current draft of a proposed international treaty, on the other not wishing to provoke a split with other industrialized nations which, although expressing reservations, are less inclined to reject the treaty as it now stands.

Last Thursday, the US delegation presented the conference with a list of changes that it says must be made before it will sign the treaty. These include the abandonment of efforts to place limits on the amounts of different minerals that can be retrieved from the sea bed, a revised voting procedure that would give the United States greater influence over the actions of an international authority established to regulate deep-sea mining, and dropping the requirement that US mining companies should provide Third World consortia with the latest mining equipment.

At the beginning of what is expected to be the final round of negotiations started in the early 1970s, several non-aligned countries indicated that it was too late to re-open discussion on topics which, they claimed, had been settled at earlier negotiating sessions. These countries said they would proceed with drawing up a treaty, leaving the United States to decide whether or not it wants to sign.

Behind the rhetoric, however, the real question is how far each side is prepared to compromise. A treaty without a US signature, or US financial support for the regulatory institutions which would be set up, would be of limited impact. From the American point of view, some prospective mining companies are concerned that they might be unable to raise credit from multinational banks if the treaty went ahead without a US signature, while several industrialized countries — including France, Britain and West Germany — are reluctant to jeopardize their trading relationships with Third World nations by providing too much support for the United States.

David Dickson

Polish higher education

Reform reversed

Research projects in Poland are now to be "rechecked" to assess their usefulness to the national economy, according to Dr Benon Miskiewicz, the new Minister of Science, Higher Education and Technology. Furthermore, the system for appointing assistant lecturers will be modified, and new principles worked out for the employment of graduates.

Dr Miskiewicz was addressing a meeting of lecturers from higher educational institutes subordinate to his ministry. The gathering did not include medical schools or specialist bodies such as the Mining and Metallurgy Institute of Krakow which, last September, had been a principal focus of resistance to attempts by the then minister, Mr Jerzy Nawrocki, to renege on the academic autonomy which, it had been

promised, would be incorporated into the new higher education bill. This bill, much delayed by the imposition of martial law, is now apparently undergoing redrafting and modification before going forward to the Sejm (parliament).

Dr Miskiewicz's emphasis on the "usefulness" of research suggests a reemphasis of the "problem-orientated" research structure introduced in 1973 by which all research had to be associated with a specific problem of the national economy. This led to an unseemly scramble by researchers to find a "problem" rated as highly as possible by the planners. During the open press debates last summer on the future of Polish science, it was generally admitted that the "problem" structure had failed and should be replaced by some type of direct contact with industry.

By tacitly repudiating such proposals, Dr Miskiewicz was apparently trying to dissociate his ministry from such proposed reforms. During the past three months, there has been some high-level disagreement as to who was primarily responsible for the outspokenness of the academic community — the Academy of Sciences or the universities. Talking to the editorial board of the weekly magazine *Polityka* last January, Deputy Premier Mieczyslaw Rakowski said that the breaking point had come when the Conference of University Rectors had demanded a voice in the appointment of the Minister of Science, Higher Education and Technology. The conference, established in September 1980, was always regarded with suspicion by the government, and shortly after the declaration of martial law it was dissolved — unlike the majority of organizations which were simply suspended.

Officials of the Ministry of Science, Higher Education and Technology, however, blame the Academy of Sciences, whose institutes, they say, harboured dissidents who had been banned from university teaching. The proposed new law on the academy, which would have made the academic secretary responsible only to his fellow members and not, as at present, to the prime minister, has been abandoned. The limited autonomy which the academy has until exercised over its research budget, is likely to be reduced even further.

The authorities, however, seem unwilling to risk any further direct confrontation with the academy. A recent meeting of the presidium of the academy was addressed by Dr Hieronim Kubiak, the Communist Party spokesman on higher education, who is reputed to be the most liberal member of the Politburo. Dr Kubiak warned the academicians against pointless confrontation, stressing that the intelligentsia should "advocate a Poland which is possible". Nevertheless, he said, if there are reforms which are actually possible at present, one should support them openly and actively. **Vera Rich**

Industrial lure

New York

As five university presidents prepare to discuss the growing connection between universities and commercial interests in recombinant DNA research (*Nature* 4 March, p.1), private biotechnology firms continue to have an increasing impact. This week, two top academics decided to give up basic research posts to join private companies.

Dr Walter Gilbert, 1980 Nobel prize winner in chemistry, is to leave his American Cancer Society professorship at Harvard University as of June to retain his position as executive officer of Biogen, the Geneva- and now Cambridge-based biotechnology firm.

Dr Gilbert has had a two-year leave of absence from Harvard to fulfil his position as chairman of the board of directors of Biogen. His hopes of permanently maintaining both his laboratory at Harvard and his position at Biogen ran into unresolvable problems with the Harvard administration. He will, however, remain a senior associate of the university for two more years. His Harvard laboratory will continue to operate during this time.

His full-time commitment to Biogen comes at a time when the company's new American laboratory in Cambridge, Massachusetts has recently adopted another academic, Dr Richard Flavell from the National Institute of Medical Research at Mill Hill, as research director. Dr Flavell is officially on two-year leave of absence from Mill Hill.

Another top American academic to move into the private sector, Dr Edward Scolnick, chief of the laboratory of tumour virus genetics at the National Cancer Institute, has decided to become Merck, Sharpe and Dohme's executive director of virus and cell biology.

