

Scandinavian diary

from Wendy Barnaby

PREVENTION may be better than cure, but when it comes to cancers the Swedes are approaching the problem from both angles. January 1, 1975 will see the introduction of two new measures in Sweden, each aimed at reducing the incidence of cancers and related illnesses.

● A revision of maximum allowable concentrations of chemicals in the working environment has recently been published by the National Swedish Board of Occupational Safety and Health. Issued against the background of reports that various workers have contracted illnesses ranging from cancer to giddiness, kidney malfunctions, loss of memory and cramps after working for sustained periods with polyvinyl chloride and a jet fuel (MC77), the new law lists 125 substances and specifies the maximum allowable concentration of each to which workers may be exposed, averaged out over an eight hour day or a period of fifteen minutes. The permissible levels of about 80 of the substances have been lowered, some drastically, and new chemicals have been put on the list. Vinyl chloride used to be allowed in concentrations up to 20 p.p.m. The new level will be 1 p.p.m., the same as that set recently in the United States.

Other substances affected by the new law include arsenic, 20–30 kg of which is used daily in the making of glass and for which concentrations will be lowered from 0.5–0.05 mg per m³, and chromium salts. Used in the tanning of leather and as pigments in anti-rust paints, these will in future be allowed in concentrations of 0.05 mg instead of the present 0.1 mg per m³. The levels of various solvents (acetone, toluene, formaldehyde) have also been reduced, as have octane-raising additives in fuel.

The new law has been criticised at the Health Centre of Stockholm's Institute of Technology, where it has been argued that the new levels are merely repetitions of those now in force in the United Kingdom and the United States and reflect more a balance between economy and hygiene than any facts about the substances cancer-producing properties. In spite of this, the measure will be welcomed by those for whom it will mean safer working conditions.

● Swedes who have contracted brain tumours will after the New Year have the option of treatment by a new fifteen-ton gamma-ray unit recently installed at the Karolinska Hospital. The design of the unit makes it the only one of its type in the world. Gamma

rays from 179 radioactive cobalt (⁶⁰Co) sources encased in a heavily shielded hemispherical central body are focused on to the tumour, which can then be irradiated without significantly damaging the surrounding tissues. Focusing is done with the aid of a collimator helmet arrangement, and is amazingly accurate. Deep-lying tumours and those just under the pituitary body will be particularly susceptible to such treatment. The latter may not themselves be dangerous, but may grow and put pressure on other nerves, affecting the patient's movement and senses. Victims of Parkinson's disease may also find relief. During some operations the patient will be fully conscious, and will be able to communicate with the operator through a built-in two-way radio.

● Norway has recently joined the European Space Research Organisation's Maritime Communications Satellite (MAROTS) programme which began in 1973. Although Norway only has observer status in ESRO, the country's large maritime fleet gives it a manifest interest in a civil maritime communications system. To seal its co-operation Norway will contribute 1.5% of the cost of the project, presently estimated to be of the order of \$80m. Sixty per cent of the total cost is being borne by the UK, with the balance being shared amongst the other participants: Belgium, France, Italy, the Netherlands, Spain, Sweden and West Germany.

The MAROTS system will consist of ground facilities and one satellite in a geostationary orbit, expected to be positioned around 12.5°W. By means of a wide beam the satellite will cover most of the Atlantic Ocean, the western part of the Indian Ocean and the eastern part of the Caribbean region. The satellite, which will have a design life of not less than three years, will be put into orbit by a Delta launch vehicle from Kennedy Space Centre, it is hoped in mid-1977.

When it is operational, MAROTS will provide general communications, improved distress, search and rescue safety (including "all ships" information broadcasts and individual mobile weather routing by satellite) and evaluation of ranging techniques for line of position determination. The information the project will provide will help in the design of a future system, operating globally, intended to improve on MAROTS' functions and to provide satellite capacity to relieve present congestion in the high frequency bands, permit automation of radiotelephone and teleprinter transmissions and cater for services such as high speed data transmission, not presently possible on middle and high frequency levels.

ARC faces money shortages squarely

by Eleanor Lawrence

THE practical effects of the Rothschild Report are now being felt by the research councils generally and by none more so than the Agricultural Research Council (ARC). Introducing the Annual Report for 1973–74, the Secretary of the ARC, Dr W. M. Henderson, was inevitably concerned with the effects of the resulting White Paper on the distribution of government funds for agricultural research, making themselves felt as they do at a time when there is less money all round.

Since 1967–68, as Dr Henderson points out, the annual growth rate of the Science Budget from the Department of Education and Science for all the research councils had fallen from 11.2% to 3.9% and the ARC's share has decreased from 12.2% to 4%. The source of the funds available to the ARC is also changing. In 1973–74, 59% of its budget came from the Science Budget, 23% from the Ministry of Agriculture, Fisheries and Food (MAFF) and 18% from the Department of Agriculture and Fisheries for Scotland (DAFS). The expected proportions in 1974–75 are only 38% from the Science Budget, 46% from MAFF and 16% from DAFS.

The ARC's present programme of work has fitted in with the requirements of MAFF, the 'customer', without too much upheaval and new commissions from the ministry are scheduled to begin next April. Dr Henderson had special praise for the work of the Joint Consultative Organisation, a body made up of representatives of the ministries, universities, the research council and its institutes and units, and the farming community, which was set up to recommend priorities for future work and to evaluate the existing programme.

The tight financial position implies that no new work can be undertaken by the ARC. Although there seems to be no immediate danger of drastic cuts in particular projects, a reduction in the work force seems inevitable. At the moment there is a moratorium on the filling of posts left vacant through retirement or resignation, but Dr Henderson emphasises that this is not a satisfactory answer. "We cannot," he said, "under any circumstances stop the recruitment of a due proportion of good young scientists". He could, however, give no clear indication how this was to be achieved.

One of the most frustrating restrictions will be the inability to inject the necessary money at the 'growing' points where an increase in funding would bring in the best returns. □