

AN extraordinary period of expansion in the life of Israeli universities is coming to an end. After a quarter of a century during which student enrolment has increased almost 40 fold (in contrast to a five-fold increase in the general population), it is now up by only 5 or 6% a year. And severe financial problems have virtually brought an end to the spate of multi-million pound building projects so characteristic of the last 25 years.

Not all universities have been affected in the same way by the new situation. Though the 50 year old Hebrew University of Jerusalem is actually expecting a decline in enrolment this year, the newer institutions of higher learning in Haifa, Tel Aviv and Beersheba are still growing, albeit at a slower pace than previously.

Off the record, some professors argue that Israel does not need even its existing seven institutions of higher learning to handle the current student population of some 60,000 (which gives Israel about the same percentage of university students as the countries of western Europe). Since, however, it would be politically impossible to shut one down, all the Council for Higher Education could do was to ban the establishment of new universities (in the foreseeable future) and to crack down on plans to create new faculties at existing universities, particularly where they duplicate programmes already available elsewhere in Israel.

Reaction to the situation has varied from campus to campus. The President-elect of the Weizmann Institute, Professor Michael Sela thinks that Israeli institutions of higher learning should, in the circumstances, "use their shrinking resources to raise academic standards rather than add floor space". And Professor M. Z. Kaddari, until recently Rector of Bar-Ilan University, wants to cut down on the intake of students, not only because of budgetary problems but also "to avoid the creation of a disillusioned academic proletariat".

Naturally enough, the President of the Technion Institute of Technology, Amos Horev, believes that, regardless of the number of students, a greater percentage of them should be studying engineering lest a shortage of engineers frustrate Government plans to double Israeli industrial output by 1980.

Whatever the logic of Horev's argument, priorities in the sphere of higher education will have to be more clearly defined than they have been in the past, when money seemed to be available for everything at once. The boom is over.

● Despite their financial problems, or possibly because of them, institutions of higher learning are strengthening their ties with local industry. A recent con-

sequence of such cooperation is the Microviscosimeter MV-1, an Israeli instrument expected to facilitate the early detection of leukaemia, which was this week named one of the 100 most innovative products of the year by *Industrial Research*, a US magazine.

The instrument was developed by the Elscint Company of Haifa on the basis of studies carried out by young researchers Michael Inbar and Meir Shnitzky of the Weizmann Institute's Laboratory of Membranes and Bioregulation. It grew out of an

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from Nechemia Meyers

apparent correlation discovered by Dr Inbar and Dr Shnitzky between the level of cholesterol in the cell surface membrane and the blood, and the development of leukaemia.

Named Israel's Outstanding Exporter of 1974 for its large overseas sales of medical and laboratory equipment, Elscint is particularly proud of the fact that its MV-L is sharing honours this week with instruments created by a group of international giants.

● Another achievement of local, science-based industry unveiled recently is a mobile pilot plant for processing sewage that provides as end products both purified water (suitable for irrigation and almost suitable for human consumption) and concentrated algae for use as high-protein animal feed.

Built by the Membrane Division of Israel Desalination Engineering Ltd (IDE), under the supervision of Dr S. Sachs, the installation, unlike treatment plants now in operation, does not require the introduction of algae-killing lime or alum into its oxidation pools. Instead, it concentrates and purifies the sewage by low pressure ultrafiltration, using membranes developed specifically for the task.

It is not yet possible to estimate the cost of building and operating IDE units on a commercial basis, but an important factor in costs—the energy input required—is relatively low because the purification process can be carried out at a pressure of 7 or 8 atmospheres, as compared to 60 or 70 atmospheres in conventional reverse-osmosis systems. Moreover, the low pressure permits the unit to be built with less expensive materials than would otherwise be required.

When expenses are calculated one must also consider the fact that the algae 'left over' should bring in substantial sums of money.

Economic considerations in Israel

may be rather different from those of other countries, as additional water supplies are urgently required here, almost regardless of cost. But both the Treasury and the taxpayers would be most grateful if recycling a larger part of Israel's sewage made it possible to delay the construction of large scale and very expensive desalination plants.

● A more controversial scheme for increasing water supplies has come from the Ministry of Agriculture's Soil Conservation and Drainage Department. Ministry experts claim that transforming 85,000 acres of shrub-covered Galilee hillsides into pasture land would save 85 million cubic metres of water because grass requires less moisture than shrubs and the "surplus rain" would seep down into the aquifer. Moreover, they add, the new grasslands would provide enough forage for raising 24,500 cattle each year, as well as creating an excellent recreation area.

The scheme has, however, been severely criticised by, among others, Professor Zeev Raveh of the Technion Institute Faculty of Agricultural Engineering. "If the plan were implemented," he declares, "it would supply the country with very little additional water or meat, and, far from creating a new recreational area, it would gravely endanger the ecological balance of one of Israel's few remaining focuses of natural beauty and rich biological diversity."

Pointing out that the Ministry of Agriculture plan has so far only been tested on a carefully tended, one and a quarter acre plot, Professor Naveh doubts very much whether the lessons learned there are applicable over a much wider and more diverse area. He notes, for example, that uprooting shrubs is a very expensive process if it is to be effective (costing several times more than was estimated by Ministry planners) and, he adds, there is no certainty that the new vegetation that takes over will be suitable for grazing purposes.

Though a few months ago it was planned to implement the Ministry of Agriculture scheme at the rate of 8,500 acres a year, public protests have prompted the Government to undertake further studies before uprooting any shrubs on a large scale. At the same time, measures will undoubtedly be taken to foster the multipurpose use of Israel's extremely limited areas of land. Professor Naveh, for his part, thinks that they must be carefully designed to suit the requirements and possibilities of each site so as to achieve a maximum degree of economic benefit (in the form of increased water yields, grazing land and timber) while ensuring that key elements in the ecosystem are not undermined.