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# BUSINESS

SECTION C | THE GAZETTE | MONTREAL | SATURDAY, MARCH 19, 2011 | EDITOR: JEFF BLOND | 514 987 2512 | [jblond@montrealgazette.com](mailto:jblond@montrealgazette.com)

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TSX ▲  
13,789.63 43.48

DOW ▲  
11,858.52 83.93

NASDAQ ▲  
2,643.67 7.62

DOLLAR ▲  
101.41¢ 0.02¢

OIL ▼  
\$101.07 \$0.35

GOLD ▲  
\$1,416.10 \$11.90

PRIME  
3% MAR. 1

Special glasses trick brain to improve productivity of night workers, study shows



## BRIGHT OUTLOOK FOR GRAVEYARD SHIFT

MARK CARDWELL SPECIAL TO THE GAZETTE

**Q**UEBEC CITY – Marc Hébert can sympathize with the two Sûreté du Québec officers caught napping in a patrol car along Highway 40 near Trois Rivières one morning last month at around 7, an hour before the end of their overnight shift.

“It is quite normal to be very tired after a night shift,” Hébert said. “At least they were not driving. Taking a nap would be the thing to do before hitting the road again.”

He should know.

An associate professor in ophthalmology at Université Laval and an internationally renowned expert in depression-fighting light therapy and biological rhythms, Hébert has spent much of the past decade studying night

*“The main problem night workers face is fighting their internal biological clocks.”*

UNIVERSITÉ LAVAL ASSOCIATE PROFESSOR MARC HÉBERT

workers and trying to develop ways to help them deal with the many mental and physical challenges of working unnatural hours.

The results of his latest study suggest he may have finally found an answer.

And the patent-pending method he's developed could help night workers lead healthier lives – and be more productive for their employers in the process.

“The main problem night workers face is fighting their internal biological clocks, which are trying to put them

to sleep while they are performing duties that can be measured,” Hébert said. “So we tried to trick those clocks into thinking night was day and day was night – and we were successful.”

Carried out over two years at an **AbitibiBowater** sawmill in the Lac St. Jean region, the federally funded study focused on the dozen of the 185 workers at the facility who were responsible for grading wood.

Divided into three teams of four, the men rotated between night and day

shifts at the mill, which operated around the clock Monday through Friday.

During night shifts, the men, whose job required them to sit long hours, were exposed to morning-like blue-green light produced by two therapeutic lamps.

According to Hébert, who has a PhD in neurobiology and is president of the Society for Light Treatment and Biological Rhythms, an international organization that promotes research and clinical applications of light therapy and biological rhythms, the light slowed the production of melatonin, a hormone that “tells your biological clock it's night (and) time for bed.”

Please see NIGHT WORKERS, Page C2

PHOTO COURTESY OF MARC HÉBERT

## Food, unlike gas, includes no uncertainty – price pressure can be predicted

**W**ith rising food and oil prices upsetting people all over the world, Canada seems to be something of a safe haven, with the inflation rate for February actually falling. Sadly, it isn't true.

That's not to say that the Consumer Price Index is rigged, just that it looks backward. In early February, gas prices were near their low for this year. Since then, they've shot up. And the price of food has been very subdued, with imported items cheapened by a rising dollar, but that won't be so true in coming months.

Indeed, the price of food is headed for a very big jump by late this year, some analysts believe.

Economist Francis Fong at the TD Bank thinks food in-



JAY BRYAN  
on food inflation

*“Ironically, inflation this year has been held down by profiteering.”*

flation will hit a rate of seven to eight per cent as Canadian food processors start passing through big global hikes in

products such as wheat, corn and soybeans.

Douglas Porter, deputy chief economist at BMO Capital Markets, is inclined to agree, although he pegs the hike in food prices at a less painful five to seven per cent.

Already, the price of gas is likely jumping by about seven per cent this month from February's average, Porter estimates, squeezing household budgets just as people begin to think about road trips.

Happily, the overall outlook for inflation, while peppered with such distasteful elements, isn't all that bad.

For one thing, the starting point is excellent. Core inflation, the measure that's designed to track the longer-term trend, is at a record-low

0.9 per cent for February. Headline inflation, which adds in some volatile elements such as gas and food, is higher, but still a reasonable 2.2 per cent.

