

## More flexibility and realism in new electronic hand

A light, simple electronic hand has been developed for children older than two years old by the Ontario Crippled Children's Centre's rehabilitation centre in Toronto.

Fitted with the new hand, crippled children will be able to pick up a greater number of objects from things as light as jelly beans to those as heavy as 5.4 kilograms. A child wearing the hand should have additional options such as faster movements or a stronger pinch force to pick up articles.

Technicians at the centre have been involved in researching the new hand for the past three years and are expected to be producing them on a regular basis in the near future. The Variety Club of Ontario provided funds for the research which has amounted to more than \$300 000 to date.

### Greater movement capability

One of the most important features of the new hand is its greater movement capability. In tests to date the hand has gone through more than 500 000 cycles and movements before even having a minor breakdown. The older aluminum hand also developed at the centre, more

than a decade ago, often broke down after 50 000 or 60 000 moves. It is estimated that a child makes 1 000 hand movements a day.

Another important feature of the hand is its reduced weight owing to a plastic rather than metal body which should also allow for greater flexibility.

Despite its imperfections such as weight and breakdowns after minimal use, the older hand was considered a desirable alternative to the "hook hand" mainly because of its cosmetic value — it looks like a real hand. The new hand will still be covered by a cosmetic glove to make the hand look more realistic. It will also have hand markings and fingernails.

### Controlled by forearm muscle

The forearm muscle which is normally used by a person to open and close the hand, is still used to operate the artificial hand by the child. That muscle generates about one-ten-thousandth of a volt to perform that action. The patient can also be trained to use a neck muscle or a middle back muscle to activate a prosthetic arm and hand in the event that the shoulder and arm are lost as well.

It is expected that the cost of the new hand will be significantly less than the one currently used. One of the factors involved is the use of plastic, which allows for simple production by an injection molding into a die. The older aluminum hand is produced by hand on mills and lathes. In addition the metal hand requires a number of foreign components which not only increase production costs but often delays repair when a hand is broken.

## Canada-Saudi Arabia university exchange program

The University of Toronto has signed a five-year contract with the government of Saudi Arabia that will bring hundreds of foreign students and perhaps millions of dollars in research to Canada.

Under the terms of the agreement the engineering and applied sciences department of the University of Toronto is accepting students and staff from King Saud University in Riyadh to its undergraduate and graduate programs. In addition, the University of Toronto will send professors to Saudi Arabia to help develop King Saud University's graduate school of engineering and its research facilities.

"It's the most developed relationship I'm aware of at the moment between the Saudis and any university on this continent," said Gordon Slemon, the dean of engineering and applied science at the University of Toronto.

The government of Saudi Arabia is financing the exchange of staff and students and contributing to joint research projects undertaken in Saudi Arabia and in Canada.

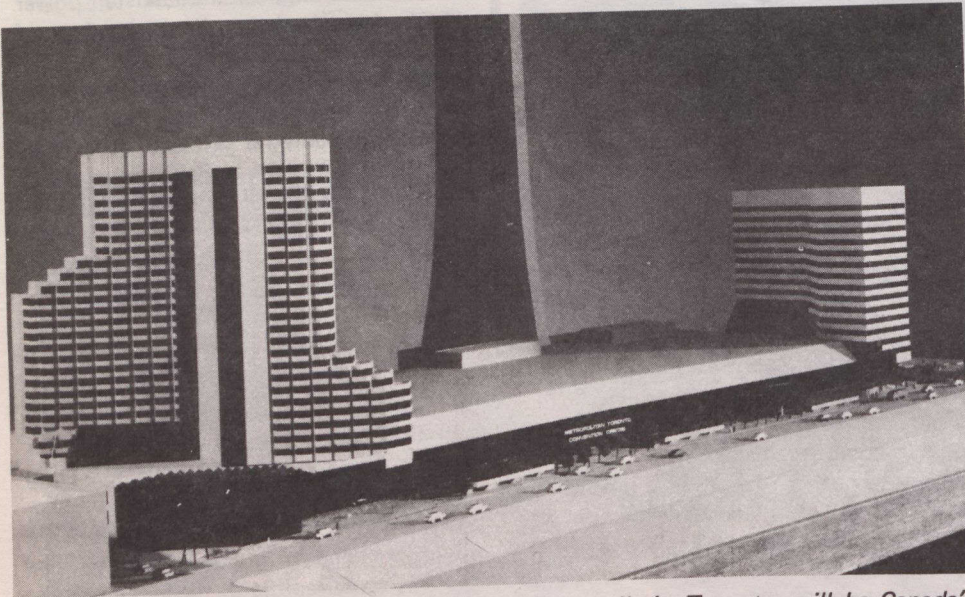
### Use of facilities

Projects in the areas of water control, construction, petroleum engineering and transportation could lead Saudi investment in Canadian research, said Dean Slemon.

The program in both countries will be reviewed every six months and the program could be expanded if both parties agree.

McGill and Concordia universities in Montreal and the University of Guelph have also been approached by the Saudi Arabian government to develop further exchange programs in medicine, architecture, urban planning, agriculture, communications, education, construction and linguistics.

## New conference centre under construction in Toronto



A \$140-million convention centre complex, being built in Toronto, will be Canada's largest when completed in 1984. Located near the CN Tower, the complex will have an 18 580 square-metre exhibit hall, 35 meeting rooms, a 2 483 square-metre banquet hall for up to 5 000 delegates, a 1 200-seat theatre, restaurants and parking for 1 200. The centre has already been chosen as the site for 126 conventions which are expected to attract nearly 750 000 delegates by 1993.