

It now appears that the Ministry of Health does not consider "that any change is required in the Government current programme of research and investigation". This programme includes a study of the nutrition of some 1,500 children in Kent and a study in some other not yet determined part of England which is planned to start in October. The Ministry says that "cost is not the limiting factor" but that the problem is to find well qualified personnel. The Kent survey was begun in May 1968 and should be completed by September 1970, but has produced some results already. In one study of more than 100 children, 19 girls and 9 boys go to school without breakfast. The boys who do not eat breakfast, though thinner than their class mates, seem not to be any less well grown, while the girls who skip breakfast are on the whole fatter than those who eat before going to school. This prompted from Baroness Serota the remarks that "the interpretation which Dr Lynch has placed on his figures is not the correct one".

## TECHNOLOGY

### Profit from Technology

from a Correspondent

ONE hundred and sixty delegates—many of them research or technical directors—attended a conference on the management of technological innovation held in Harrogate on March 12 and 13. Organized by the Management Centre of the University of Bradford in conjunction with the Ministry of Technology and *Management Today*, the conference focused on two aspects of the innovative process which are of particular interest to industrialists: the effective harnessing of technological advances in the creation of new products, and the adoption of an organization which is not only receptive to new ideas but can also carry them through the innovative phase to commercial exploitation.

The first day was devoted to an examination of the relationship between the company and the technological environment. The importance of relating the development of new products to a company's corporate planning and its skills and resources was underlined by several speakers. A vital link is the anticipation of consumer needs up to 25 years ahead for a product which could take 10 years to develop and should have a useful life of 15 years. The importance of good management was a recurrent theme.

Mr John Duckworth, managing director of the National Research and Development Corporation, suggested that most companies usually know what is in their own best interests. Unfortunately, their environment—particularly the taxation system—often makes it undesirable for them to follow the higher risk programmes of innovation which would be in the country's interest; the rewards are too low for the risks involved. A survey by the Organization for Economic Cooperation and Development was cited as confirming the existence of a "management gap". Mr Duckworth attributed a great deal of the success of American companies to their strategies for technological innovation on a world-wide rather than a national scale. Of three possible strategies—offensive, defensive and absorptive—the offensive was most likely to succeed in foreign markets.

On the second day, speakers looked at the problems involved in designing an organization for effective innovation. Dr Leach from McKinsey and Co. Inc., warned that the organizational structure of a company must be related to its own needs; there is no universal solution. Nevertheless, companies can identify and eliminate major sources of potential conflict; one way of doing this involves an analysis of the key variables which make up the firm's "technological profile". Several speakers saw the role of the entrepreneur as vital in the link between invention and commercial success. It was even suggested that too much money is being devoted to research rather than commercial exploitation. Risk is inherent in all new ventures but, as for the large companies, the individual entrepreneur is often deterred by the poor rewards for success which are incommensurate with the risks involved.

Dr Cohen described how the management venture at du Pont de Nemours has enabled a large company to foster an entrepreneur and benefit from the flexibility of decision making—a feature usually enjoyed only by small organizations. Research by James Bright of the Harvard Business School suggests that the innovative chain now spans about a quarter of a century. Companies concentrate their project evaluations in the technological and economical areas, but the secret of success often depends on political and social factors which tend to be ignored.

## PLANNING

### Trees in Danger

from our Planning Correspondent

IN spite of a four-year campaign, countrywide protests and a House of Commons motion signed by more than 100 Members of Parliament, part of the 250 year old avenue of oaks in Levens Park, Westmorland, may after all be destroyed to make way for the Kendal link road to the M6 Motorway. All the signs suggest that the Ministry of Transport will reject the alternative route for the road prepared by Mr Robin Bagot, the owner of Levens Hall. The Westmorland County Council has decided not to dissent from the present plan. So far, the Ministry of Transport has refused a public inquiry, although the Minister, Mr Richard Marsh, visited the park on March 3. The ministry has promised that great attention will be given to the landscaping of its road, and it may be some comfort to the campaigners that members of the ministry's landscaping advisory committee have decided "in view of the present controversy" to visit the park (their first visit since 1963), very probably during the second week of April.

The park, still in private hands although freely open to the public, is the oldest landscaped park in England. It was designed in the 1690s by Guillaume Beaumont, said to have been trained at Versailles and brought to England to work for James II. He also created the famous topiary gardens which the family has had meticulously clipped ever since.

The main feature of the park, which encloses the River Kent for over a mile upstream from the house, is its 2,050 yard avenue of oaks of the species *Quercus sessiflora*, a rare variety with a normal life-span of 1,000 years, so that they are not yet in their prime.

The whole landscaping operation is fully documented down to the date of each tree.