Ironically, inflation this year has been held down by profiteering. Last year, during the Vancouver Olympics, any space with a bed was enormously costly. As a result, the price index for accommodations in Vancouver plunged this February by a stunning 38 per cent, pulling down total inflation.

When this factor leaves the year-over-year inflation rate for March, core inflation is likely to rebound close to the 1.4 reading of January, Porter calculates.

After that, though, he

doesn't see any huge price spikes, but rather “a slow burn” that will push prices up steadily through the year, triggering rising interest rates by around mid-year.

Gas might not be part of this, however. The BMO forecast is for oil to average \$95 U.S. this year, or several dollars below today's price. But that depends on an end to turmoil in oil-producing countries of the Mideast, something that's far from certain.

Food, unfortunately, includes no such uncertainty. Fong notes that we can predict quite accurately when price pressures will hit Canada: just look at trends on global markets, then wait nine to 12 months for these to work their way into Can-

adian products.

We enjoy this delay because food producers in this country delay hiking their prices for a while in order to avoid losing sales to competitors. All are hoping that any increase won't go too high. But this time, it did.

Global prices have been rising for the past couple of years, but the real spike hit late in 2010, with a United Nations food-price index shooting up 40 per cent since last June.

The key reason was bad weather all over the world, but humans managed to worsen the situation by using key food crops like corn to produce subsidized biofuel.

Please see BRYAN, Page C2



# Lachine's turbine facility gets \$225M boost

**5-YEAR PROGRAM WILL UPDATE TECHNOLOGY**  
New materials, fuels to put Rolls-Royce plant ahead

**ROBERT GIBBENS**  
SPECIAL TO THE GAZETTE

**Rolls-Royce**, one of the world's top three jet engine builders, had good news for its industrial turbine assembly and overhaul operation in Lachine Friday: a \$225-million, five-year program to upgrade these huge turbines with new-generation technology.

They will have more power and lower emissions with new combustion technology and many improvements derived from Rolls-Royce's evolving aircraft turbine research.

The Trent and RB211-based industrial turbines of today, driving pipelines and self-sustaining electric power systems, will move into the age of new materials and alternative fuels and keep ahead of the international competition.

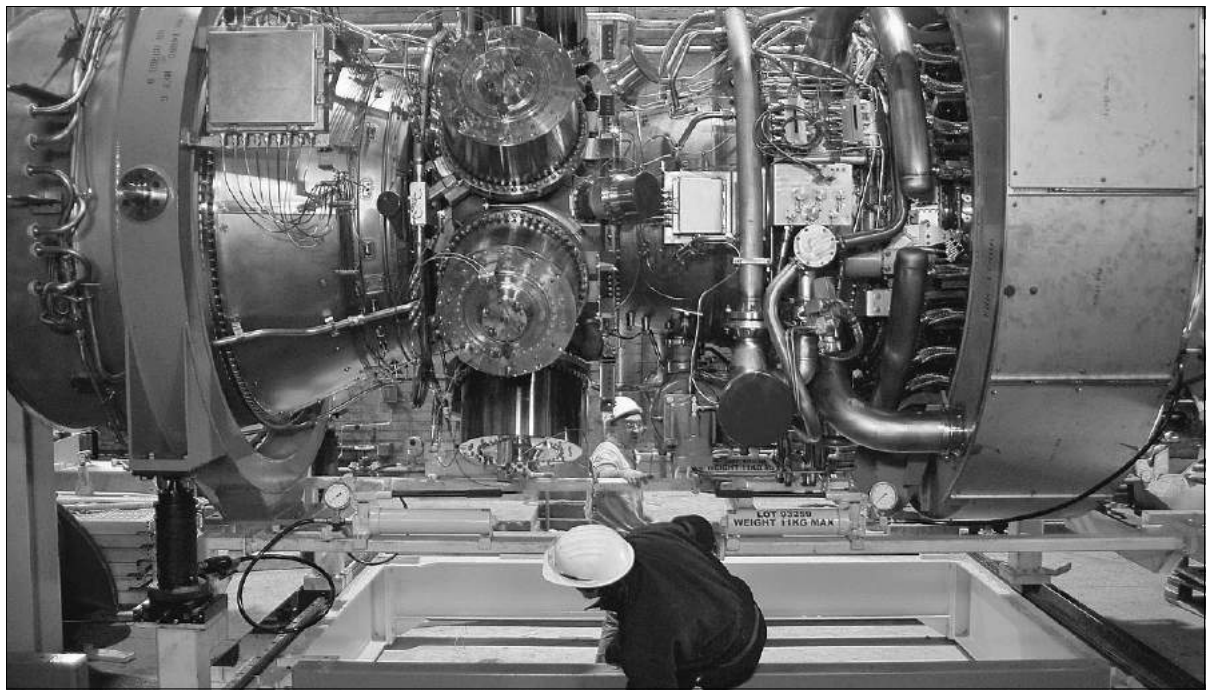
The province, via **Investissement Québec**, is contributing \$30 million, a commitment described by Economic Development Minister Clément Gignac as "ideal" for Quebec's future productivity and aerospace

