



A satellite-style map of the Americas, showing North and South America. The map is overlaid with a grid of latitude and longitude lines. Numerous small arrows and dots are scattered across the map, many with numerical labels such as 0001, 0002, 0003, 0004, 0006, 0007, 0008, and 0009. A prominent white line with a glowing dot at its end extends from the bottom left towards the bottom right of the map. The text 'News In Review' is written in a large, bold, orange font, and 'Resource Guide' is written in a white font below it.

▶ *News In Review*

Resource Guide

APRIL 2009



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News in Review

Resource Guide

April 2009



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News in Review, April 2009

1. Hard Times Hit the Auto Industry

(Length: 12:23)

2. The Future of the Oil Sands

(Length: 13:49)

3. White Dragons: The Killer Avalanches

(Length: 13:14)

4. The Flight of *Silver Dart*

(Length: 18:55)

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HARD TIMES HIT THE AUTO INDUSTRY (Length: 12:23)

One of the biggest victims of the global credit crunch is the auto industry. Consumer demand is falling, factories are closing, and the once mighty industry is now asking for government bailouts. In this *News in Review* story we'll look at the state of the Canadian auto industry and what is being done to try to save it.

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THE FUTURE OF THE OIL SANDS (Length: 13:49)

Canada's oil sands industry is a big part of our economy. But in recent months it has come under increased scrutiny because of its environmental impact. And most of that scrutiny is coming from our biggest customer, the United States. In this *News in Review* story we'll look at the problem and what the industry plans to do about it.

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WHITE DRAGONS: THE KILLER AVALANCHES (Length: 13:14)

It has been a deadly avalanche season in Canada. By the end of February, 16 people had been killed, most of them in British Columbia. Why are so many people dying? In this *News in Review* story we'll look at why the so-called white dragons are so dangerous. We'll also examine what avalanche-control experts are doing to try to prevent them.

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THE FLIGHT OF THE SILVER DART (Length: 18:55)

Canada has a long and proud aviation history that began 100 years ago with the flight of the *Silver Dart*. On February 23, 1909, J.A.D. McCurdy piloted Canada's first powered airplane across a frozen lake in Nova Scotia. In this *News in Review* story we'll look at how a group of aviation enthusiasts brought history alive by recreating that famous first flight.

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HARD TIMES HIT THE AUTO INDUSTRY

Introduction

Focus

This *CBC News in Review* story examines the current crisis facing the North American automobile industry, government plans to offer assistance, and the impact on workers and the economies of Canada and the U.S.

Did you know . . .

Former GM CEO Rick Wagoner, who was ordered fired by U.S. President Barack Obama, will not receive a severance payment, but will instead be eligible for a pension worth about USD\$23-million, to be paid in installments over the rest of his life.

On March 30, 2009, U.S. President Barack Obama announced his long-awaited plan to rescue the floundering U.S. automobile industry. For months prior to Obama's statement, the chief executives of the "Big Three" automobile manufacturers—General Motors, Ford, and Chrysler—had been appealing to the U.S. government for massive financial assistance to stave off impending bankruptcy. The auto giants had faced slumping sales, a serious cash-flow problem, and rising production costs, all of which placed them in a very precarious financial situation. They needed a bailout from the government, along with major concessions on wages and benefits from the United Auto Workers union, if they were going to be able to survive the crisis, become competitive again, and position themselves for a recovery once overall economic conditions improved.

Obama's reaction to the auto industry's problems was measured but hardly reassuring to the chief executives of the Big Three. One of them, Rick Wagoner, CEO of General Motors, was actually forced to take involuntary retirement as part of the price for the company's receiving any government handouts. Obama put the car companies on notice, making it clear that GM and Chrysler, the two most troubled auto giants, would only obtain financial help if they committed themselves to a major restructuring plan to make their industry more streamlined and profitable in the future. Although Obama was reluctant to abandon the auto companies to their fate—which could mean bankruptcy—he acknowledged that there were "no good options" facing his new administration in managing this crisis. As he told reporters,

"year after year, decade after decade, we've seen problems papered over and tough choices kicked down the road, even as foreign competitors outpaced us. Well, now we're reached the end of that road" (www2.macleans.ca, March 30, 2009).

