more cautious attitude. The United Kingdom has, however, been able to persuade its partners not to adopt the wide-sweeping legislation the Commission proposes until further studies have been carried out.

Various scientific committees will now be given the job of examining the health hazards of natural oestradiol, testosterone, progesterone, trenbolone (a processed natural hormone), zeranol and perhaps others. The United Kingdom rules permit the use of these hormones, which many other member states have forbidden. Similarly, until there is "conclusive" scientific evidence to the contrary, oestrogens, androgens and gestagens (except stilbenes) are considered safe, as far as the Community is concerned, for therapeutic use and to regulate the menstrual cycle.

The consumers feel that this scientific research could drag on for a long time, and matters will not be helped by the United Kingdom taking over the council presidency after the summer from the Dutch, who support tough Community legislation. **Jasper Becker**

Canadian radioastronomy

Longer bases

Washington

Canadian astronomers have started design work on what it is hoped will eventually to be the largest radioastronomy facility in the world. An eight-dish array of 32-metre antennas is to be distributed along a 5,000-kilometre line stretching from one end of the country to the other.

Canada's National Research Council (NRC) has already given its formal approval to the project, provisionally named CASCADE (after the Canadian Astronomy Society). Meeting in Ottawa in February, the council members gave the array top priority over four other possible national facilities that had been suggested for funding: a high-energy electron ring, an orbiting observatory, a kaon antiproton physics facility, and the creation of several centres of acoustics.

NRC and the Natural Sciences and Engineering Research Council have now agreed to share the costs of a $300,000 design study for the array being carried out by a technical committee chaired by Dr Ernest Seaquist of the University of Toronto's department of astronomy. It is hoped that detailed plans for the array, estimated to cost about $30 million at 1981 prices, can be completed by the beginning of next year; and that if the Canadian government can then be persuaded to support the project, funding for construction be provided in 1983.

Plans for a very long base array — which will be able to provide an angular resolution of 5×10^{-4} arc seconds at a wavelength of 1.5 centimetres, a hundred times better than can at present be provided by the largest Earth-based radiotelescope — have been discussed for the past three years within the Canadian astronomy community, one of the first to develop and work with very long baseline interferometry. Two years ago, the very long base array came out on top of two other proposals, a 100-metre centimetre-wavelength dish and a large (25–30 metre) millimetre-wavelength antenna, in a study conducted by the Canadian Astronomy Society.

Despite enthusiastic support from astronomers, there was initially some scepticism from industrialists in NRC, who doubted that the project would have sufficient economic pay-off to justify the initial capital investment. However, after considerable lobbying several companies, particularly in the electronics, computing and telecommunications industries, were persuaded to back the proposal, particularly after it was pointed out that most of the components would be built in Canada. Astronomers argued, for example, that the increased production of antennas and equipment, together with some improvement in high frequency performance, would help Canadian aerospace and communications companies to compete for foreign markets.

As planned, the array would stretch along an east–west line from Newfoundland to Vancouver Island. Signals would be recorded independently at each station and subsequently correlated at a central processing facility, giving 28 components of the Fourier transform of the image of a cosmic radio source.

Efforts are being made to generate public support for the array by appealing to nationalistic instincts. A circular distributed by the chairman of NRC, Dr Larkin Kirwan, says the array would "assure Canadian leadership in radioastronomy for at least thirty years", and the Canadian Astronomy Society says it would "remain a permanent advertisement for Canadian science and technology".

In a similar vein, the secretary of the design committee, Dr Brian Andrew of NRC's Herzberg Institute of Astrophysics, heads a public relations committee whose task he describes as being "to elevate the array to the status of a national shrine." He also points out that the planned array would be able to take advantage of Canada's unique geography, and that "linking the country from end to end seems to have intangible overtones that would make it politically attractive".

Meanwhile budget restrictions have forced US scientists to put back their own plans, developed last year by a group at the California Institute for Technology and its Jet Propulsion Laboratory, for a two-dimensional array stretching across the continent of the United States, and including antennas on both Hawaii and Alaska (*Nature* **288**, 4; 1980).

Similar in size, conception and cost to the Canadian plans, the US proposal is said to have been given top priority for the next decade by the Field committee now preparing a report on the future of US astronomy for the National Academy of Sciences. A north–south array would fit well with Canada's plan.

However, one of the victims of the budget cuts announced by President Ronald Reagan in March was a 25-metre millimetre-wavelength radiotelescope planned for Mauna Kea in Hawaii, and previously approved for funding through the National Science Foundation by the Carter Administration. With this project placed back in the melting pot it seems unlikely that other new capital construction will get much consideration in the next few years. **David Dickson**

Hungarian agriculture

Economic growth

Hungarian agriculture is to be remodelled in the next twenty years on ecological principles. This is the burden of a report last month to the Academy of Sciences of an interdisciplinary survey of the country's "agroecological potential". The survey was first proposed at the 1978 annual general meeting of the academy by Dr Istvan Lang, at that time deputy general secretary. Thirty research institutes, universities and computer centres took part, and more than 400 scientists were involved.

The survey asked three main questions: what quantity of agricultural plant production can realistically be attained by the end of the century? What conclusions can be made about the long-term targets of economic policy? How can production be increased and costs reduced in the medium term? The preliminary conclusion is that in the most favourable conditions, the annual grain yield could reach 22 million tonnes (present level 12–13 million tonnes) and that the productivity of grasslands could be doubled.

Nevertheless, the survey notes, there are constraints on the development of Hungarian agriculture. The country is poor in fossil fuels, so that with rising oil prices a point may be reached where it is economic to settle for lower than maximum yields and less expenditure on fertilizers. The country's geology is also a constraint. Hungary lies in the lowest part of the Carpathian basin, and the run-off from the mountains has produced tracts of saline and/or alkaline soils, principally in the western half of the country. Thus the Puszta remains a virtual desert in spite of an annual precipitation of 550 mm. Yet normal leaching methods of reclamation are ineffectual, since the soil is so impermeable that the water would simply pond on the surface. Moreover, Hungary has no means of disposing of the drain water, since the quality of the rivers Tisza and Danube must be ensured at the southern frontier.

Nevertheless, on the Comecon scale of

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