good case that development should be halted at least until there is certain knowledge one way or the other. And about some environmental effects there could be little doubt: The SST would cause sonic booms and it would require major rebuilding of airports.

A summary analysis of possible atmospheric effects of the SST came earlier this fall in the report of the Study of Critical Environmental Problems (SCEP) by an interdisciplinary group centered at the Massachusetts Institute of Technology (SN: 10/31, p. 344).

"Very little is known about the way particles will form from SST exhaust products," said the SCEP report. A major problem, it said, will be the formation of sulfate particulates in the atmosphere from sulfur dioxide released from the SST exhausts. Another is a possible increase in water vapor in the lower stratosphere of as much as 10 percent. The global climatic impact of the increased particulates can only be guessed at, the report warned. The SCEP recommendation: Any large-scale use of SST's should be deferred until there are more clear-cut answers to these questions.

With the scientists still guessing, perhaps the most valid anti-SST argument is the one that environmentalists say is based on simple common sense: Why, they ask, do men need to go so fast? □

CANAL COMMISSION REPORT

Diggers beat nukes—by default

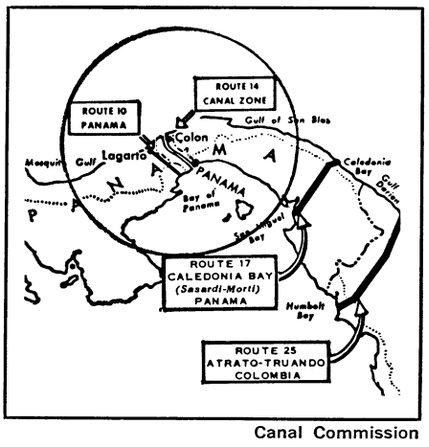
For almost a year it has been clear that the chances of an early start on a sea-level canal to supplement the present installation in Panama were slim. Nuclear excavation, looked on originally as the economical key to the project, has not been pushed; conventional excavation seemed likely to cost too much (SN: 4/11, p. 363).

With the submission of its final report last week, the Atlantic-Pacific Interoceanic Canal Study Commission confirmed the present unreliability of nuclear technology. Cratering tests so far, the report says, are just not adequate to show that the technique will work on a large scale. And in view of the halt in cratering experiments—no tests are planned for fiscal 1971, and the Atomic Energy Commission says none are included in the fiscal 1972 budget—nuclear means simply cannot be counted on.

It is, however, technologically feasible to build a sea-level canal using conventional excavation means, the commission concluded after five years of study and examination of various canal site possibilities. And, on a positive note, the report recommends conventional construction of a sea-level passage near the present lock canal in Panama, along the so-called Route 10.

In its study of the need for another canal, the commission concluded that use of the present installation will reach full capacity in the decade following 1990. Construction is estimated to take about 15 years, and there are many problems concerning responsibility for operation, maintenance and defense of the installation in Panama—the present canal has been the cause of much international friction in recent years. The commission's selection of a particular route is thus aimed at making a start on the diplomatic moves necessary to assure a timely beginning.

But scattered throughout the report's hundreds of technical pages are wistful references to the presumed economic advantages of nuclear excavation. The conventional canal along Route 10 would cost approximately $2.88 billion at 1970 price levels. A combination of nuclear blasting and cheap hydraulic excavation along Route 25 through Colombia is estimated to cost only $2.1 billion.



Canal Commission

A nonnuclear Route 10 looks best.

Nevertheless, although the AEC said that with adequate funding nuclear technology might be available, the canal commission decided that its perfection for use in canal excavation on Route 25 would probably be many years away.

Another location, Route 17, 100 miles southeast of the Canal Zone in Panama, turned out to be impractical by any means because the clay shales in the area presented the danger of slides.

"At one time," says Gen. Richard H. Groves, the commission's engineering agent, "it was thought that you could build that canal for less than $1 billion. If nothing else, we've learned that you can't. And that almost makes the whole study worthwhile in itself." □

REENTER GREAT BRITAIN

Europe's maxiaccelerator

For most of the last decade European physicists have talked about constructing a large proton accelerator similar to the one the United States is building at the National Accelerator Laboratory in Batavia, Ill. In the mid-sixties a plan for such a machine with an energy of 300 billion electron-volts (GeV) was recommended by the European international laboratory, CERN, to its 12 member governments.

The British Government's withdrawal from that plan (SN: 7/13/68, p. 30) dealt it a blow from which it never recovered. Last week the British reversed themselves. Approval of a revised plan seems to assure that European physicists will at last get their big accelerator.

After the first plan expired in a wrangle over where to put the new machine, the CERN designers went back to their work and came up with a revised plan for a flexible machine that could at some time in the future be boosted in energy beyond 300 GeV but yet be cheaper to build and smaller than the original proposal. The machine called for in the new plan can be built on a site across the road from CERN's present laboratory in Geneva (SN: 10/31, p. 350).

The designers hoped that the changes would overcome the two main impediments, British money problems and the siting wrangle, and it now appears that that hope is being fulfilled.

On Dec. 4 the British Government announced in the House of Commons that it would go into the revised project. Lower costs and technical improvements are given as the reason why the Government accepted the enthusiastic recommendation of its Science Research Council.

Britain will pay about a fifth of the total cost of the new accelerator, or about 20 million pounds ($48 million) over a seven-year period. This will make its annual contribution to CERN something over 9 million pounds instead of the present 7 million.

The Science Research Council says it will find the money by making economies in Britain's two national high-energy physics laboratories, the Rutherford Laboratory in Berkshire and the Daresbury Laboratory in Cheshire. Observers speculate that the new European accelerator will mean the eventual closing of Britain's largest national accelerator, the 7-GeV Nimrod at the Rutherford Laboratory, but the SRC has not said outright that it will do this.

The CERN council meets in Geneva Dec. 22 to decide whether to begin the project. With British approval a favorable decision seems a forgone conclusion. □