The situation facing the Canadian subsidiaries of the Detroit-based Big Three was no less serious. GM and Chrysler were closing plants, slashing jobs, and threatening even more drastic cost-saving actions if no assistance was forthcoming from the federal government and the province of Ontario. Prime Minister Stephen Harper and Ontario Premier Dalton McGuinty had promised a \$4-billion financial rescue package for the ailing auto industry shortly before Christmas 2008. But by the end of February 2009, with sales continuing to slide and debts increasing, GM and Chrysler were back at the table, asking for even more money to keep them from going bankrupt. For its part, the Canadian Auto Workers union was also being pressured to accept significant concessions on wages, pensions, and other benefits in return for preserving at least some of the jobs its members depended on for their livelihoods in the Southern Ontario auto towns of Windsor, Oshawa, and Brampton.

The decline of the North American automobile industry is one of the most serious consequences of the economic slowdown that struck Canada and other countries in the fall of 2008. Prior to this, the Big Three were already facing serious challenges from foreign competitors, especially Japan and South Korea, and also dealing with the negative impact of rising fuel costs on the sales of large, gas-guzzling automobiles and

SUVs (sports utility vehicles). But the credit crunch, job losses in other sectors of the economy, and a general sense of panic among consumers had cut deeply, with sales of new cars plummeting across the board in late 2008 and early 2009. Workers in this once-thriving industry, on both sides of the border, who had enjoyed high wages and a sense of job security when times were good, were now facing the prospect of layoffs and even the permanent disappearance of their employment as auto workers.

The impact of such a slump could be potentially devastating to both the Canadian and U.S. manufacturing

economies, resulting in the possible loss of over half a million jobs in Canada alone. Its ripple effect to other sectors related to the auto industry, such as rubber, electric equipment, and machine parts could be even more damaging. For this reason, Canadian political leaders, along with their U.S. counterparts, were reluctant to accept the inevitability of at least one of the Big Three companies declaring bankruptcy. But, by the early spring of 2009, viable alternatives to such a consequence appeared to be vanishing, and the hard times that had struck the auto industry seemed far from over.

To Consider

1. Why was U.S. President Barack Obama reluctant to give the struggling automobile companies a large financial bailout package?
2. What are the main factors behind the serious financial problems the U.S. auto industry now faces?
3. Why is the Canadian automobile industry also facing major difficulties?
4. What are the potentially harmful effects of at least one of the Big Three auto companies declaring bankruptcy?
5. In your opinion, will all of the Big Three survive? Explain.

HARD TIMES HIT THE AUTO INDUSTRY

Video Review

Update

As this story was being prepared, on April 7, executives for General Motors Corp. and Segway Inc. indicated that they were working together to develop a two-wheeled, two-seat electric vehicle designed to be a fast, safe, inexpensive, and clean alternative to traditional cars and trucks for cities across the world. The PUMA (Personal Urban Mobility and Accessibility) would also involve a vast communications network that would allow vehicles to interact with each other, regulate the flow of traffic, and prevent crashes from happening. In effect people would not be driving these highly efficient and "green" vehicles.

Watch the video and respond to the following questions.

1. Name the automobile companies that make up the "Big Three."

2. Which two countries have given the Big Three serious competition with their imported automobiles?

_____ and _____

3. What are the three main reasons for the decline in sales of new cars in late 2008 and early 2009?

4. What two steps have the automobile companies taken in order to cut costs and stay profitable?

5. Which two of the Big Three auto companies are facing the possibility of going bankrupt? _____ and _____

6. Where were the executives of the Big Three looking for help as the crisis in their industry became more serious?

7. What were the main conditions of the U.S. and Canadian government bailout packages offered to the struggling automobile companies?

