

Conference which, ironically, reconvened last week in Geneva. According to another *New York Times* account, Christopher W. Pinto, a delegate from Sri Lanka and a leading spokesman for the developing nations, has already said that the CIA operation has undercut the argument for freedom for research. He is quoted as saying that the developing nations have been suspicious that research activities may provide a cover for other operations, and "now that this is confirmed, they [the developing countries] can be more forceful".

Another aspect of the salvage operation is important for the development of undersea technology: by depicting the *Glomar Explorer* as a deepsea mining vessel, the CIA provided the greatest possible incentive for other mining companies to step up their operations. When the ship was being built and operated, it was generally assumed that Hughes was leading the field in the race to scoop manganese nodules from the deep sea bed.

During Congressional hearings in 1973 and 1974, for example, representatives from other prospective seabed mining companies argued vigorously for Congress to pass legislation which would offer them some financial security so that they could raise and invest vast amounts of capital in the technology. Although Congress did not pass the legislation, there is little doubt that the prospect of Hughes beating the rest of the industry to the seabed riches stimulated frenzied efforts in other companies.

It is unclear, however, whether or not the *Glomar Explorer* could be used for seabed mining. It is also unclear who would own and operate it for such activities, although a good case could be made out for the argument that it belongs to the federal government.

As a footnote to the operation, it should be pointed out that Project Jennifer reportedly cost about \$350 million, which is considerably more than the federal government's entire budget for oceanography for the past five years. The money was, however, provided with the knowledge of very few Members of Congress and of only a few people in the Administration. □

## Call for cuts in astronomers

by Colin Norman, Washington

A COMMITTEE of the National Academy of Sciences this week made the painful and perhaps unprecedented recommendation that graduate departments in the United States should reduce their output of astronomers because of dismal employment prospects and sagging financial support for astronomy.

Although other groups of scientists have urged that production of PhDs in some fields should level off, few have openly called for graduate education to be cut back. But the situation in astronomy is considered so serious that "we can't just sit and wail about it", Dr Leo Goldberg, Director of the Kitt Peak Observatory and chairman of the Academy committee, said in an interview last week. He added that even if enrolment in PhD courses in astronomy and astrophysics were cut in half, there would still be too many astronomers chasing too few jobs.

The problem is familiar enough. Force-fed by direct government support and by the burgeoning space programme in the early 1960s, astronomy experienced a period of spectacular growth, and graduate departments expanded rapidly. But, just as large numbers of astronomers began to emerge from the universities with freshly minted PhDs in the late 1960s

and early 1970s, government support slackened and job opportunities rapidly dried up. And the situation is getting worse because, unlike most other fields of science, graduate enrolment in astronomy is continuing to increase so that the supply and demand for young astronomers is going to get further and further out of balance.

To put the matter in perspective, Goldberg suggested that employment is likely to be available for only about 50 new astronomers a year, but last year alone the universities awarded more than 180 PhDs in astronomy and astrophysics. Adding to the problem is the fact that many people with doctorates in other branches of physics will be chasing jobs in astronomy and moreover, there are now between 150 and 200 astronomers holding temporary postdoctoral appointments who have no prospects of moving on to full-time employment, Goldberg said.

The growth in university astronomy departments may reflect the fact that the science continues to be intellectually exciting. But these days, intellectual excitement does not guarantee government support, particularly when large capital expenditures are constantly required.

According to figures gathered by the committee, funding for astronomy peaked in 1968 at about \$227 million, and by 1972 (the latest year for which figures were available) it had shrunk to \$187 million. And there are scant prospects of significant growth in the next few years, particularly in space astronomy. Recently, for example, the space shuttle has been taking up a growing share of NASA's stagnant budget and there is every reason to expect the trend to continue.

In view of the prospects of expanding graduate enrolment in astronomy and shrinking financial support for the science, the committee has suggested a number of controversial remedies.

- Most important, the rate of production of astronomers should be reduced, and "it is the responsibility of every university department which produces PhDs with specialisations in astronomy and astrophysics to assist in achieving this reduction", the committee states. All PhD students should be informed of the employment situation before embarking on graduate work, they should be carefully screened during the early years of their studies and the weaker ones should be weeded out. Goldberg also suggested that a limit should be placed on the number of universities offering PhDs in astronomy and astrophysics, so that as new departments are set up, older and less productive ones are phased out.
- To make astronomers more employable in other fields, the committee recommends that PhD astronomy

BRITAIN'S nuclear power industry has been further streamlined with the announcement last week of the merger of Britain's two nuclear power groupings, British Nuclear Design and Construction (BNDC) and the Nuclear Power Group (TNPG), into one company, the Nuclear Power Company (NPC), which has been acquired by the National Nuclear Corporation (NNC). The government has agreed to make an *ex gratia* payment of up to £1.416 million to the shareholders of the now defunct companies for "unrecovered expenditure". Announcing the payment, Secretary of State for Energy Mr Varley said that the acquisition of the two consortia with their staffs by the NNC was "an important step forward". The acquisition includes the govern-

ment's 26% stake in British Nuclear Design.

The shareholding structure of the NPC and the names of the chief executives will be announced in the next few weeks, and it is expected that GEC, who were in favour of building the light water reactors rejected by the government last year, will drop its shareholding to 30% from the present 50%, with the UK Atomic Energy Authority increasing its stake from 15% to 30%.

The two existing bases, at Risley, Cheshire, where the design for the steam generating heavy water reactor is being carried out and Whetstone, Leicestershire, where work on the last two advanced gas-cooled reactors is continuing, are being retained for the "foreseeable future".