

another has changed. Steam engines were well established before thermodynamics as such saw the light of day, but the situation soon reversed and the properties of electrons, for example, had to be understood in some measure before any kind of electronic device could be constructed. At present, industry rarely uses the most recent advances in basic science, however, and the "lead time" is often of the order of fifteen to twenty years. On the other hand, scientists, especially astronomers, who make use, for example, of satellite systems, manage to get hold of the most recent technology. And often the lead time is almost zero.

Most scientists, Professor Casimir said, spend much of their time filling in gaps rather than making fundamental discoveries. But when they are filling gaps for the benefit of industry, they must avoid excessive control by the interested industrial concern, which must also resist the temptation to be overbearing.

Professor Casimir also described the different ways in which a company can organize its research and development. First, there is an arrangement along the lines favoured by Bell Telephone Laboratories in which a central research and development organization is responsible directly to the board of management of the company. One objection to this is that the manufacturing units within the company have too little say in the formulation of research policy. Second, each manufacturing unit within a company can make its own research arrangements. If there are n units then there are $\frac{1}{2}n(n-1)$ interfaces between research departments across which meaningful dialogues have to be conducted if advantage is to be taken of work done by the others. Third, there is an arrangement with n interfaces, namely one in which all units have facilities for development but where there is also a central organization for advanced research and development. This is the scheme adopted by Philips, and it has the edge, as far as problems of communication are concerned, when n is four or more, that is in a moderately diversified company.

ITINERANTS

Medvedev Arrives

ZHORES MEDVEDEV arrived in Britain this week to take up a one-year appointment at the National Institute for Medical Research at Mill Hill. He arrived by train on Sunday accompanied by his wife, who is also a biochemist, and his 16-year-old son. His eldest son is still in the Soviet Union.

Dr Medvedev said this week that he is looking forward to his year in Britain

and he is hoping that some experiments can be carried out at Mill Hill to try and test his theories on the mechanism of the ageing of cells.

The visa that was issued to Dr Medvedev on December 12, 1972, is valid for one year but the family's passports are valid for two years. It is possible in principle, said Dr Medvedev this week, for the visa to be extended for a further year but it is too early yet to say whether his work will make it necessary for him to apply for an extension.

Dr Medvedev does not know whether he will visit other countries during his leave from the Soviet Union. He has had invitations to attend conferences both in Europe and in the United States but before making any arrangements he will find out from the Soviet Embassy whether his visa is valid for travel to countries other than Britain. He particularly would like to visit Berkeley, California, in August to attend the 13th International Congress on Genetics.

ASTRONOMY

Plumian Professorship

THE saga of astronomy in the University of Cambridge had another chapter added this week with the news that Professor Martin Rees is to become Plumian Professor of Astronomy and Experimental Philosophy at the University.

Professor Rees, who only took up his present position as Research Professor of Astronomy at the University of Sussex in October 1972, was previously at the then Institute of Theoretical Astronomy at Cambridge as a research fellow in Professor Sir Fred Hoyle's group.

But in the past year astronomy at Cambridge has suffered much publicity and some losses. In April 1972, Sir Fred announced that he was resigning from the Plumian Chair, and speculation at the time ascribed this to, among other factors, his disagreement with the reorganization of astronomy teaching and research at Cambridge (*Nature*, **236**, 419; 1972).

Under the new arrangements, which came into force last August, the Institute of Theoretical Astronomy and the University Observatories were merged into the Institute of Astronomy, and Professor Rees will be one of the three professors at the institute. Each professor in turn is expected to hold the directorship of the institute; the present director is Professor Donald Lynden-Bell, who himself only took up his position as Professor of Astrophysics at the university last October.

The University of Sussex will undoubtedly not be pleased to lose a professor so soon after his appointment, but nobody will begrudge Professor Rees his appointment to the premier chair of astronomy in Britain at the age of 30.

Alice in Eco-land

"I SEE" said Alice "that the *Sierra Club Bulletin* has an ad for boots made of mustang leather, and a long article asking us to protect wild horses. Why?"

"Because" said the Mad Hatter "the word 'mustang' in the ad only means that the boots are mustang colour. The leather is cowhide, so everything is ecological."

"But" said Alice "cows spend their lives giving us milk. They are very friendly. Why do we make them into boots and hamburger, if we protect mustangs?"

"Cows are not an endangered species," replied the Hatter, "they are only endangered individuals. They are not part of the web of life. So they don't matter."

"Why are mustangs an endangered species?" asked Alice. "They are just horses that have run wild. There are lots of tame horses. If a cow ran wild, would it be an endangered species?"

"No," said the Hatter. "It would be rounded up, and made into hamburger."

"If I were a cow" said Alice "I

would ask a genetic engineer to make me into a mustang."—*T. Jukes, University of California, Berkeley, California.*