8. What demands were being made to the U.S. and Canadian automobile workers unions: the UAW and the CAW?

9. Why did the major auto companies ask for even more financial assistance in early 2009?

10. Which Big Three company threatened to close all of its Canadian operations if it was unable to obtain financial assistance from the government?

11. What was the reaction among auto workers in Windsor, Ontario, to Chrysler's announcement?

12. What steps did U.S. President Barack Obama announce as part of his plan to assist the automobile industry in late March 2009?

13. How has the Canadian government responded to the crisis in the auto industry in this country?

Responding to Statements

With your classmates, discuss the following statements made in the video. Indicate how you think each relates to the main themes of the video and whether or not you agree with the statement and why:

"We've seen this before. The auto industry goes through these cycles and this is a deep cycle. But I have every confidence the industry will come back." — Jeffrey Leestman, Automobile Hall of Fame

"I'm extremely worried about what our auto industry's going to look like tomorrow, because every time I turn around, I'm getting another piece of bad news." — Chris Buckley, Canadian Auto Workers (CAW)

"Our choice is to passively stand by over the demise of the auto industry in Canada and observe its consolidation in the United States of America or to act. We choose to act." — Ontario Premier Dalton McGuinty

"This crisis we're in today has nothing to do with wages and benefits. It's got to do with a global financial crisis, it's got to do with consumers not having the ability to get loans, and nobody's buying today." — CAW President Ken Lewenza

"We've seen problems papered over and tough choices kicked down the road even as foreign competitors outpaced us. Well, we've reached the end of that road." — U.S. President Barack Obama

"Very clearly, if the money had not been forwarded today, they would not have been able to meet payroll today or tomorrow, and so we were faced with this choice of a disorderly bankruptcy where, quite frankly, if liquidation would have been the result of that bankruptcy, whole plants or parts of plants would have been ripped up from Canadian soil, transferred to another country, India, China, who knows, and obviously the jobs would have gone with them." — Canadian Industry Minister Tony Clement

Examining the Bailout Terms

Watch the video again and carefully take note of the terms of the financial bailouts to the automobile industry that the Canadian and U.S. governments are imposing. Do you think the bailouts are necessary and justified? Why or why not? Do you think the conditions the two governments have imposed on the automobile companies are sufficient for them to become successful again? Why or why not? What conditions do you think should be tied to any financial assistance to the automobile industry funded by the Canadian and U.S. taxpayers?

HARD TIMES HIT THE AUTO INDUSTRY

Detroit's "Big Three": Coping with the Crisis

Did you know . . .
U.S. industry experts predict that if the current problems in the auto sector continue much longer, at least a third of auto parts suppliers could go out of business in the next three years.

CBC Archives
To learn more about the Canada-U.S. Auto Pact, visit the CBC Digital Archives at www.cbc.ca/archives and open the audio-visual file "The Auto Pact: En route to free trade."

For decades, the "Big Three" automobile companies—General Motors (GM), Ford, and Chrysler—have dominated the market for new cars in North America. From their head offices in Detroit, Michigan, the CEOs of these automobile giants looked out over a multi-billion-dollar empire and watched as the companies they ran amassed huge profits in the golden years of post-Second World War prosperity. And while times were good for the car company owners and shareholders, they were also golden for the thousands of workers on the assembly line who built the vehicles that North American consumers were anxious to purchase. The wages, benefits, and pension packages enjoyed by members of the United Auto Workers and its Canadian offshoot, the Canadian Auto Workers union, were the envy of other employees in the manufacturing sectors of the North American economies. Ever since Henry Ford, the founder of Ford Motor Company and the inventor of the assembly line, recognized in the early 1900s that paying his workers high wages made good economic sense, a job at Ford—or GM or Chrysler for that matter—was a ticket to middle-class status for the families of those fortunate enough to obtain one.