industry growth.

"It'll create about 100 new engineering jobs in Montreal, and this long-term investment will earn a good return from royalties on future sales," he said at the program's introduction.

The big industrial workhorses sell for \$20 million or more. When linked to a heavy electrical generator, the package can run up to \$30 million and have the capacity to supply a town of 25,000 to 30,000 people, said Thomas Scarinci, executive vice-president of engineering at Rolls-Royce Canada. They burn natural gas or diesel fuel.

Rolls-Royce Canada's big Lachine plant, with a staff of 1,400, has two sections. The larger houses maintenance, repair and overhaul (MRO) operations for Rolls-Royce engines that power **Bombardier, Gulfstream and Cessna** business jets, **Embraer** regional jets, and the V 2500s that propel A-320 narrowbody airliners. It specializes in repairing fan blades, combustion chambers and turbine blades and vanes.



COURTESY ROLLS-ROYCE

The Industrial Trent gas turbine is the most powerful and efficient aero-derived gas turbine on the market.

It was the smaller section's day yesterday. This houses the industrial turbine operation, which boasts the parent Rolls-Royce's world mandate for assembly and repair and overhaul. "It's both turbine assembly

and overhaul that makes it unique," said David Ayton, the Canadian company's COO. "The new research program recognizes the Montreal team's engineering talent." Parent **Rolls-Royce PLC**, which

invested about \$1.5 billion in research last year, was the original industrial turbine supplier for the TransCanada natural gas pipeline. It has since sold more than 1,500 industrial turbines to customers in 100 countries.

## NIGHT WORKERS see the light on error reduction

CONTINUED FROM C1

That was confirmed, he added, by analysis of the men's saliva.

The same tests also showed that after five consecutive nights of exposure to light, the men's biological clocks had shifted two to four hours.

"That is substantial," Hébert said. "The goal isn't to create perfect night workers, like bats, but rather to help people remain alert through their shifts (and) get a good sleep later."

The brain-tricking charade was prolonged by the special glasses the men wore at the end of their shifts – and during the day when not sleeping.

The glasses cut blue light and other wavelengths that contain brain-waking photons.

"We only cut the part of the spectrum that their biological clocks could see," Hébert explained. "The men could function normally (and) actually see more colours, particularly all kinds of green."

The glasses enabled the men to drive home safely and not fall asleep at the wheel and cause an accident – or be forced to pull over and catch 40 winks roadside like the SQ officers did.

In addition to being a boon for public safety, Hébert said the men's answers to health questionnaires during the study, which was financed by Health Canada to the tune of \$200,000, suggested the overnight therapy also helped them sleep and feel better.

The results were published recently in *Progress in Neuro-Psychopharmacology & Biological Psychiatry*, a respected international news and science research journal.

However, from a business perspective, the most telling results of



COURTESY UNIVERSITÉ LAVAL

Université Laval professor Marc Hébert's says his research helps night-shift workers stay alert.

the Université Laval study – which have not been made public until now – were the changes recorded in the men's performances at work.

According to Hébert, the effects of melatonin, which is produced in the pineal glands in the centre of the brain and goes directly into the blood system, increase during the night.

According to a recent report on the health effects of shift work by the Occupational Health Clinics for Ontario Workers – a reference document that is used and distributed by Statistics Canada – the result is ever-lower levels of concentration, alertness and motivation.

