MRC restructuring

by Peter Newmark

FROM September 1, 1974, substantial changes in the research boards that serve the Medical Research Council (MRC) will take effect. The Tropical Medicine Board is to be retained but both the Biological and Clinical Research Boards will be scrapped. In their place there will be three new ones—the Neurobiology and Mental Health Board, the Cell Biology and Disorders Board and the Physiological Systems and Disorders Board. It is the task of each board to advise the council on policy and to initiate and support research within its designated area of scientific objectives. In addition each board has the responsibility of maintaining research in and deciding the level of support needed for each of the disciplines or specialities that it encompasses.

As well as the four boards there is also to be an Environmental Medicine (Research Policy) Committee. This will cover all aspects of environmental, occupational and social medicine. The fact that these areas will include subjects (for example radiological protection) that are also of concern to the boards is recognised by ruling that the committee will allocate its funds as far as possible through the boards. Similarly each board will be able to use its funds for subjects covered by the committee.

The new boards seem to have a degree more power than previously. Whilst the council still carves the cake, it will be largely for the relevant board to allocate its own slice. One can hardly help noticing that the total number of board members has expanded much faster than the money available for them to share out (not forgetting that by 1975–76 about 25% of the MRC's grant-in-aid will be transferred to the Department of Health and Social Security and the Department of Employment to enable them to commission contract research to be carried out by the council.

The main objective behind the new MRC structure is clearly a step, or at least a nod, in the direction of Rothschild thinking. Instead of a horizontal structure dividing clinical from basic research each board is now vertically structured.

Erratum. In the article "Foetal research aborted in the United States" (*Nature*, July 12) the last sentence of paragraph 3 should have read ". . . research on foetuses *in vivo* has already produced *some valuable conclusions and its banning is seen by some as shortsighted and ill-founded.*"

Lecturers lectured

FOUR lecturers at the Hebrew University in Jeursalem have been fired and another 12 transferred to new posts for poor teaching. Their achievements as teachers, as those of 220 colleagues, were evaluated on the basis of a survey carried out among several hundred science students at the Hebrew University by the Jerusalem-based Institute for Applied Social Research. The lecturers were graded on a five-point scale, with one point going to the worst and five to the best. Taken into account were student answers to questions such as: "Is the material usually presented in an interesting manner?"; "What attitude does the lecturer have towards relevant comments and questions?"; and "To what extent does the lecturer add to the information already available in textbooks?"

Analysis of the replies received has enabled the university to advise even relatively effective lecturers how they can overcome weak points. Professor Yitzhak Marcus, Chairman of the Curriculum Committee in the Natural Sciences Faculty of the Hebrew University, explains that the survey was not undertaken "to punish" lecturers.

New ways with fuels

by Allan Piper

IT was encouraging to hear original ideas given an airing recently in London where the Institute of Physics had arranged a meeting on "Novel physical methods of winning, burning and conversing fuels". Plants could be harnessed to produce hydrogen, said one participant, and another introduced the futuristic concept of mechanical miners. Most of the ideas are already well developed, but inevitably the 'establishment' found them 'uneconomical', and by implication not worth developing.

One topic was the potential use of solar energy through photosynthetic conversion to energy-rich plant material, which can then be converted by pyrolysis to alcohol, gas, oil and solid fuels. Dr O. D. Hall (Kings College, London), a botanist, pointed out that the amount of solar energy arriving at the Earth in three hours can meet the world's power demands for a year.

Photosynthesis in many economic crops is relatively inefficient. But in some other plants a more photosynthetic system, C4, operates. Attempts to introduce the C4 system into economic crops are in progress, together with a programme of plant breeding aimed at developing plants which are more efficient and will produce specific desirable products. Hydrogen gas, a likely fuel for the future, can also be produced by photosynthesis, said Dr Hall. Under certain growing conditions algae can produce hydrogen, and model chloroplast-membrane systems have generated hydrogen in the laboratory.

If sunlight could be converted with an efficiency of 10% (compared with 0.2% naturally) only 1.5% of the land area of the United States would be needed to provide the total energy requirement of that country. Sunnier South Africa and Australia would need less still and even densely populated Britain would need to use only 9% of her land area.

Dr Hall stressed that an integrated approach using a variety of organisms, not only green plants, would be needed but that it would then be possible to harness all the sunlight between wavelengths of 400 and 900 nanometres.

Participants who found Dr Hall's ideas too revolutionary found little consolation in the next lecture. Professor M. W. Thring (Queen Mary College, London) said that much of the world's coal resources can never be tapped if we continue to use human miners. He introduced the concept of 'telechurics' hands at a distance. Already such automation has been used to service nuclear reactors and on the Moon. But the machines for mining coal would have to perform all the functions of a human miner. Professor Thring believes that expenditure of less than £100 million could develop such mechanical miners within 10 years; they would be operated by one worker from the safety of a control room.

But whatever we burn, we must learn to do it more efficiently. Professor F. Weinberg (Imperial College, London) explained that natural burning is a very inefficient process. Extremely low concentrations of combustible material in air—'lean mixtures'—cannot be burnt using conventional methods of combustion. But the efficiency of burning can be improved by preheating mixtures, said Professor Weinberg, thus allowing much leaner mixtures to be burnt. Useful supplies of energy could be extracted from waste gases, which at present are allowed to escape as pollutants into the atmosphere.

Professor Weinberg also discussed how electric fields could be used to regulate the behaviour of various pollutants within a flame, such as carbon or lead oxide smokes. Pollutants could then be induced to deposit in a particular position, on an electrode for instance, and particles could be manipulated, allowing control of their development and consumption in the combustion zone.

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