In Canada, too, the automobile industry was the engine of economic prosperity and development in the postwar era. Alone among the main industrial nations of the world, Canada does not manufacture its own vehicles, but instead serves as the location of important subsidiaries of the Big Three—Ford, GM, and Chrysler. All established manufacturing plants in a number of cities in Southern Ontario and the region around Montreal in Quebec.

Places such as Oshawa, Windsor, Oakville, and Brampton in Ontario, and Ste-Thérèse, Quebec, became synonymous with the auto industry in much the same way that Detroit was known as "Motor City." In the 1960s, with the negotiation of the Canada-U.S. auto pact, the Canadian automobile industry gained privileged access to the huge American market for cars and trucks produced here. To this day, almost 85 per cent of all the vehicles made in Canada are destined for sale south of the border.

But beginning in the 1970s danger signs began to appear that within a few decades would threaten the very survival of the Big Three. The price of gasoline, which had remained relatively low and stable for decades, began to fluctuate dramatically with the two "oil shocks" of 1973 and 1979. Relatively cheap, fuel-efficient imported vehicles from countries such as Japan, whose economy expanded following the end of the Second World War, and even newer players in the global economy like South Korea, began to challenge the supremacy and North American market share of the Big Three. And while consumers started to indicate a growing preference for smaller, more economical vehicles, the CEOs in Detroit continued to follow the advice of their marketing and advertising experts by turning out increasing numbers of large, gas-guzzling deluxe automobiles and SUVs. During the prosperous years of the late 1990s, SUV sales indeed expanded, but once fuel prices started to rise dramatically in the early 2000s, they just as suddenly dropped off.

With their markets shrinking due to foreign competition and costs rising as

Further Research

To learn more about the views of the unions employed by the Big Three visit the Web site of the United Auto Workers at www.uaw.org and the Canadian Autoworkers at www.caw.ca.

Did you know . . .

According to an opinion poll published at the end of March 2009, barely 15 per cent of Canadians support government efforts to finance the North American car industry out of its predicament. In Ontario, the proportion that agrees with the bailout is a miserly 17 per cent. What is your own view on this issue?

a result of generous wage and benefit packages, along with expensive health-care programs for auto workers in the United States, the Big Three started to experience declining profit margins. One solution to this problem was to close down unproductive or unprofitable facilities in Canada and the U.S. and relocate them to countries such as Mexico, where labour costs are far lower and environmental standards less stringent. But because the auto industry was so closely associated with the spirit of American manufacturing, and it was such an important employer in states like Michigan, Ohio, and Indiana, the Big Three could not close down all or most of their facilities without incurring the wrath of the American public and the federal government. When faced with the choice of closing a U.S. or a Canadian plant that was not economical to continue operating, the CEOs of the Big Three invariably decided to shut down the operation north of the border.

The crisis in the auto industry came to a head in the fall of 2008 as the combined effects of foreign competition, high fuel prices, and a sharp economic downturn all cut into sales, triggering a serious cash-flow shortage. The CEOs of the Big Three made a visit to Washington, D.C., in November 2009 to appeal for a massive government bailout, similar to the ones that had been offered to the failing banking and financial institutions whose collapse had triggered the crisis in the first place. But they were met with a less-than-enthusiastic response from congressional leaders, who noted that they had all flown to the U.S. capital on their own private jets, instead of travelling on commercial flights. At the same time, they were demanding that the workers they employed agree to significant concessions in wages, benefits, and pensions in return for some degree of job

protection in the future.

