clear, although the decline has been greatest in the "traditional" fields such as civil engineering, while the most modern departments such as computer sciences are full to overflowing. This suggests that the universities are failing to adapt to modern trends — an ironic conclusion when they themselves have founded such institutions as the Institute of Forward Planning at Tel Aviv or the Neimann Institute at the Technion to act as potential policy advisers.

Employment problems are exacerbated by the relatively small payrolls of the new science-based industries. Would-be students therefore think twice before investing some five or seven years — delayed by a further three years military service — in an exact science when the job prospects are so uncertain.

The Jerusalem College of Technology, which was specifically founded to train the expert workforce the country needs, may be an exception. It is a relatively small and religious foundation where the all-male students study Judaism in the mornings and technical subjects to first degree level in the afternoons and evenings. The "new pioneering spirit" described by the founder and rector, Professor William Low, has presumably helped to take the edge off job uncertainty.

Perhaps inevitably, the symposium produced a gloomy forecast for the next couple of decades. According to Professor Joshua Yavner of Tel Aviv University, unless the government stops the cuts in higher education, Israel will suffer the loss of its main "natural resource" — educated manpower. Hitherto, the University Grants Committee, which administers the government's block funding of higher education, has tried to restrict the cuts to ancillary and non-academic fields (although library budgets have been considerably curtailed), but a point will soon be reached where no more such economies are possible. Then, inevitably, the output of science graduates and PhDs will begin to decline, and the new science-based industries, founded on the expertise of those who graduated in the 1960s and early 1970s, will fail to achieve their early promise.

Vera Rich

US research patents

Conflicts arise

Washington

United States universities are lobbying hard in defence of their newly-won right to an automatic patent on all inventions arising from federally supported research. They are alarmed that their rights may be circumscribed in what may be the most profitable field — genetic engineering.

Two weeks ago, the House of Representatives Science and Technology Committee approved an amendment to a draft bill on patent rights, already approved by the Senate, to exempt the results of research using recombinant DNA techniques from the broad provisions of patent legislation passed by Congress last December.

The amendment was offered by Representative Albert Gore of Tennessee, chairman of the committee's investigations and oversight subcommittee, and follows his criticism of an an agreement between Massachusetts General Hospital (MGH) and the German chemical company Hoechst that would, he claims, allow the company to benefit unfairly from research paid for by the US taxpayer (*Nature* 18 June, p.525).

Several Washington-based groups representing research universities have protested, saying that this amendment undermines the whole purpose of the new legislation, which is to speed the transfer of research results to private companies. They point out that three years ago, after consulting universities and industry, Dr Donald Fredrickson, then director of the National Institutes of Health (NIH), concluded that no special arrangements need be made for the application of patent laws to genetic engineering research.

An aide to Mr Gore said last week that the congressman might agree to withdraw the amendment before the draft bill reaches the floor of the House for discussion. The Senate has already passed such a bill which even expands the scope of last year's legislation to include not only universities and small businesses but all companies receiving federal research funds, and Senate aides said last week that they were totally opposed to the House commitee's amendments.

However, Mr Gore still seems keen that the bill should make a sharp distinction between the control of research results funded from public and private funds. This could complicate efforts by NIH to interpret the new law's provisions on jointly funded projects.

Under the terms of the MGH/Hoechst agreement, the company will provide the hospital with up to $50 million over a ten-year period to support basic research carried out in a new Department of Molecular Biology. All the research would be under the control of MGH and all research results could be freely published after a 30-day preview by the company, but Hoechst would have first refusal to license patentable results.

Both MGH and Hoechst insist that this arrangement is compatible with existing academic practice, that they have gone to great lengths to avoid any possible conflicts of interest or undue secrecy, and indeed that the terms of the agreement might act as a model for other universities seeking research support from the private sector.

Mr Gore, however, says that his concerns are endorsed by a report he commissioned from the General Accounting Office, the investigative arm of Congress, which pointed out ways in which the agreement might conflict with the patent legislation passed last year. Under the current legislation, any patents arising from jointly funded research would remain the property of the research institution, but the federal government would be permitted free use of the patent, and would also be able to reclaim control of the patent rights. However, MGH acting director general Dr Joseph Martin insisted that a clear distinction would be made between research supported by the federal government and that financed by Hoechst.

Mr Gore remains unconvinced. He argues that maintaining a clear separation between separately-funded research projects is "simply a fiction" and promises that, even if his amendment to the patent legislation is dropped, he will be keeping a close eye on the MGH/Hoechst and other similar agreements, to protect what he describes as a massive public investment in recombinant DNA research. An official in the legislative office of NIH said last Friday that he felt the concern raised by the General Accounting Office; about jointly funded research "is certainly a problem that is not non-existent, although it does not currently appear very prevalent". A delegation from NIH will be visiting MGH next week to discuss the impact of the new patent legislation on future arrangements for federally funded research at the hospital.

David Dickson

Science in France

Democratic union

Grenoble

How far can democracy go? This question is emerging as one of those central to the new politics of science in France, and it was put to a remarkable test last week.

Professor Robert Tournier, the 47-year-old director of the renowned laboratory for very low temperatures at Grenoble, in the Rhônes-Alpes, announced some time ago to his colleagues that he wanted to resign the directorship to have more time for research in his own laboratory. Normally, the CNRS would take advice on a new director from the laboratory steering committee, and from the CNRS "parliament", the Comité National, and then would merely announce an appointment. This time it has another factor to take into account. Internal advisory committees in the laboratory could not agree on their recommendation for a successor, and Fournier, as a good democrat and socialist, asked the whole laboratory, including technicians, to give their advice on two candidates.

The resulting "election" took place last week. It has no official significance, and was nearly a draw. But the trades unions (their favoured candidate having won) are treating the event as a clear selection of director, and have written to the Paris headquarters of the Centre National de la Recherche Scientifique, to which the laboratory belongs, to say so.

As it happens, the narrowly-elected

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