atmospheric temperature of only 0.1 to 0.2° C, and this is unlikely to be significant.

The commission comes to similar conclusions about the effects of water vapour and trace amounts of pollutants in the stratosphere—a topic which has caused considerable speculation, especially from opponents of the supersonic transporter. There is therefore "no cause for alarm" about the global effects of pollution, but the commission recommends "the extension of international monitoring of the atmosphere and the maintenance and extension of fundamental research on an international basis on the natural chemical and physical processes, both within the atmosphere and between the atmosphere and the surface of the planet".

CERN

Green Light for 300 GeV

AFTER nearly four years of indecision and changing of plans, the CERN council has at last given the official go-ahead for the 300 GeV proton synchrotron to be built at Geneva. Ironically, the indecision and early disputes about the possible site for the accelerator have produced a relatively cheap and very flexible proposal which arose last year like a phoenix from the ashes of earlier plans. When the CERN council met last week to carry on the meeting that was adjourned last December, ten out of the twelve member states pledged their support for the plans and only two delegations—those from Greece and Denmark—had to declare their governments' unwillingness to take part. This means that the cost of the project—estimated to be about £90 million over a period of eight years—will be divided chiefly between West Germany who will contribute 24 per cent, Britain (22.5 per cent), France (20.5 per cent) and Italy (13.3 per cent).

The council meeting was adjourned last December when it became evident that the governments of some of the smaller countries needed more time in which to make up their minds about the proposals. But agreement was also prevented because the British delegation, led by Sir Brian Flowers, was hamstrung by the condition imposed by the government that British support would only be forthcoming if the council decision were unanimous. Happily, this condition was relaxed and the British delegation was not placed in the unenviable position of watching the whole project paralysed by the abstention of Denmark and Greece.

The Greek delegation said that although it believes that the 300 GeV project is very worthwhile, the Greek government has no money to spend on it, while the Danish delegation said that a final decision on participation in the project must await the findings of a review of Denmark's policies for international cooperation in science. As for participation by Norway and Sweden, these countries are prepared to back plans which entail an expenditure no greater than the 1,124 million Swiss francs that was first envisaged when the new proposals were drawn up last April.

The machine will be built underneath the Switzerland/France border next to the site of the present CERN 28 GeV proton synchrotron, which will be used to feed protons into the accelerator. The accelerator tunnel itself will be 2.2 km in diameter, bored through rock, and it will be essentially the same project that was first mooted last April by Dr John Adams, the director of the project. The beauty of the plan is that it removes at one blow the bitter disputes about where to site the machine and it also allows much greater flexibility in design. But by far its most powerful trump card is that it is about one third cheaper than the original design.

The idea is that the machine would first be built to a capacity of 150 GeV by using only half of the proposed magnets for bending the proton beam. The remaining magnets will therefore be installed at a time when it should be possible to assess the viability of superconducting magnets, and three choices will be open to the planners. The remaining magnets could either be of a conventional design, to give a machine of 300 GeV capacity, or they could be superconducting, to give a 400 GeV machine. Alternatively, if the original magnets were also replaced by superconducting magnets, the capacity of the machine may be as high as 800 GeV. The crucial decisions on magnet design will have to be made early in 1974, by which time the 150 GeV machine should be ready for operation. If it is decided to go straight to the 300 GeV machine using conventional magnet technology, this could be completed by the end of 1976.

This flexibility in design would have been lost if the original plans for the machine were adopted. The accelerator would also not have been linked to the 28 GeV facility in Geneva, and there was considerable dispute among the member countries about the ideal site for the project. The disagreement about the siting of the machine was sharpened by the high costs of the project—about 1,900 SF—and in 1968 the British government decided, against the advice of the Council for Scientific Policy, that it wanted no part in the project. This decision caused considerable heart-searching among the other member countries, and a cheaper, less satisfactory and watered down version was proposed. Agreement was, however, not obtained for this proposal, and the present plans were put forward just as it seemed that the project was unlikely ever to get off the ground.

The decision to go ahead with the accelerator will have major implications for high energy physics in Europe (see page 594), but it will certainly not leave the domestic programme for elementary particle physics in Britain entirely unscathed. The British contribution to the project will work out at an average of about £3 million a year for the next eight years and this will be taken from the budget of the Nuclear Physics Board of the Science Research Council. The board pointed out in the annual report of the Science Research Council that "the sacrifices that must be envisaged to achieve the 300 GeV objective have sharpened", but since then the proposed budgets of the research councils have been cut by the government, and the effects of entry to the project are likely to be even more keenly felt.

One consequence is that the Nuclear Physics Board has not sought funds for any major domestic facility over the past few years, and the growth in academic manpower has been held in check. If there is any more slimming to be done in elementary particle physics in Britain, the SRC is being coy about where the cuts are to be made. It seems, in any case, that there is little likelihood that the number of British particle physicists will be increased, and the scientists at the Rutherford high energy laboratory and at the Daresbury electron facility will be able to breathe more easily when the SRC makes known its thinking about domestic high energy physics.

CHEMISTRY

Policies for Change

A HALT in the rate of growth of research studentships in chemistry and more flexible postgraduate studies are likely to be the chief changes in the policy of the Chemistry Committee of the Science Research Council in the next few years. This means that after a sharp increase—35 per cent between 1967 and 1969—the total output of PhD graduates from chemistry departments in Britain will remain static at just over 850 a year for several years. But even this strong pressure on the brake will not alter the situation in which more PhDs are being produced than are needed for research and teaching, and the chemistry committee of the SRC will therefore view broader and more flexible courses of study with some favour when it shares out its funds for student support. This indication of the SRC's policies for postgraduate education is contained in a review carried out by the chemistry committee (*Chemistry—a review of the policies and activities of the Chemistry Committee of the Science Research Council*, available free from the SRC), and the committee is no less explicit in its statements of policy for supporting research in chemistry.