The planned road would cut through the avenue about 100 yards from its end before crossing the river. The route proposed by Mr Bagot and his advisers, which has been approved by the ministry on engineering grounds, would instead bypass the end of the avenue and would be screened from the rest of the park by a sharp bend in the river. It is maintained that this route would cost less than the original one, as the bridge would be 45 feet shorter than that planned by the MOT engineers, and that the only property to be disturbed would be the Brettargh Holt convent which would be cut in half. Although this would be unfortunate, the "Save Levens Park" movement considers that this is a small sacrifice for the preservation intact of one of the last surviving examples of seventeenth century English landscape gardening.

## BOTANY

### Roadside Botany

from our Botany Correspondent

CONSERVATIONISTS, farmers and highway managers met in London on March 14 to discuss the function and management of road verges. These three groups may have different priorities, but the amicable atmosphere of the symposium suggested that they have each other's interests at heart; all that is needed is cooperation for roadside verges to become a haven of rare and attractive plants while not interfering with the safety and amenity of what is described under Common Law as "a perpetual right of passage for the Queen and all her subjects".

Putting the conservationist's point of view, Dr F. H. Perring of the Biological Records Centre, Monks Wood Experimental Station, said that in many areas of arable lowland in England the verges represent the last vestige of grasslands which existed before the modernization of agriculture. The rich pastures of the past often survive only on unploughed and unsprayed verges. Many roadside verges also provide a habitat for some of Britain's rare plants. Dr Perring's group have found that at least twenty-seven of the three hundred rarest species grow on roadside verges; *Linum anglicum*, perennial flax, grows only in this habitat and the same goes for several other species. Clearly the loss of one roadside verge could mean the end of a species in Britain, and county naturalists' trusts have already stepped in and persuaded local authorities to protect the sites of some of the rarities when roadworks are in progress.

The farmers' concern is with preserving the safety of road users, keeping weeds out of the fields and maintaining good drainage, all of which are hampered when roadside verges are not cut regularly. The danger of weeds spreading into agricultural land from roadsides, however, is probably not as great as sometimes thought. Mr R. J. Chancellor of the Weed Research Organization, Oxford, described a survey of roadside weeds around Oxford and Chelmsford. Weeds clearly can and do spread to fields from the verges, but this does not seem to constitute any great danger. In no case was a verge found with a high density of weeds that were also found in adjacent fields.

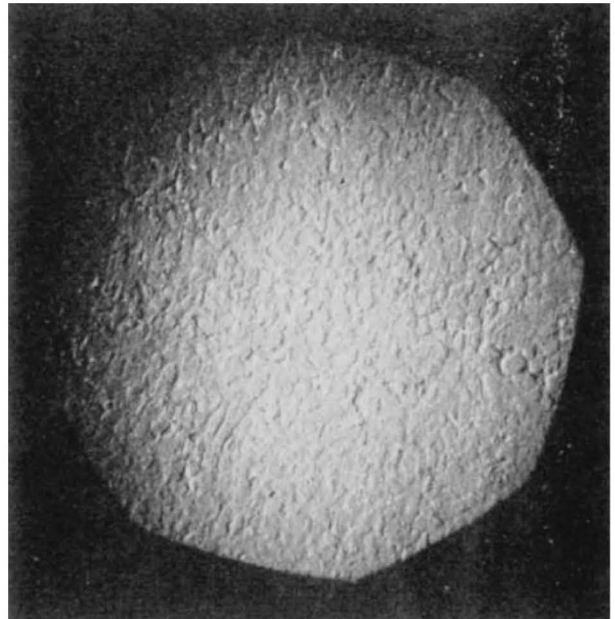
From the point of view of the local authority the

principal aims of the maintenance of road verges are to achieve good drainage of the highway, to provide space for pedestrians, to maintain good visibility for drivers, and to control the weeds listed in the Weeds Act, 1959. As Mr C. R. Chadwick, county surveyor of Wiltshire, said, this usually presents few difficulties on motorways and trunk roads, but on smaller country roads, where large scale clearance may be necessary, the situation is more complex. Several speakers bemoaned the passing of the village lengthman, who used to care lovingly for his own section of the road. Mechanization and sometimes chemical spraying have taken his place, and ecological effects can be drastic.

Local authorities seem to be very willing to respect as far as possible the botanist's wish to maintain a diversity of habitats on roadside verges and to conserve the rarities on them. It is up to local naturalists to offer advice when new schemes are mooted.

## METALLURGY

### Polished Brass



Micrograph of surface of brass specimen machined to a mirror finish in one operation at Philips Physical Laboratories, Eindhoven.

## SKIN

### Growth Control Mechanisms

from a Correspondent

How does an organ know when to stop growing? Professor W. S. Bullough of Birkbeck College, London, went some way to answer this question in a lecture to the Medical Society of the University of Newcastle upon Tyne on March 14. He said that, although the cells of a tissue have the potential for unlimited division, there is a balance between the rate of mitosis and the absolute size of the tissue, which implies a feedback system. Immediately after division, cells may either divide again or take up their tissue function, when