

base in support of their polar research programme. Two geophysical rockets are due for launch this month; next season 12 rockets are intended to be launched into aurorae. The S160 sounding rocket being used has been developed by the Institute of Space and Aeronautical Science of Tokyo University.

The Japanese Meteorological Agency has also taken up rocketry for its advanced high altitude investigations. A new rocket range near the coastal town of Sanriku has been built at a cost of £137,500. The first campaign comprising the launch of 40 4-metre long MT 135 meteorological rockets is due in July.

It is generally held that Britain could have launched her first small satellite by means of the small national space launcher *Black Arrow* at least 3 years ago. Lack of purpose—on which the Japanese cannot be faulted—has prevented this. The disadvantages of not having an alternative to US launchers when it comes to bargaining, as with the hardline Intelsat talks now resumed in Washington, is beginning to be apparent—as has frequently been predicted by the British aerospace industry; Britain has fallen between two stools—the muddles of European cooperation and the cost of going it alone.

COMPUTERS

Mintech's Right of Veto

LAST week's confrontation between subcommittee D of the Select Committee on Science and Technology and representatives of the UK Atomic Energy Authority produced a display of verbal acrobatics from the authority which Mr Ted Leadbitter said could be rivalled only by the Foreign Office. Mr Leadbitter and his colleagues on the subcommittee under the chairmanship of Mr Airey Neave are looking into the development of the British computer industry over the next ten years, and the UKAEA was giving evidence as a major user of computers. What inspired Mr Leadbitter's caustic comparison was the efforts by the witnesses to parry the question of who has the final say when the authority wants to buy a foreign computer—the UKAEA or the Ministry of Technology. This riddle took up much of the session and the answer never came, at least not during the part of the session open to the public. The best that could be done by Mr E. E. Newley, director of the Atomic Weapons Research Establishment, was to say that the view of the UKAEA so far has prevailed when they have wanted to buy machines from the United States.

But the subcommittee was successful in distilling from this knockabout stuff some odd definitions of what Mintech considers to be a British machine. The rules are bent so that the Honeywell computer, which is largely built in Britain, counts as British, but the comparable IBM computer is deemed to be foreign.

Much of the discussion centred on the software which has been developed by the UKAEA, and the subcommittee clearly felt that there was room for improvement in making this material available to industry. Mr A. Gregory of the subcommittee mentioned complaints from industry about the poor flow of information from government departments such as the UKAEA, but Mr Newley and his colleagues thought that the subcommittee was tending to overstate the commercial returns. The UKAEA was looking at ways

of disseminating the information, and marketing consultants had been called in to see how the multi-access system developed in conjunction with IBM might be made available.

The discussion moved to the future needs of the authority, and the highly secret project 52 which ICL is working on received a mention. But whether project 52 will cover the requirements of the UKAEA for the next ten years—the timescale covered by the subcommittee—depends on how the system is likely to expand. At present it is not clear what the upper range of project 52 is going to be, but there is little doubt that the UKAEA will need access to larger machines than the IBM 360/75 at Harwell.

Mr E. Lubbock was surprised that the UKAEA has no large machines on order considering that the doubling time for the growth of computing in the authority is three years. Mr Newley agreed that this was a question that the UKAEA was grappling with, and one solution might be to order more ICL 470s. The UKAEA already has an ICL 470, at Risley, and two more at Culham and Winfrith will be installed by the end of the year after delays which were admitted to be proving awkward for the UKAEA. What the UKAEA requires, the witnesses said, is a good multi-access system, although the need for equipment with a quick response for data acquisition from experiments is a problem. But it seemed clear that the UKAEA has no settled policy on computers with which to start the seventies.

SCIENCE POLICY

Dainton's Thoughts

THE new broom in the Council for Scientific Policy (CSP) does not intend to do much sweeping clean. Dr F. S. Dainton, who took over the chairmanship of the CSP on January 1, this week outlined some of his thoughts on the issues confronting the council during the next few years, and he said that he can see no reason for major changes in the workings of the committee in the near future. One great problem that science policy faces at the moment, said Dr Dainton, is a growing disillusionment with science, expressed in the attitude that science creates more problems than it solves. Such an attitude has grave consequences for future manpower resources, and can be reflected in the size of science budgets. But when asked whether he thought that the membership of the council, which consists almost entirely of pure scientists, tends to make the body rather inward-looking and therefore unable to come to grips with the problem of the swing away from science, Dr Dainton argued that its membership is not unbalanced. The council, he said, is especially well equipped to comment on the economic aspects of scientific research.

The CSP will continue to study various problems through its working groups. Studies already in hand include developing criteria for supporting scientific research in universities, international cooperation in science, especially molecular biology, the quantification of economic benefits of scientific research, and pollution. In addition, the CSP has recently established a study group to look into problems created by expansion of higher education. One of the main questions the council will be asking in this connexion will be whether research facilities need to grow at the same rate as