European accelerators

Bonn-Hamburg e-p collisions

A £300-million West German accelerator seems very close to final approval by the federal government. The planned machine, called HERA, is designed to penetrate the intimate structure of the proton by colliding electron and proton beams, something that has never before been achieved.

The science minister, Dr Heinz Riesenhuber, had indicated a few months ago that HERA could go ahead provided foreign laboratories contributed some 20–30 per cent of the cost. Now, a contribution at that level seems guaranteed by a clutch of letters from laboratory directors in Italy, France, the Netherlands and Canada to Professor Volker Soergel, director of the Hamburg electron accelerator complex, DESY, where HERA will be built.

Britain, the Scandinavian countries and Japan, although invited, will not be participating directly. At Hamburg, they say that Britain will be particularly missed on account of the expertise in proton machines accumulated at the Rutherford Appleton Laboratory near Didcot. DESY engineers are experienced only with electrons, which are different beasts from protons on account of their smaller mass and which consequently behave differently in accelerators. One Rutherford Appleton physicist, however, says "we will give all the help we can" when the Spallation Neutron Source, the laboratory's big capital project, is completed, but there will be no money.

Of the other possible partners, none has full approval yet but each thinks it will materialize. This will be sufficient to satisfy Dr Riesenhuber, a DESY spokesman believes. If he is correct, and formal approval comes in October, contractors could begin digging the HERA tunnel in January.

One strictly political obstacle may still get in the way. The Christian Democrat (right wing) federal government wants a written contract of special support for HERA from the Social Democrat (left wing) Hamburg state government. Hamburg has always strongly supported DESY, which has followed the prudent policy of contracting out to local industry as much as possible of its work. The inevitable political friction between Bonn and Hamburg may, however, hinder agreement.

According to normal regulations for large projects, Hamburg must put in 10 per cent of the HERA price tag (DM630 million (£160 million) in 1980 prices, or an estimated DM900–1,000 million in total by the planned completion date of 1990). But Bonn wants Hamburg to agree to pay more, and to give guarantees in case of cost overruns. In fact, Hamburg has already put up DM40 million for 1984, already more than 10 per cent of the annual cost during construction; but there is no written contract for future years.

The plan is that HERA will have a 6.3 km circumference tunnel, curving under the suburbs around the confined DESY site. The tunnel will house a conventional 30 GeV electron ring and a superconducting 820 GeV proton ring. Collisions between counter-rotating beams in the two rings should reveal detail of the way quarks and gluons combine to make protons, a study that is easy with point-like electrons. It is more difficult at the European Organization for Nuclear Research (CERN) near Geneva now, three-quark protons collide with three-quark antiprotons.

Italy, which will probably be the major partner of Germany, plans to build and pay for the 47 kilogauss superconducting bending magnets for the proton ring. France (at Saclay, near Paris) will develop quadrupoles (focusing magnets) and the Netherlands is working on correction coils. Canada, says a DESY spokesman, is also proving to be "a good partner".

Robert Walgate

Celltech share sale

CELLTECH, the British biotechnology company founded three years ago, seems to have embarked on a familiar trail by selling shares to new investors. Baring Brothers, the London merchant bank, announced last week that it had privately sold a total of 1.8 million shares in the company at a price of £1.75 a share, buying some of them itself on behalf of its own managed funds. Existing shareholders in Celltech have at the same time taken up a further 1.8 million shares in the company.

The effect of this new share issue will be to give Celltech a further capital injection of £6.1 million, more than half the capital with which it began. Mr R.H.I. Perrott, Celltech's finance director, said earlier this week that the company had no immediate need of cash, having spent only half of its original capital so far.

But it is expected that substantial amounts of working capital would be needed to finance projects of various kinds now in the development stage, primarily in the pharmaceutical and diagnostic field. Celltech is not seeking to create a "war chest" of the kind accumulated by other companies, he said.

To the extent that the price paid for shares at a private placing is more than notional, the transaction values Celltech at £27 million. The most significant change among the shareholders' list is that the British Technology Group, the public agency for technological innovation, has in the past month reduced its stake from 44 per cent to 28 per cent, by two successive sales of shares to other shareholders. □

Chinese technology

No imports for their own sake

CHINESE imports of high technology often fail to yield the intended economic benefit, an official of the Ministry of Foreign Economic Relations and Trade has been hinting. Speaking on Beijing Radio, Mr Chang Jiarui condemned the practice of "wanting to import technology and equipment simply for the sake of importing".

China's drive to import high technology began four years ago and was justified by a policy statement of Premier Zhao Ziyang which took the line that science and technology are common assets of mankind. This policy, said Mr Chang, has in some sectors allowed China, in two years or less, to bridge a gap of 20 to 30 years in product quality and technical performance.

These benefits, however, have not been as widespread as had been hoped, partly because of a lack of Chinese expertise in handling the new technology. The purpose of importing foreign technology, he reiterated, is "to increase production, create wealth, meet our needs and increase our capital stock";

With imports costing anything from a few thousand to several hundred million US dollars (as in the case of the Baoshan iron and steel complex in Shanghai), some proper system of control seems necessary. In a country the size of China, Mr Chang acknowledged, the delegation of power is essential. But this can operate properly only if there is a proper infrastructure of information, consulting and statistical offices as well as "non-governmental associations for the promotion of technological imports". This infrastructure seems to be almost entirely lacking in China at present.

Vera Rich

Genentech-HP venture

THE Californian biotechnology company Genentech has signed up with Hewlett-Packard to develop a range of instruments for use in the industrial application of biotechnology. The new organization, whose creation was agreed on 20 July, will be managed by Hewlett-Packard, which will be the major owner of the new company and which expects to contribute $10 to $20 million in the next five or six years.

While gene synthesizers and similar equipment may provide the new company with something to make in the immediate future, both partners emphasized earlier this week that they have set their sights on the development of instruments that will have a natural place in scaled-up production processes.

To begin with, the new organization will consist of half a dozen Hewlett-Packard engineers with one Genentech scientist seconded as a consultant. □

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