

Cold weather survival studied at research foundation

John and Mary, two manikins, are helping the Ontario Research Foundation (ORF) improve standards of insulation for sleeping bags, parkas and emergency cold-weather clothing.

Mary's job is to lie down on the lab bench bed, usually zippered up in a sleeping bag. Her skin is kept at a constant temperature by about 60 watts of power, evenly distributed in her body by small internal fans.

John generally stands around — often dressed in a parka or wrapped in various fabrics. Like his partner, he too is wired to electric power and temperature monitors.

Temperature recorded

The manikins record the amount of heat lost through various clothing and covers. By using the ORF tests, manufacturers are able to determine just how chill-proof their winterwear is.

Mary's skin temperature is recorded at 12 different points by thermocouples connected to a data logger. During testing the temperature outside the sleeping bag is maintained at a constant level, perhaps 30 degrees Celsius colder than the manikins' skin.

The amount of power needed to maintain the skin temperature using heaters and fans is also carefully measured. Power usage is then directly equated to the amount of heat

loss from the bag. This enables the scientists to give each bag being tested an accurate rating in its Clo value. Clo is measure of effectiveness for the different items people wrap themselves in to keep out the cold. Normal dress for a sunny day has a thermal comfort value of 1 Clo; winter bundling could achieve 3 Clo.

Richard Mortimer, who is an associate research scientist working on the experiment, says:

"By using a manikin we can simulate the air spaces and points of contact that a human would make within the bag. This is one reason why the Clo values we obtain in our laboratory are very close to those encountered in actual use.

"Ontario Research has tested the insulative values for a number of cold weather items such as gloves, footgear and various fabrics. With the development of our Manikin Extreme Weather Apparel Comparator (Mewac) System, we can now test complete survival outfits as well as sleeping bags."

Further research

In addition to stepping up survival tests which are important to anyone stranded while skiing, or making a forced airplane landing in sub-zero conditions, future research will deal with immersion suits. These suits are used by helicopter pilots on rescue

missions, and relied on by anyone in danger of being immersed in an ice-cold ocean.

Manufacturers readily accept the results of the tests conducted by the ORF Textiles and Clothing Technology Centre, saying these have provided them with a much clearer picture of sleeping bag performance, and indicating a number of directions to be explored when developing new products.

Research shows that bags made with a series of tightly woven liners between insulative layers give improved performance, and hollow-filament polyester fibres achieve good results at less expense and have longer service life.

(From Ontario Business News.)

Personal computers transmit graphic information

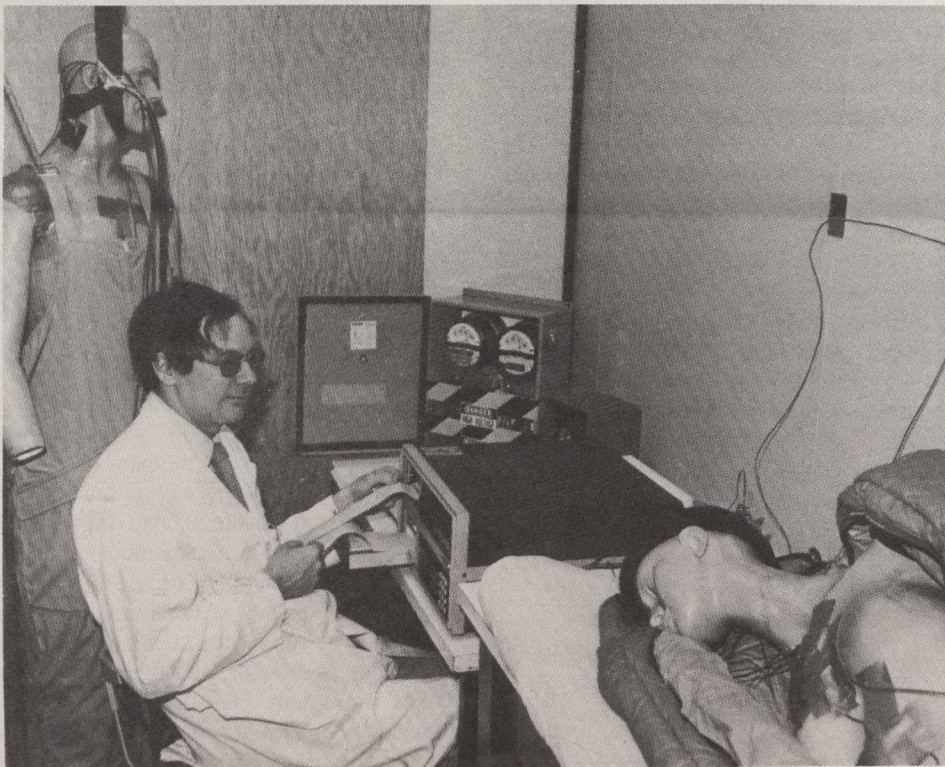
Microtaure Inc. of Ottawa has introduced what it believes is the first software that allows International Business Machines (IBM) personal computer users to create business graphics in videotex format.

According to Robert Brunet, IBM's vice-president of marketing, the new Graphtel product allows personal computer users to transmit graphic information to other computers with videotex capability, independent of brand, along standard telephone lines. There are many business packages available for the IBMs, but this is the first available commercially that automatically creates the graphics data in videotex format, said Mr. Brunet.

Users are able, in a few keystrokes, to convert data on major microcomputer spread-sheet packages into 20 graphic variations in common use in business applications. They can then be transmitted by normal telephone line to any other microcomputer that meets the accepted videotex standards, known as NAPLPS. A central computer or data base is not required.

The product is based on Micrograph, a business graphics generator created two years ago by Willy Verbestel of Aylmer, Quebec. The generator was upgraded giving it more features, and Microtaure Inc. added its videotex decoder.

The system is compatible with Microtaure's new HELIOgraph system that allows videotex pages to be created by the user for translation into slides for remote presentations and for transmission to other computers. Without Graphtel, users can form graphic shapes such as bar graphs or rectangles, but have to key in the dimensions manually. The new package picks up the dimension information directly from the spreadsheet software.



Associate research scientist Richard Mortimer sits in a laboratory of the Ontario Research Foundation with John and Mary, two of the foundations' most dedicated employees.