

OLD WORLD

Policy in Doubt

A CORRECT balance between pure and applied research cannot be achieved merely by calling upon Lord Rothschild, according to the Prime Minister. Mr Heath was addressing the Parliamentary and Scientific Committee on Monday and he added that an essential ingredient for achieving this correct balance is the "will, the intention and the expectation of doing better".

Mr Heath also doubted the wisdom of having a national science policy. He feared that such a policy "would have to be described in terms so general as to make its value doubtful". In this Mr Heath was preempting the Select Committee on Science and Technology which in the past few months has set out to discover among other things whether a national science policy is really needed. The committee's report, which is imminent, will possibly pronounce on this issue, although the scientists from whom evidence was taken were, in general, undecided on whether or not Britain should have such a policy.

Necessary generalities in the formulation of a national science policy, said Mr Heath, could be disguised by "high sounding phrases" but he added that this "would not get us anywhere. It would be a sham that would hide the real difficulties that exist". One of the chief difficulties, said Mr Heath, would be to decide how to compare the merits of different types of research but he brightened the day for all advocates of Lord Rothschild's thinking by adding that in these circumstances it is the "user or his representative . . . [who] is best able to take decisions about the need for research—and how much research on each subject".

Mr Heath affirmed his faith in pure research, which he said had the very important function of increasing and rejuvenating the nation's scientific capital. This capital consists not only of new knowledge, said Mr Heath, but it also includes the "scientists, engineers and the mathematicians who in the future will continue the job of creating new knowledge".

Mr Heath also promised continuing support for the training of postgraduate students. He said that the government was determined that the creators of new scientific capital shall be available in the numbers required. All the same, Mr Heath warned that it was important not to have too many qualified scientists, engineers and mathematicians and that the numbers must be kept under continuous review.

Amongst the optimism, Mr Heath

issued a word of warning. He said that the government is faced with the problem of how best to use its limited resources and that it has to view the competing claims of different research subjects—in particular "the perspectives of health, of poverty, of education—in which, of course, science and research have a crucial role". The

government has to view these problems "not as subjects isolated from each other but as part of an integrated effort to make our country a better place to live in".

"Science and scientific research", concluded Mr Heath, "must continue to be harnessed to the task of fulfilling our national need".

ENVIRONMENT

Confidence and Optimism

FROM holography to the salvation of mankind seems to be the chosen route of the 1971 Nobel Laureate in physics, Professor Dennis Gabor of Imperial College, University of London and CBS Laboratories, Stamford, Connecticut.

In the eighth annual Science Policy Foundation lecture delivered on Wednesday, Professor Gabor talked of the new responsibilities of science which, as it turned out, meant yet another contribution to the great environmental debate.

Professor Gabor insisted that he was not prophesying doom; rather he was prophesying a "healthier, happier, less neurotic world"—provided the public and "holders of power take heed of our warnings". In the same breath, however, he declared that unless population growth was stopped and the rate of depletion of the Earth's resources reduced, then "we are riding for a fall". To illustrate the problem, Professor Gabor quoted liberally from the much discussed computer calculations published recently in *The Limits to Growth* (Meadows D. H., *et al.*, Universe Books, New York and London, 1972). Professor Gabor calls these calculations "the great controversy: Forrester and Meadows *versus* the rest". Professors Jay Forrester and Dennis Meadows are the colleagues at MIT who have pioneered computer predictions of world dynamics. The calculations in essence show that unless radical changes are instituted in our way of life, then a major pollution crisis will be upon us in seventy years.

Professor Gabor, is not a blind believer in computer calculations; but people who reject computer calculations out of hand remind him of the Dominicans who refused to look into Galileo's telescope. While admitting that there are many shortcomings in the calculations as they stand, he considered that there is one unavoidable conclusion: "if we want to avoid a

catastrophe in not more than one, or at most two, hundred years, technology must take a new turn". Such changes will also have to be accompanied by appropriate social reforms, according to Professor Gabor, which must go hand in hand with the changes in technology.

Professor Gabor chided people who advocate complete abstinence from using the Earth's natural resources and said further that there is no need to look for inexhaustible sources of power. He pointed out that the known resources of uranium for fission are virtually inexhaustible provided we are prepared to "grind down granite mountains with less than 0.03 per cent uranium content".

Gabor also dismissed the bogey of heat pollution which has been raised by some ecologists but he admitted that there was no easy answer to the pollution created by cars. In this case he argued for a compromise with motor cars limited to 50 horse power and a high tax imposed on the use of internal combustion engines within city boundaries.

Whereas Professor Gabor expressed optimism about solving the short term pollution problems, he confessed that the long term problems—the depletion of natural resources for example—posed many problems for science and technology. Every effort must be made to recycle waste, low grade mineral ores must be mined and substitutes for limited natural resources must be made of replaceable and inexhaustible raw materials. Further, Professor Gabor said, the lessons learnt from using indestructible plastics are all too fresh in the mind and plastics developed in future must be biodegradable.

Professor Gabor's reasoned survey of environmental problems ended with an expression of confidence that the problems can be solved, although he did add that "my hopes are founded on optimism rather than on solid data". "Optimism" however, said Professor Gabor is "the only working hypothesis for any responsible man".