

### Ultrasound and eye measurements

A device that uses ultrasound in the accurate and painless measurement of eye parameters has reached the marketing stage. Developed by the Division of Electrical Engineering, the Echo-Oculometer is being manufactured by Radionics Ltd. of Montreal. Following a stringent series of tests, the device has been licensed for sale in the United States by the U.S. Food and Drug Administration. The instrument has a particular application in determining the axial length of the eye before implantation of artificial lenses.



*The Echo-Oculometer (above) measures the axial length of the eye.*

### Detection of cancer-causing agents

A University of British Columbia zoologist is developing a series of tests to detect cancer-causing agents in chemical compounds used by modern industry and agriculture. Since extrapolation to humans of tests carried out on microbes is not always reliable, the scientist is developing a testing technique which uses human tissue. Human cells, which can be taken from average persons or from high-risk groups, are cultured in growth media and exposed to potential mutagens. The study assesses not only the formation of mutations but also any changes within human cells which would render them more susceptible to the action of mutagens.

### New analgesic

Bristol Laboratories of Canada recently announced the development of a new analgesic drug with several times the potency of standard pain-killers such as morphine and its chemical derivatives. The drug, chemically synthesized by the Montreal-based firm, has another important advantage — it is non-addictive. The new compound, butorphanol tartrate, developed with the aid of an NRC grant, recently received approval for marketing by Health and Welfare Canada's Health Protection Branch. Hailed as a significant Canadian development in synthetic organic chemistry, butorphanol is slated

for sale in the United States and Europe in the near future. Bristol Laboratories predict its eventual world-wide distribution, with production facilities remaining in Canada.

### Shrink-proof wool

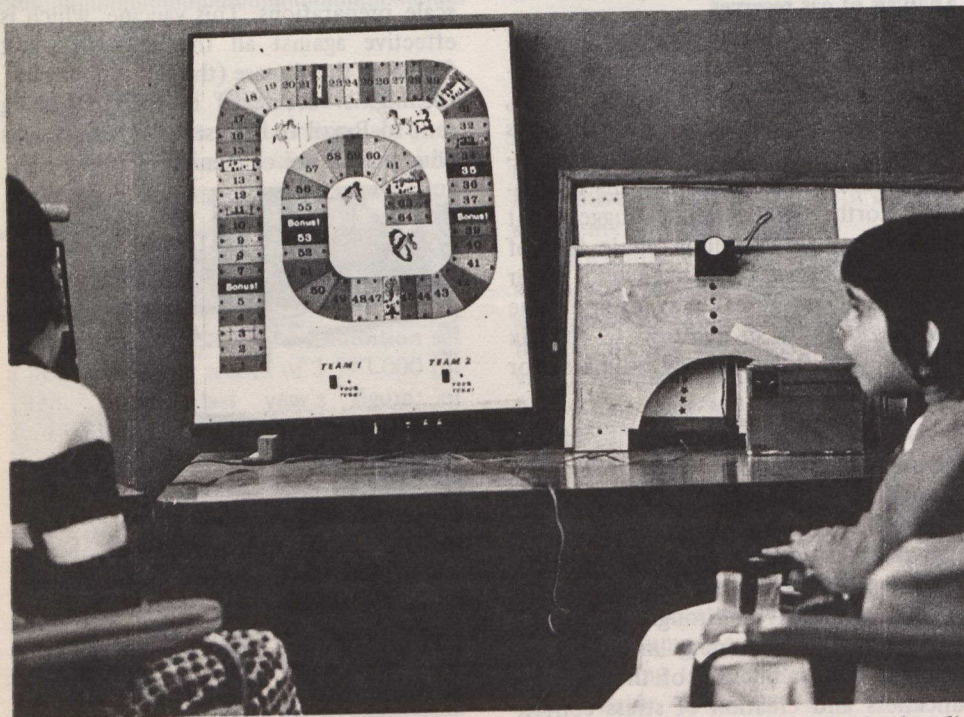
Thomson Research Associates Limited, of Toronto, aided by a grant from NRC, has developed a new shrink-proofing process for wool which includes both the equipment to undertake the process as well as the chemicals required. The process, which involves a special machine, increases production rates up to 50 per cent, thus offering significant savings, while the quality is improved. A single machine will process over three million pounds of wool a year, with a larger reduction in the use of chemicals. It is expected that agreements will be concluded and Kroy machines exported before 1979.

### Improved harvesters

With support from NRC the White Farm Equipment Company, of Brantford, Ontario has established new design principles for the cutting and conveying components of harvesting machines. The principles enable the production of new machines with higher capacity and a reduced number of moving parts. A new soybean cutter bar has been developed and patents applied for in Canada, the U.S.A., Australia, Italy, West Germany and France. A 50 to 70 percent reduction in soybean shatter loss, a 100 percent increase in capacity and a significant increase in life expectancy have resulted.

### Energy conservation

NRC's Division of Building Research provided valuable technical support to a committee (established by the Associate Committee on the National Building Code) which has prepared a draft Canadian Code for Energy Conservation in New Buildings. This model code prescribes standards to which building components must conform in different climatic regions of Canada; for example, it sets out standards for thermal insulation of walls, roofs and windows. The code has been adopted by the Federal Government for its buildings and is expected to be adopted by all the provinces. Meanwhile, a more flexible type of code is being developed, one which will impose limits on the total energy consumption in buildings without specifying how energy-efficient performance is to be achieved.



*Each year engineers at NRC's Division of Electrical Engineering design aids for handicapped persons. Not only do the electronically-operated devices assist movement and communication, they bring joy to these children at play with a steeplechase game.*