Michael Stein

UK budget

A gentle push

The British government's enthusiasm for new technologies, and its lack of enthusiasms for the universities, was confirmed in last week's budget. While the universities can expect little respite from the austerity promised a year ago, the development of new technologies in industry is to receive a modest boost. British Telecom, which is to be allowed to increase its annual capital expenditure by a half over the next three years, is the chief beneficiary. But the Chancellor of the Exchequer has also promised the Department of Industry an extra £130 million for new technology in the next financial year, 1982-83.

British Telecom, which has recently improved its profits, will now be able to invest £2,300 million on capital projects in 1982-83, rising to nearly £3,000 million in 1984-85 mostly from its own resources.

British Telecom is now adapting its business to the liberalization announced by the government last October, the chief effect of which is to allow other companies to attach equipment to the telephone network. The government is, however, now apparently considering taking the liberalization a step further by selling off part of British Telecom. The Department of Industry would not comment last week on suggestions that a new telecommunications bill is being drafted for debate in the autumn. But ministers are discussing a document outlining several options for future telecommunications policy.

The Department of Industry is also in the throes of deciding how to spend its own windfall in last week's budget. Around £30 million of the £130 million promised for new technology projects this year will be spent on teletex, a superior type of telex. Competitors for the remaining £100 million include programmes to support the use of microprocessors in industry and research on flexible manufacturing systems, information technology and electronics.

The department's space budget, however, is likely to receive at least some of the extra money, possibly £5 million a year over the next three years. **Judy Redfearn**

Gene manipulation watchdog

Too smooth?

The uniquely British way of regulating research in genetic manipulation, the Genetic Manipulation Advisory Group (GMAG), may yet be a victim of its own success. The immediate difficulty is that its work seems now to have become so uncontroversial that some of its sponsors and even some of its members are asking whether it should continue to exist. A decision one way or the other is likely by the end of the year, when the chairman of the group, Sir Robert Williams, and several of its members come to the end of their term of office.

Since GMAG three years ago adopted a method of qualitative risk assessment for categorizing experiments in genetic manipulation, at least its academic customers appear to have been satisfied with the informality of the procedures. Most academic work in the field appears to require only that laboratories should follow good microbiological practice or, alternatively, the lowest category of safety containment.

While notification of experiments is still legally required, this may be retrospective (in an annual report) for work carried out in open laboratories, while advance approval is no longer required for the

majority of experiments in the lowest category of containment. Notifications of experiments in the second level of containment appear to amount to only about half a dozen a year.

For practical purposes, the burden of assessing the safety of experiments has been devolved from GMAG to laboratory safety committees. The bulk of GMAG's work seems now to consist of the assessment of safety arrangements in laboratories newly embarking on genetic manipulation and the drafting of guidance notes — a revised (and relaxed) procedure for dealing with manufacturing processes appeared only last week.

One substantial problem remaining is the systematic categorization of experiments involving viruses which are not covered by the regulations on the laboratory use of dangerous pathogens but which would involve hazards not now foreseen — oncogenic viruses for example. GMAG is wondering whether to set up a committee to look into this question. But the group has shied away from the field of human embryo transplants on the grounds that such work does not fall within the statutory definition of genetic manipulation and because its members do not have the necessary expertise.

Although both the Confederation of British Industry and the Trades Union Congress, which nominate members of the

group, still mutter that regulation of genetic manipulation might advantageously be transferred to the Health and Safety Executive, which has a statutory responsibility for safety at work, this view is no longer being strongly promoted.

Academic clients of GMAG, on the other hand, would prefer that responsibility should remain with the group, which has become the devil that they know. Academic investigators would also prefer that GMAG should continue in being so as to deal with whatever unforeseen problems may arise.

The most serious threat to the continued existence of GMAG seems to be *ennui*, the lack of obvious challenge. Keeping the group alive is a modest public expense, making it a target for would-be economizers, but abolition would presumably require legislation — and parliamentary time is as scarce as money.

US electronics industry

Pooling effort

Washington

Faced with increasingly intense competition from the Japanese electronics industry, a number of large American computer companies are developing plans to pool a proportion of their research resources into a new venture, provisionally called Microelectronics and Computer Technology Enterprises (MCTE).

The idea is to achieve economies of scale for the companies, many of which invest up to 10 per cent of their annual revenues in research, by jointly funding research projects in such areas as materials science, computer-aided design, manufacturing processing and quality control.

Sixteen companies met in Florida last month to discuss plans for such a venture, which would have a research budget expected to rise eventually to about \$100 million a year. The meeting was also attended by representatives of the Department of Defense and the

UN assists India

New Delhi

The scheme developed by the United Nations Development Programme (UNDP) to encourage Indian scientists settled abroad to return to temporary work in India seems to be making progress. The TOKTEN scheme (Transfer of Know-how Through Expatriate Nationals) got under way early last year (see *Nature* 29 January 1981, p.343) and since then 32 Indian scientists from the United States, West Germany and Canada have visited India to work with industrial units and research institutions.

India has recently become alarmed at the extent of its 'brain drain', especially among scientific personnel. Although there are no official figures, estimates place the number settled abroad at more than 100,000.

The TOKTEN scheme, already hailed as a success in Turkey, was introduced in India, with an initial contribution of \$1.1 million to encourage scientists settled abroad to give the benefit of their knowledge to their homeland. UNDP pays the fares of those who agree to visit India for a period of two or three weeks to help solve technical problems in sectors chosen by the government. The project, which is being implemented by the Council of Scientific and Industrial Research, has evoked a favourable response from both the Indian experts and the organizations with which they have worked, many of which have asked that these scientists should make a return visit or that more should come forward.

Sunil Saraf