In the end, the U.S. Congress did reluctantly agree to a \$50-billion bailout package for GM and Chrysler, the two companies facing the most serious economic difficulties. But the money was contingent on agreement by the auto giants to a massive restructuring program that would streamline production, reduce generous compensation for CEOs, and begin the process of shifting to smaller, more environmentally friendly vehicles such as gas-and-electric-powered hybrids. At the same time, the Canadian and Ontario governments announced their own rescue packages, amounting to about 20 per cent of the U.S. bailout, relative to the size of the industry in this country compared with that in the United States. These plans also carried them serious conditions. They were not to be viewed as handouts but as loans to be repaid with interest once the auto makers found themselves in a more profitable position following a hoped-for economic recovery.

However, that recovery appeared very distant in the early months of 2009, as the economies of both Canada and the United States continued to shed jobs and register negative growth. Car sales dropped to levels not seen since the recession of 1961, and the Big Three were calling for even more assistance. For his part, the newly elected U.S. President, Barack Obama, was extremely reluctant to commit more taxpayer money to a risky bailout package for Detroit. In late March, he indicated that it might be necessary for at least one of these once-proud firms, Chrysler, to undergo a “controlled bankruptcy,” or possibly a merger with a foreign auto company, such as Italy’s Fiat. And he practically ordered GM to sack its CEO, Rick Wagoner, who was, in Obama’s view, the symbol of everything that had gone wrong with the company in

recent years. This was an unprecedented involvement of the federal government in the affairs of a private company, something that had rarely been seen before in the United States, the homeland of the free market. But Obama's dramatic actions underscored the seriousness of the crisis facing the Big Three and left

unanswered the questions hanging over Detroit and the rest of the country: Will the automobile industry of the future survive the crisis, and what will it look like once it is over?

Source: "The used-to-be Big Three," CBC News Online, www.cbc.ca/money/story/2009/02/17/f-bigthreeudtate.html

Analysis

1. Why has the automobile industry been such an important part of the economies of Canada and the United States since the end of the Second World War?
2. What problems did the North American automobile industry begin to face in the 1970s? How successful was it in dealing with them?
3. Why did the CEOs of the Big Three ask the U.S. and Canadian governments for financial assistance beginning in the fall of 2008?
4. Why were both the U.S. and Canadian governments reluctant to offer large financial bailout packages to the troubled auto industry?
5. What do you think are some possible solutions to the crisis currently facing the auto industry in North America?

HARD TIMES HIT THE AUTO INDUSTRY

Point-Counterpoint: Two Views of the Auto Crisis

Did you know . . .

Along with their North American counterparts, some Asian car companies are experiencing slumping sales, while others are prospering. In March 2009 sales of Toyota products, including the prestigious Lexus brand, declined by 23 per cent. Honda's sales, including the luxury Acura, slid by almost as much. On the other hand, the Korean auto makers Hyundai and Kia saw their sales shoot up, by 25.5 per cent in the case of Hyundai, and 12 per cent for Kia ("Slack U.S. market hitting Canada hard," *Toronto Star* online, www.thestar.com/printArticle/612204).

Dennis Desrosiers is the head of an auto-industry consulting firm, and Jim Stanford is an economist affiliated with the Canadian Auto Workers Union. As experts on the problems facing the industry, they are both frequent commentators in the media. However, their views on the causes of the current crisis, and how it can be overcome, are quite different. Here is a summary of their analyses and conclusions.

Dennis Desrosiers

In Dennis Desrosiers' opinion, the North American auto industry is not facing a real crisis, but instead an opportunity to reinvent and modernize itself. Despite plummeting sales for new vehicles in late 2008 and early 2009, he is confident that the market will rebound sooner rather than later. But in his view, this depends on the ability of the Big Three to take advantage of the financial lifelines being offered by the U.S. and Canadian governments to undergo a sweeping overhaul of their operations. He believes that the industry needs to scale down in size and reduce what he regards as overly generous wage, benefit, and pension packages to its unionized workers if it is to become competitive with foreign companies based in Japan, South Korea, and possibly India. He claims that North American subsidiaries of Japanese car companies such as Honda, Toyota, and Nissan, are more efficient, profitable, and productive than their North American counterparts in the Big Three. This is mainly because they have been able to keep production costs, and in particular labour costs, down.