"This can slow a worker's reaction time and increase the risk of accident," the report says.

The nadir is reached between 5 and 6 a.m., when the biological clock – or circadian rhythm – reaches its

lowest point.

According to Hébert, the error rates for lumber grading, which is done for both quality control and price calculation, were found to be five per cent at night and three per cent during day shifts.

By the fourth night of light treatment, however, he said the error rate of night workers had fallen to 1.5 per cent.

"That was an interesting and unexpected finding," Hébert said.

He calculated a potential savings of up to \$4 for every 1,000 feet of board produced at the mill.

He said the preliminary findings of an ongoing project with the Quebec City police force is also showing beneficial results.

Now in its third year, the project involves the use of fast-pulsing blue lights in patrol cars during night shifts, as well as the post-shift use of special blue light-cutting glasses.

The equipment for the project is supplied by **Chronophotonix**, a company Hébert founded in 2006 that makes and commercializes custom solutions for night-shift workers.

"Many studies have shown that sleep deprivation causes all kinds of health and family problems," Hébert said.

He equated people suffering from sleep deprivation to being legally drunk – and pointed to studies that have linked disasters such as Three Mile Island, the Challenger space shuttle and the Exxon Valdez to sleep deprivation.

Night-shift work, he added, also results in lower employee retention, an increase in sick days and absenteeism, increases in workplace injuries and lower productivity.

"Most employers seem resigned to the fact these problems are un-

avoidable," Hébert said. "And there really is nothing on the market for night shift workers."

That's why he believes several companies – including trucking firms and **Air Canada** – have called to express their interest in his work.

"Night work's tough on people," said Martin Poulin, who supervises 16 shift workers who help produce 156,000 tonnes a year of sodium chlorate at the Magog plant of Swedish multinational **Eka Chemicals**.

According to Poulin, the company heard about Hébert from local medical researchers and invited him last year to give a presentation to employees on dealing with shift work.

Hébert also studied the lighting in the plant and came back with a proposal – which was accepted – to equip the workers with blue light-blocking glasses and to set up pulse lights near computer terminals the workers use to monitor operations.

Poulin said the workers have been wearing the glasses during night shifts since they arrived before Christmas, and are eager to see the lights installed this spring.

"The benefits aren't readily evident," Poulin said. "But the fact that the workers are using the glasses and seem excited about it is a good sign. If the guys didn't think there was anything good in it, (the glasses) would all be sitting on my desk – and that's not the case."

That's also why Hébert recently applied – together with Université Laval – for patents on some of his products and procedures in Canada, the United States, Europe and Australia.

"Night work poses huge challenges for companies and their employees," Hébert said. "We want to help provide solutions."

## BRYAN Food-price hikes will be lower in Canada

CONTINUED FROM C1

At the same time, some countries have turned to stockpiling or imposing export limits on some foods, creating still more scarcity. Finally, financial speculators jumped into the action, bidding up prices as they jumped into a rising market.

Already, Canadian food companies and supermarket chains are beginning to warn of higher prices ahead, and Fong's best guess is that they'll rise faster and faster until about this autumn.

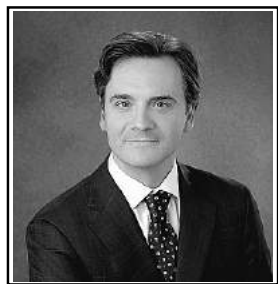
Still, there are a couple of bits of good news in this scenario. First, Canada's price hike will be much smaller than the double-digit increases in emerging markets.

That's largely because more of our food is processed and ready to eat, or at least to heat, so the cost of the raw material is a smaller part of the total price. For instance, a loaf of bread that might cost \$3 or so contains only about 15 cents worth of wheat.

Second, there's reason to think that prices will stabilize not too many months after food inflation peaks. Fong notes that with better growing weather, wheat, corn and soybean prices on global markets are already trending down.

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The partners of Kaufman Laramée, LLP are pleased to announce that Me Dany S. Perras has joined the firm as a partner. After having obtained his law degree from the Université de Montréal, Me Perras was admitted to the Québec Bar in 1998. Me Perras practices in the areas of commercial litigation, banking, bankruptcy and insolvency, construction and employment law.

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