The expedition also plans to investigate the cooling during the Arctic summer of the lower atmosphere under the influence of the ice-pack. The formation of stratus clouds is thought to influence radiation balance and thus the climate.

The Arctic climate is also affected by the movement of huge bodies of water. Large amounts of warm, salty Atlantic water flow north along the west coast of Spitsbergen to the Arctic Ocean, while a mass of cold and less saline Arctic water flows south along the east coast of Greenland. Oceanographers with the expedition will collect information on temperature, salinity and currents down to great depths. They will be able to trace water movements in the Arctic basin by measuring concentrations of radioactive pollutants from the reprocessing plant at Windscale in the UK.

The expedition hopes to be able to determine the extent of the Quaternary ice sheet in the European Arctic. From earlier expeditions to the area, glaciologists think that an earlier Arctic ice sheet reached the Barents Sea, but they have not yet been able to tell whether it was ever joined to the Scandinavian ice sheet. **Wendy Barnaby**

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