In November 2008, Desrosiers believed that a financial bailout package to the American auto industry was inevitable, because incoming U.S.

President Barack Obama owed his election victory partly to the votes of unionized workers in heavily industrialized states such as Michigan, Ohio, Pennsylvania, and Indiana. Many of these workers were employed either in the auto industry itself or in sectors of the economy that depend on it. But he viewed the bailout as only a short-term, stop-gap measure that might alleviate the immediate crisis but would do little if anything to resolve the industry's long-running structural problems.

Desrosiers argues that innovation and efficiency are the keys to success in the auto industry in the 21st century. Much more funding must be devoted to research and development of new vehicles, especially environmentally friendly hybrids that replace the gas-powered internal combustion engine with electricity or even solar power. He sees the current crisis as ushering in what could be a "decade of opportunity" or a "decade of threat" for North American car manufacturers, depending on how the CEOs of the Big Three, and the unions representing their workers, respond to the extreme challenges they now face.

Jim Stanford

Jim Stanford, who advises the CAW on economic issues, takes a very different view of the origins of the current crisis confronting the auto industry and how it can be overcome. He argues that those like Desrosiers who emphasize the high wages and benefits North American auto workers earn as a contributing factor to the industry's financial problems are using unionized workers as scapegoats for an economic crisis they had no role in causing. He strongly believes that the Canadian and U.S. governments are right to extend substantial financial

assistance to the Big Three to help them overcome their current difficulties and points to the fact that almost every other Western industrialized nation has done the same. But only Canada and the U.S. have made this aid conditional on significant concessions on the part of the auto workers' unions in the two countries relating to wages, hours, benefits, and pensions.

He also disputes Desrosiers' claim that the North American auto industry has fallen behind in its competitive advantage compared with Japanese firms operating in the same market because of their allegedly high labour costs. He points to the fact that the Canadian dollar is overvalued in relation to its U.S. counterpart, thus making Canadian auto exports across the border more costly than they would be if the dollar's value were to drop below USD\$0.80. Countering Desrosiers' statement that Canada's auto industry has the highest labour costs in the world, Stanford responds that they compare favourably with other industrialized countries, and are actually lower than those in the U.S. This is largely because of Canada's public health-care system, which gives Big Three subsidiaries here a competitive advantage over U.S. plants that have to provide private health care to their workers.

In Stanford's view, the current crisis in the auto industry is the result of the

economic downturn triggered by the collapse of a number of U.S. financial institutions in late 2008. It is also compounded by trade policies that do not do enough to protect domestic auto makers from foreign competition. He states that "auto workers did not cause this crisis, and cutting wages won't solve the crisis." While agreeing with Desrosiers that the Big Three must overhaul their industry and start manufacturing more fuel-efficient vehicles, he strongly opposes the claim that massive cuts to wages, benefits, and pensions will be necessary to revive the economic health of the auto sector. Instead, he calls upon all of the major stakeholders—company executives, shareholders, government, and unions—to work together to achieve a fair and viable solution to the problem. This will not be achieved, he concludes, in an atmosphere of acrimony, finger-pointing, and "union bashing."

Sources: "Big auto boom coming," by Dennis Desrosiers, National Post, November 18, 2008, <http://network.nationalpost.com/np/blogs/fpcomment/archive/2008/11/19/big-auto-boom-coming.html> and "Finger-pointing and the political economy of industrial policy: Auto industry fact and fiction" and "Auto industry in jeopardy," presentations by Jim Stanford, www.caw.ca

Inquiry

1. Summarize the views of Dennis Desrosiers and Jim Stanford on the reasons for the current crisis in the auto industry and how it can be resolved. Which position do you find more persuasive, and why?
2. On what issues do Desrosiers and Stanford agree? On which ones do they disagree? Do you think their proposed solutions to the crisis have any features in common? If so, do you think they are feasible?
3. What additional solutions would you propose to restore the North American auto industry? Be specific.

