

mental and non-governmental sources for refugees in India amounts to \$6.6 million. Of this sum, \$4.3 million has been provided by the Federal Government, \$370,000 by the provinces, and \$1.9 million by voluntary agencies and the combined appeal for Pakistani relief. It is the Government's intention to supplement these contributions by an amount of \$18 million, seeking the authority and funds from Parliament. This will bring the Canadian Government's total contribution for the relief of refugees in India to \$22 million, co-incidentally representing approximately \$1 for every Canadian. Members of the House will be interested to know that Mr. Gérin-Lajoie will be making a statement to this effect on behalf of Canada at the United Nations tomorrow.

In addition to the funds provided for refugees in India, Canada has contributed \$7-million worth of food aid through the World Food Program for the relief of suffering in East Pakistan and provided to the United Nations \$500,000 to help defray the cost of United Nations relief operations there.

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## COMPUTER AIDS DESIGN PROCESS

Computer-application engineers at Bell-Northern Research in Ottawa have developed an interactive graphic-aids system that will streamline the design and development process for new telecommunications equipment. The system, linked to an IBM 360/67 computer, allows manipulation, modification and updating of graphical designs on a cathode-ray-tube monitor.

Interactive graphics are becoming a practical necessity for general purpose geometric modelling in order to assess the suitability of a design, both visually and through computer analysis of design parameters. The new display aids integrated circuit designs, logic analysis, packaging and software documentation.

The heart of the graphic-aids system is a self-contained input-output cathode-ray tube capable of showing both alphanumeric and graphical information. Graphical designs may be drawn, extended, duplicated, rotated or changed on the screen by using an alpha-numeric or function keyboard as well as a light pen. The light pen can be used to indicate on the screen which of several instructions is desired or which is to be manipulated. The function keyboard is employed to extend lines in the directions indicated.

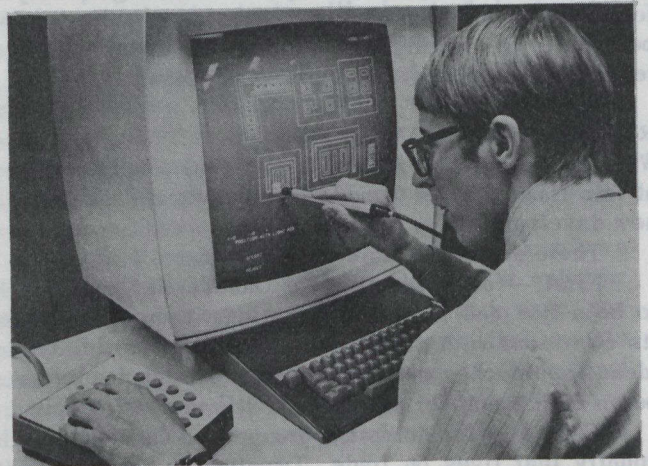
The display system is serviced at remote terminals by a satellite computer connected to the central site computer by voice grade telephone lines. A disc memory provides temporary program and data storage, while permanent hardcopy output is available on an incremental drum plotter or eventually a microfilm recorder.

The use of interactive graphics is an attempt to

adopt a systems approach to the design process by amalgamating various design phases which are traditionally separate, without incurring excessive economic penalties.

A major factor in the graphic-aids system was the need for accessibility to designers at any of the eight Bell-Northern Research laboratory locations throughout Ontario and Quebec. For this reason, the graphic equipment is relocatable at considerable distances from the main computer complex.

The graphic design-aids system is intended to accommodate the needs of engineers and scientists at Bell-Northern Research, covering a wide range of disciplines all of which are ultimately aimed at providing new equipment or techniques to service the communications industry.



*Computer application engineer Chris Morris zeroes in on one component of a new integrated circuit design, using light pen and special keyboards of a display unit linked to an IBM 360/67 computer.*

## POPULATION COUNTS 1971

Metropolitan Montreal had a preliminary population count of 2,720,413 in the 1971 census — an increase of 6 per cent since 1966. Toronto's metro population grew 16 per cent to 2,609,638, and Vancouver's reached 1,071,081, up 15 per cent.

Other metropolitan areas in the top ten were: Ottawa-Hull, 596,176 (up 13 per cent); Winnipeg, 534,685 (5 per cent); Hamilton, 495,864 (10 per cent); Edmonton, 490,811 (16 per cent); Quebec, 476,232 (9 per cent); Calgary, 400,154 (21 per cent); and Niagara-St. Catharines, 301,108 (6 per cent).

The preliminary figures indicate that growth rates have slowed down since 1966, due to lower birth-rates and immigration. They also show that most of the growth has occurred in the fringe or suburban parts of the larger metropolitan centres, usually at the expense of "core" cities and smaller towns and rural communities.