Precious metals recycled from scrap

A new method of recovering platinum and palladium from catalytic converters has been developed at McGill University by Phil Distin and Frankoiszek Letowski, and a pilot plant is currently being built to apply the process.

Financial assistance for the development of the recycling process was provided by Duometal Inc. of Boucherville, Quebec and the Quebec government.

Recovery essential

Catalytic converters have been installed in North American cars since 1975 to convert toxic gases into non-polluting substances. Japan also requires that most cars be equipped with catalytic converters, and five European countries: West Germany, France, Italy, Switzerland and Austria have legislated the same regulations for 1986.

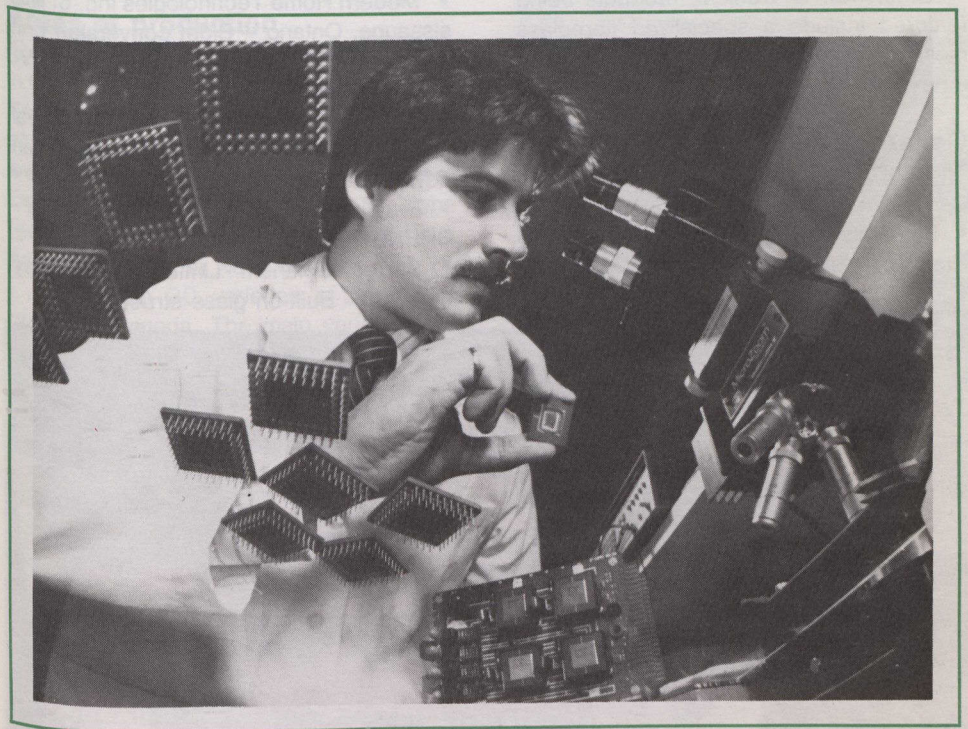
In Canada and the US, 142 240 kilograms of platinum and 47 752 kilograms of palladium are used annually to build the converters, representing a major consumption of these metals. As a result, scrapped converters are becoming an important source of recycled platinum and palladium and recovery rates with the new technique is said to be 98 per cent compared with 85 per cent achieved by conventional means.

The metals are extracted with acids as secondary reagents and an unnamed principal reagent. The technique generates 284 grams of platinum from 1 016 kilograms of scrap catalytic converters. The mixed platinum and palladium powder produced is similar to primary metals extracted from the earth's crust.

Dr. Distin is optimistic about the future of the process. In the first year of production income at the pilot plant is expected to reach $2.6 million and the growth rate over the first three years has been forecast at 35 per cent annually.

Plans have also been made for representatives of a Swiss company to study the plant in order to construct a duplicate.

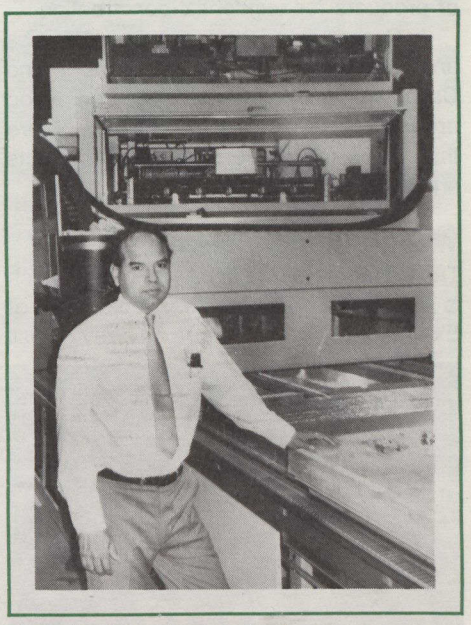
Better business phones for better business



David Lynch, an engineer with Bell Northern Research of Ottawa, tests a new integrated circuit that he and a team of engineers and technologists designed for Northern Telecom's recently announced advanced electronic Meridian Line of business telephone sets. The chip held by Mr. Lynch, permits data to be transmitted at speeds of 64 000 bits a second, which is about 50 times faster than the average modem's transmission speed of 1 200 bits of information a second. At the same time, the user has access to another digital channel for normal voice communications. Both the digital voice and data signals are carried simultaneously to and from the telephone set on one telephone wire instead of the two or three required at present.

The cutting edge

An Edmonton, Alberta firm, General Systems Research, sees a bright future for its laser cutting machines that can be adapted to cut a wide variety of things from fabric to sheet metal.



Canapress

Ted Zscherpel, production manager at General Systems Research, stands beside a laser cutting machine that can slice through cloth or sheet metal.

The company, which recently sold a laser cutting machine to General Motors of Canada for more than $2 million, has received inquiries about the laser cutter from more than 20 countries including West Germany and Japan. They expect to sell more than 175 in the next seven years.

Erick Schmidt, president of the company, said Canada has an excellent opportunity to build a worldwide reputation for industrial lasers, "to get in the forefront of what experts in the world expect to be a high-growth industry in the next number of decades".

Computers essential

The compact cutter has several high-technology components, including computers. Products are designed in a computer and the design is then transferred to the fabric by the computer. Computers are also used for inventory control.

Other high-technology components include an emissions scrubber that keeps the air safe around the machine by removing toxic gases produced when lasers burn through synthetic fabrics.

A conveyer belt made out of honeycomb metal carries the material to and from the cutting head. A robot may be added to pick up material from the conveyor.