

A searching look at Israeli science

from Nechemia Meyers

AN extraordinarily incisive and explosive 71-page report on the interaction between Israeli industry, science, universities and government was released this week by the Jerusalem-based National Council for Research and Development after being kept under wraps for two years. The report, submitted to the National Council for Research and Development (NCRD) in December 1972 by Dr S. Wald, a well known OECD economist and expert on science policy, notes that the country invests very substantial amounts in research and development (2.5% of its GNP) and that its research is of very high quality. Nevertheless, Wald charges, Israel's policy for research and development lags behind that of western Europe and North America "perhaps more than it did 20 years ago".

The factor primarily responsible for this situation, in Dr Wald's opinion, is an insufficient emphasis on applied research. "Israel," he says, "appears to be the last bulwark of the old faith which puts theory and pure science above practice and applications".

Wald caustically suggests that Israeli professors, to whom he attributes great influence, "may have greater respect for discovery than for development because few have had experience in development work and thus can hardly be expected to realise that the discovery of new material is sometimes intellectually less demanding than the discovery of methods to produce that material in tons and for an acceptable price".

Government ministries, Wald argues, have little more understanding of the situation. In the words of the report: "they act as if once a great 'discovery' is made its 'development' will be routine work and can more or less take care of itself".

Even industrial companies "have interiorised the prejudices of which they are the main victims", Dr Wald believes, adding that men who in Europe would be called "research directors" and in the USA "vice-presidents for research" are in Israel termed "development directors". This suggests that "nothing or almost nothing of their work would qualify as 'real' research".

Dr Wald reports on conversations with Israelis who link the country's single-minded dedication to pure research with Jewry's traditional emphasis on learning for its own sake. The image of Einstein, who changed the world and gained immortality with the stroke of his pen, was also invoked. This image,

Wald says, "has perhaps left a more disastrous mark on the minds of young people in Israel than in any other country".

Credit must certainly be given to the NCRD, which is part of the Prime Minister's Office, for publishing a document which declares: "No government in the Western World has so much concentrated economic and industrial power, yet none uses it so little to define and to achieve precise technological goals involving industry and universities".

It is perhaps not without significance that the document, which takes the government to task for failing to deal with questions of science and technology on the Cabinet level, was released only after the belated appointment (last month) of a Ministerial Committee on Science and Technology.

One goal of this new committee will certainly be to coordinate existing research programmes of government ministries which, Wald says, "to some extent still consider each other as competitors and not as complementary instruments of one and the same nation". His report cites the example of a project which the Ministry of Commerce and Industry approved on scientific grounds, but would not finance because telecommunications "belonged" to the Ministry of Posts and Communications (which at that moment had no applied research fund).

Marketing is much underrated in Israel according to Wald, who found it regarded "as a second-rate propaganda job", rather than as a suitable occupation for skilled scientists and engineers. The OECD economist also questions the Israeli tendency to look for large American corporations to serve as partners and marketing agencies for local industry. These big companies, he warns, are likely to view Israelis as very minor partners who can be dropped quickly if other considerations arise (a need to cultivate the Arabs, for example).

Dr Wald suggests that Israel should model her technological development programmes on those of small Western European countries like Holland, Switzerland and Denmark rather than on the USA. He points out that, like Israel, they have meagre natural resources and that their relative prosperity has been achieved by concentrating on the development of a few quality products, with which they are capable of competing on the world market. Israel's key products, he says, might come from the electronics and aeronautics industries, and more particularly from a few companies, like Israel Aircraft Industries, with sufficient turnover to finance a serious programme of research and development.

Western European countries accord

applied research and engineering higher prestige than they enjoy in Israel, Wald notes, mentioning in this context the fact that these nations sometimes create highly prestigious national academies of engineering science, a parallel to their science academies. Moreover, their universities are quick to meet local industrial requirements. When the Swiss watch industry was in trouble, Wald recalls, the university in Neuchâtel set up a faculty to train watch-making engineers "without worrying whether watch engineering was a recognised engineering profession, was a 'science' that could lead to publications or was represented at MIT".

Wald notes that Israeli professors have in recent years stressed their commitment to industrial development, but wonders if they are indeed prepared for a drastic change in science policy. The fact that Israeli industrialists still receive letters of recommendation from professors stating that a particular student is not quite good enough for PhD work but would make an excellent researcher in industry "speaks louder than public declarations", Dr Wald says.

With all his criticism, the OECD economist remains optimistic about Israeli's industrial future. "A visitor", Wald observes, "has the almost daily impression of an exceptional reservoir of will and talent which could be organised with more efficiency and profit. Many of the ingredients which make for a powerful industry-technology-science interface can be found in the country. Like pieces of a puzzle, they lay there—some fit together already, others are still in disparate order awaiting the hand that will push them together". □

First catch your bear

THE Soviet Ministry of Agriculture has drafted a special programme, within the framework of the existing international agreement, for the protection of Polar Bears. Accordingly, an expedition is shortly to leave for Wrangel Island, which has the largest bear colony in the Soviet Arctic.

The tagging of adult bears and their cubs is to take place in March and April, when the bears bring their cubs out to bask in the sun. The procedure, it is announced, will take the form of painting a number in red on the backs of the bears and the insertion of metal rings in their ears.

The *Novosti* press release announcing this expedition is headed optimistically "Polar Bears no longer threatened with extinction". A happy prospect for the painters and ear-ring fitters. One hopes that the expedition will be equipped with a supply of stun-guns. □