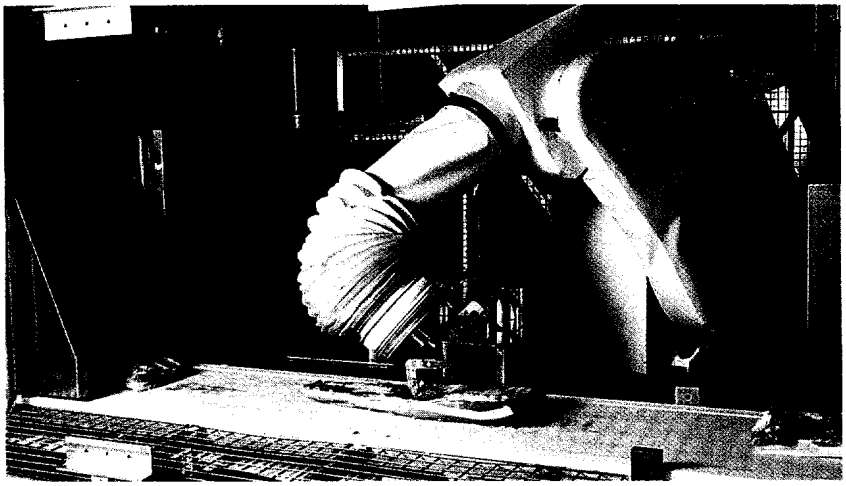

Robotic butcher slices though pork: doing the work of at least four people

A better way to get back bacon

Work in slaughterhouses is difficult and dangerous, and employee turnover is high. So a Quebec government agency is promoting a robot that butchers pigs faster and more accurately than humans can.

The robot's job is to cut the middle pieces of a slaughtered pig, slicing the ribs away from the back, which is used to make bacon. Both humans and the robot use a blade that resembles a large hacksaw. But when humans do the job, they sometimes cut too deeply so that the ribs are too meaty and the bacon too thin and fatty, forcing the plant to downgrade the back to make less-profitable sausages.

The robot itself would look at home in an automated car-assembly plant—except that it holds a blade as sharp as a guillotine. As the meat passes on a conveyer belt, a thin red laser scans it 256 times in 1.6 seconds, creating two- and three-dimensional images that are fed to the robot. The robot's vision system then chooses nine reference points on the pig belly and plots its cutting path. In one fell swoop, it lops off the ribs as if the meat were soft butter. The $750,000 robot reduces labour costs by doing the work of at least four people, processing 750 pigs an hour. The governmental Quebec Centre for Industrial Research wants to adapt the robot, which is built under a joint venture with Riopel Inc. in Vallée-Jonction, Que., to handle other cuts of pork and expand into beef.

Light-speed chip

In a discovery billed as a major breakthrough, two University of Toronto scientists have produced a material that can control light in the same way that microchips control electricity. The development, by theoretical physicist Sajeev John and materials chemist Geoffrey Ozin, could lead to the world's first optical microchip, using light instead of electrons in tiny circuits and potentially revolutionizing communications. The next step will be to find out whether the new silicon-based material can be reliably mass-produced.

A Web AGM

A Toronto-based financial Web site will this week become the first Canadian company to hold a Web-only annual general meeting, complete with voting. Thanks to recent changes in Ontario's business laws, BayStreetDirect Inc., a private company, will be able to allow its 50 shareholders to vote online on May 30 on such matters as election of directors and appointment of auditors. Chairman Jim Beqaj will deliver a Web-cast presentation from a special studio, but there will be no physical meeting venue other than a terminal in a lawyer's office in case any shareholder needs access. Shareholders—who include tycoon Gerry Schwartz and TD Waterhouse—have passwords to vote, but the public can watch and submit questions at *www.baystreetdirect.com*. "We think this is the way of the future," says president Richard Nesbitt. "You have to open up your annual meetings to the world."

Easy to swallow

Anyone who has had a bowel and colon examination with an endoscope knows how uncomfortable it is. Now, gastroenterologist Dr. Paul Swain of the Royal London Hospital in Britain says he and his colleagues have built a wireless capsule endoscope that patients swallow like a large pill. The battery-powered device, described in the current issue of the journal *Nature*, measures just 11 mm by 30 mm and contains a miniature video camera. As it passes through the system, it sends pictures of the patient's insides to a small recorder carried by the person. Swain says he hopes the capsule endoscope will be available within a year.

Cool Sites

The last word

Its creator calls the page Writing Tools, but that seems too humble. The site provides an astonishing range of 575 links to information resources, listed from A for Acronym Finder to Z for Zip Codes, and includes sites for biblical references, dictionaries, glossaries, history and plenty of oddments like the Moron's Almanac. The site, created by an Oklahoma academic, is at *arapaho.nsuok.edu/~dreveskr/WT.html-ssi* (hyphen included).

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