

# Industry's Market Is the

# World

By MIKE PATERSON

Staff Reporter

Developing nations face sometimes desperate needs for technicians and engineers. A local industry supplies many such countries with electronic training systems so some of these needs can be met.

Electronic Controls, a unit of Digiac Corporation based in Plainview, New York, is currently filling a \$330,000 order for the Chilean government. The training equipment is to be installed in state technical colleges at Santiago, Temuco, Valdivia, Punta Arnas, Concepcion and Antofagasta.

The plant's Canadian export sales manager is completing a tour of the Middle East.

"There is tremendous interest in the training systems in developing nations," said Electronic Controls' General Manager, K. P. McCloskey. "The

emphasis is at two ends of the spectrum — the low technical and high technology training levels."

Teachers on loan from industrialized nations including Canada, Britain, the United States and China are using the equipment to train teachers and instructors. "Voltage frequencies are often different," said the project engineer, Brian Milroy, "and we have to substantially redesign our equipment to fit the power systems found in the area."

The same equipment is to be found at Loyalist College, Bay-side Secondary School and Quinte Secondary School. The training package, which can run in cost between \$5,000 and \$100,000, consists of modular components that can be hooked up together to simulate any type of heavy rotating machinery such as generators, rolling mills and printing

presses.

"We produce a scaled down unit that has all the operating characteristics of the original," said Mr. McCloskey. A student using the equipment can learn to service a particular machine at a particular plant without leaving the classroom. The electronic control systems and even the heavy power distribution system can all be installed on specially designed work benches.

The benches and printed lesson plans go along with the package. Even particular breakdowns and equipment failures can be plugged into the system.

Each component is selected so it is typical of its industrial equivalent and is mounted on clear plastic which has printed on it the conventional circuit diagram symbol for the item. Snap-on terminal con-

nections make assembly and experiment with a simulated situation fast and easy.

An important aspect to the work done by Electronic Controls is keeping up with the research. Project engineer Brian Milroy reads "about 20 trade journals a week".

"We have to keep three, four or five years ahead of the schools," he said. "The schools would be about five to 10 years behind industrial research and two or three years behind industry itself.

"We also have to look at trends in education for shifts in emphasis between high level technology and the vocational level," said Mr. Milroy. "Our market is high schools through university and our distribution is world-wide."

A new area of industrial technique that Mr. Milroy believes will soon be in the schools is the computer control of heavy machinery. It is an area Electronic Controls is preparing for now.

Problems of simulation crop up less as a result of the computers than of the heavy machines. "We're more interested in the problems we get into when a computer, which operates on fractions of a second, feeds instructions to a machine that takes five or 10 seconds to respond," said Mr. Milroy. "There's tremendous inertia behind a 200 or 400 horsepower machine.

"Computers may be regulating the speed of two or three machines at once," he said. Du Pont of Canada Ltd. in Kingston, he said, had this situation. In the making of nylon fibre, tension on the newly formed filaments has to be kept the same at several different points to keep it from stretching or twisting.

Complete automation is a long way off, according to Mr. Milroy. "Automation only works with high volume products — you can really only do one thing at each stage of production with it.

"It is very difficult to set things up so a line will run 500 items and then bring in changes at some point," he said. "And even with today's technology it is often too expensive to automate.

"I don't think society would allow complete automation, either," said Mr. Milroy. "It is the really dirty jobs that no one wants to do that get automated first, but if it's a job people want to do there's a lot of resistance."

If everyone was put out of industry, except for maintenance, said Mr. Milroy, the state would have no way to provide for them — "you have to provide work for people".

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