

Provision was, however, made last week to subsidize the Europa rocket launchings for European satellites if the five remaining launcher countries succeeded in completing their programme. These are France, Germany, Belgium, Holland and Italy in order of commitment. The highly successful British Blue Streak booster stage is being made available to them at cost. The complete launcher has not yet worked. On the two previous occasions it has flown, the French second stage has failed. A third attempt—the first to carry a satellite—is to be made from Woomera this week.

It is significant that Britain's agreement to support a six per cent a year increase in ESRO's budget of 250 million francs for three years is not contingent on Britain's release from the ELDO commitment. It seems that the Foreign Office is more aware of the threat to Britain's European position through the Government's shifts in policy than is the Ministry of Technology, which has made a ham fist of its diplomatic efforts this year. Britain's ESRO budget is the responsibility of another department (the Department of Education and Science), and the ESRO negotiations last week were handled by a Foreign Office Minister of State, Mr Goronwy Roberts, lately of the DES. Other ESRO countries (ten) have now also endorsed the six per cent rise and there is provision for a future planning programme beyond 1973.

When the meeting ended on November 14, Britain had still not been let off the hook by the other ELDO countries, and a position of bluff and counter-bluff was held over to the ELDO council meeting on Monday, November 18. This was postponed, first to give time for thought, and, secondly, to see the outcome of the key F7 first ELDO orbital test which was due on November 18, but was postponed (to November 22) due to a fault in the French second stage sequencer which has also failed on the two previous flights. (These failures have so far cost ELDO \$100 million.)

It must be hoped that the ELDO orbital test on November 22 works and that the British Government's decision will be flexible. The alternative is alarming. France, Germany and Belgium are determined to have their own launcher at any cost. There will be some restriction on the use of a European vehicle even in a small European group effort. France is now committed to its own ICBM; Germany has a huge committed budget for rocket work into 1972. In the last few days, the French Nord Aviation-Bolkow group has made clear that it has an alternative ready for the ELDO project. If this were to go ahead it would have no strings attached and could be used for weapon delivery and goodness knows what else. A small British subscription to ELDO seems well worth avoiding this European alternative.

NUCLEAR POWER

Controlled Fission in Trouble

THE problems of reconstructing Britain's nuclear power industry are clearly far from over. The one company which has been set up, Babcock English Electric Nuclear Ltd, has been given the task of finishing construction of the prototype fast reactor at Dounreay. This means that it will have to take over many of the AEA staff who are at present engaged on the design of fast reactors, and research and development con-

cerned with them. So far, unfortunately, Babcock English Electric has failed to win the support of the people concerned. Last week, some of the design staff renewed their threat to leave the organization completely, perhaps to join Westinghouse in the United States, if the new company was unable to offer them better terms.

So far, in fact, the argument does not seem to be about the precise terms of service which BEEN will offer. No offers have yet been made, as BEEN chairman Hector McNeil was quick to point out. But staff at Risley seem to have little faith in the company or in the way it was formed. Many favoured the formation of only one nuclear company, and feel that this has not been done because the Minister of Technology wanted to dodge difficult political decisions. It seems, too, that the people involved have a low opinion of the company; they feel that it will not be successful. Some of the companies involved have already carried out work on the PFR programme, under contract to the AEA, and have not impressed. In the design office at Risley, the atmosphere is said to be militant; people are talking about refusing to join the company and are circulating drafts of a letter to the Prime Minister complaining about the situation. "Morale is very low", commented a Risley scientist this week. Design staff, he added, had been told little about their prospective terms of service with the new company, "but what little they have been told has not been encouraging".

On the research and development side, there are considerable ambiguities in the organization which have not yet been cleared up. Because the fast reactor is not yet at a fully commercial stage, the new company is unlikely to be willing, or able, to finance all the research and development which still needs to be done. Some will have to be financed by the AEA. So far, nobody has decided how this division will be arranged, or how the research and development will be managed. The transition in the building of the PFR from the AEA to the new company will also be difficult and, the Risley staff feel, will certainly delay completion of the project. Because only one of the new companies has so far been given any fast reactor work, people feel that they have been faced with a monopoly employer for whom they feel some distaste. The long delay over the formation of the companies has affected morale, and several key people have already left the AEA.

Two things seem to be needed to clear the air. One is a firm statement about the future of the AEA—so far, nobody knows what exactly is to become of the authority when both design and construction companies are set up and functioning. The second is a firm statement by BEEN about its determination to make a proper job of the fast reactor. Given these, and a less blunt approach by Mr McNeil, the situation could be salvaged. But there is no inclination at Risley to dismiss the situation as a storm in a teacup.

