Finally, the use of plant and animal products by the consumer is receiving greater attention and research is being conducted to preserve either in fresh or processed form the high quality and nutritional characteristics of Canada's agricultural products. The uniqueness of the climatic and geographic conditions of this country provide both assets and liabilities in agriculture, and the research of the Branch is designed to exploit the beneficial aspects of these conditions and counteract the existing deficiencies that tend to put producers at a comparative disadvantage. The policy aim of the Department is a viable agriculture and the extensive program of research is designed to help achieve this aim.

9.2.4 Department of Communications

The Communications Research Centre (CRC) of the Department of Communications, with a staff of about 550, carries out research and development in a number of areas related to communications. The main CRC site is at Shirleys Bay, Ont., 15 miles west of Ottawa; there are also a number of experimental sites, some at remote northern locations such as Resolute Bay.

Communications technology satellite. The largest single activity of the Centre is the Communications Technology Satellite (CTS) program. This experimental satellite, due to be launched in 1975 is being assembled at CRC from components designed and manufactured by Canadian industry, and using experience gained from the successful Alouette and ISIS satellite research programs of the past decade. The program is a joint venture with the US National Aeronautics and Space Administration (NASA), who are providing the launch and some advanced components. Other such components, including the "blanket" of solar cells, are being obtained under a co-operative arrangement with the European Space Research Organization (ESRO).

Twenty different organizations from the federal and provincial sectors, universities and industry have supported and are taking part in a variety of technical and socio-economic experiments to test and exploit the capabilities of the high power super high frequency satellite. All the ground station facilities for these experiments are being furnished by CRC, who are also responsible for the co-ordination of the total program.

A Memorandum of Understanding on the international aeronautical satellite (AEROSAT) program has been signed by ESRO, FAA(US) and Canada and work on the Canadian portion of this project is well under way. Further progress on an international maritime satellite system is held up pending intergovernmental decisions.

Communications systems. A rapidly developing field and market is that of data terminals, such as are used by airline ticket agents, bank tellers, credit card checkers, etc. An exhaustive study of the possibility of developing terminals in Canadian industry was made, as a result of which it was decided that the best opportunity for such participation lies in a mobile data terminal for use by police, taxis, truckers, etc. A joint development project between CRC and the RCMP has been started with the intention of producing a terminal which should have wide acceptance among the police forces of Canada.

Studies are also being carried out on the Long Distance Network (voice and television) and on Data Communications systems, together with work on small terminals for satellite systems and related modulator-demodulator and coder-decoder equipment for analogue and digital transmission, respectively.

Radio research. In addition to the normal work on propagation, noise and ionospheric studies, interesting tests have been carried out in conjunction with the Department of Energy, Mines and Resources into the feasibility of using single sideband high frequency radio circuits to transmit still pictures to the high arctic. In particular, images of sea-ice received at the Prince Albert satellite tracking station from the US Earth Resources Technology Satellite (ERTS) were transmitted by continuous grey-scale facsimile to ships in the Arctic. The experiments suggest the possibility of offering a valuable service to vessels operating in this hostile environment.

Several radar programs, some for the Department of National Defence, have been carried out including one designed to study various methods for measuring the thickness of ice. Some of these methods have given very promising results.

Informatique. Work has continued on a number of aspects of teleconferencing, a subject which involves a broad spectrum of disciplines from acoustics to electronics to behaviourial