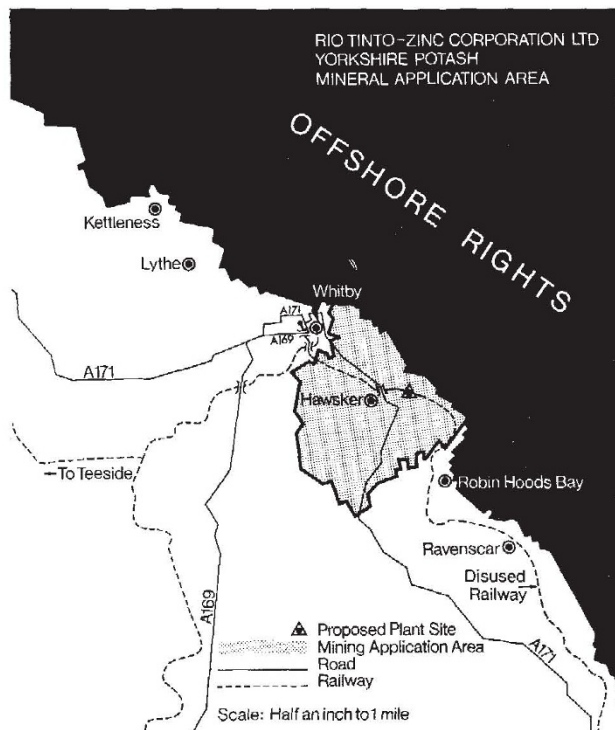
Meanwhile, the setting up of the second company has also hit trouble. This company will be formed by the merger of three boilermakers—International Combustion, Clarke Chapman, and John Thompson—and merger terms were expected to be announced several weeks ago. The inability of the three companies to agree seems to have been caused by delays in the building of the first commercial AGR, at Dungeness B. International Combustion forms half of the Atomic Power Constructions group, which is respon-

sible for the Dungeness contract. Technical difficulties which could delay completion of the project clearly affect the terms of the merger. Until it is clear how serious these delays are likely to be, no further progress on the establishment of the second company is likely. This could mean that it will be 1969 before the second company is finally unveiled.

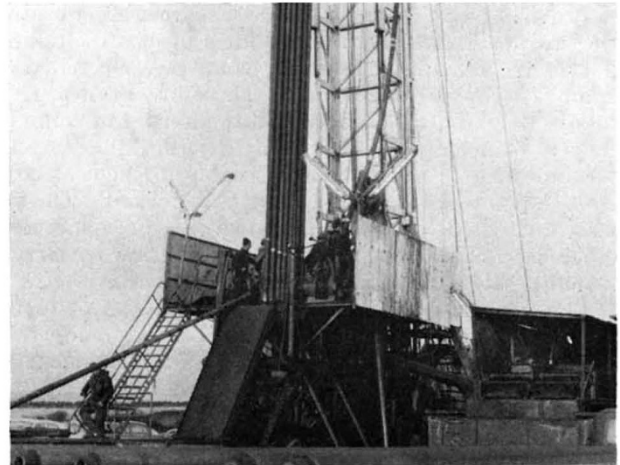
MINING

Potash Boost

LAST week Yorkshire Potash Ltd, a subsidiary of the Rio Tinto-Zinc Corporation, applied to the Minister of Housing and Local Government for outline planning consent for a potash mine three miles south of Whitby, in part of the North York Moors National Park. This follows the application in April by Cleveland Potash Ltd, a company owned jointly by ICI and the Charter Consolidated Group, for a site near Boulby, north of Whitby. Although the prospect of industrial encroachment on National Park land is hard to swallow, Mr R. O. Atherton, chairman of Rio Tinto Finance and Exploration Ltd, has estimated that the mines could together improve the balance of payments by £25 million a year, and it is not surprising that the minister has given the go-ahead, at least to Cleveland Potash.



Of the two sites, Cleveland Potash has applied for the larger—200 acres compared with 90 acres for Yorkshire Potash. Both organizations have appointed consultant architects to work out how the mines could best be “disguised”. Yorkshire Potash is proposing to raise hillocks around the site composed of material removed from the proposed 4,200 foot shaft so that only the pithead gear, it seems, would be visible from the coast footpath. At a public inquiry



on the Cleveland Potash scheme, there was some evidence that the county council hopes that new industry will make good the financial loss suffered by the North Riding when the large ICI plant at Wilton passed into the hands of Teesside County Borough. All being well, the Cleveland Potash mine should go into production in about five years time and is expected to yield some 1–1.5 million tons of potash a year.

As well as controlling effluent discharge, Cleveland Potash will have to comply with a percentage rate of potash extraction. The siting, design and external appearance of the buildings, machinery and plant, and the landscaping of the minehead area and means of access, will also have to have the blessing of the local planning authority.

SCIENCE MUSEUM

Computers on Show

A CASUAL or even mildly conscientious visitor to the Science Museum in South Kensington could well be forgiven for passing an afternoon there in complete ignorance of the miniature exhibition on “Computers Past and Present” tucked away on the second floor. Failure to spot a discreet sign near the entrance guarantees a conscience-free avoidance of the exhibition. Admittedly the exhibition is small. Sponsored by International Computers Ltd, it consists of a brief résumé of the history of computing from the early Hollerith equipment, used for the 1890 census in the United States, up to the present-day computer based on integrated circuits. Verbal history is interspersed with a selection of components from each vintage of computer, and a few photographs of machinery—old and new—round off the display.

Microcircuits are undoubtedly the most stimulating parts of the exhibit. One of these is set up under a magnifying lens to enable the one or two millimetres of complex circuitry to be seen, but visitors can be forgiven for asking why there is so little publicity for such an important development. It is quite understandable to mount only a small exhibition if that is all that time and finance allow, but it is nevertheless important that the magnitude of the display should be clearly seen not to represent the importance or relevance of the scientific content.