HARD TIMES HIT THE AUTO INDUSTRY

The Future of the Auto Industry

David Foot is a professor of economics at the University of Toronto and the author of the best-selling book *Boom, Bust, and Echo*. His specialty is the study of population patterns and how they impact on the economy and society in general. In his view, the current crisis facing the North American auto industry is the result of a major contraction in demand for new cars among two large groups in the population. These are recently retired “young seniors” in their late 60s and early 70s, and the second half of the post-war “baby boom” generation, now in their 40s and early 50s. Both of these groups of people are unlikely to be interested in purchasing new vehicles while the economy is in its currently depressed state. This is because the retired young seniors are living on pension incomes that have dropped in value as a result of the financial downturn, while the late baby boomers are still struggling with mortgage payments and worrying about their jobs.

As they enter retirement, many seniors find that they no longer require two family cars, resulting in a glut of resale vehicles on the market. This reduces their value and makes them more attractive to late baby-boomer buyers who might otherwise consider purchasing a new vehicle. In turn, this trend cuts demand for new cars, thus having a negative impact on the profit margins of auto manufacturers. Since both of these groups constitute a large sector of the North American population, and because of their increasing life expectancy rates, they will likely be around for some time to come. This trend has significant consequences for the future of the auto industry.

Foot believes that one factor that might offset a long-term decline in demand

for new cars is the rise of what he calls the “echo” generation, the children of the baby boomers who are now entering their 20s and 30s. This smaller cohort of the North American population will want to buy cars, but it is likely that it will demand lower-priced and more environmentally friendly vehicles than the majority of the products the Big Three have been offering on the market since the 1980s. Foot believes that the boom in minivan and SUV sales that proved so profitable to auto makers in the 80s and 90s is now a thing of the past, because the population cohorts most interested in these products have now moved on to another stage of their lives in very different economic conditions.

In Foot’s view, North American car companies have not been very perceptive in analyzing population trends and how changes in them might affect their industry. Unlike Japanese manufacturers, who have reworked their product line to be more appealing to senior car buyers, the Big Three producers and the unions representing their workers have both been caught in a freeze-frame, enslaved by nostalgia for a now-vanished period when younger customers were fuelling the growth of their industry. Governments in the U.S. and Canada should provide a financial bailout to the auto companies, Foot agrees, but any such taxpayer-funded assistance must take demographic trends into account. This means that instead of just trying to “save jobs” in the industry, efforts should be made to shift product lines to appeal to older buyers, help workers move to early retirement, and encourage younger employees to seek work in other, more viable areas of the economy. Foot concludes that the current crisis in the auto industry will not vanish in

the foreseeable future, and that it is no longer “business as usual” for the Big Three. The industry’s survival depends on its ability to adapt to the reality of a rapidly aging population and requires

that it become “smarter and smaller” if North American consumers are going to continue to purchase its products.

Source: “Who’s gonna buy this car?” *The Globe and Mail*, March 12, 2009

Activities

1. In your own words, summarize the main points of David Foot’s analysis of the problems facing the North American auto industry and how they relate to changing population patterns. Do you agree with his point of view? Why or why not?
2. If you were a North American auto executive, how would you apply David Foot’s recommendations on how the industry should change in order to survive to specific issues such as research and development of new product lines, marketing, and human resources?
3. Describe the kind of car that you think you would likely purchase in your late 20s or early 30s.

HARD TIMES HIT THE AUTO INDUSTRY

Activity: Building the Cars of the Future

Did you know . . .

Manufacturing output in Canada shrank by 3.1 per cent in January 2009, with about half of the decline due to a 27 per cent drop in motor vehicle and auto parts production ("Auto sector puts brakes on GDP," *Toronto Star* online, www.thestar.com/PrintArticle/611453).

Most analysts who have studied the current crisis in the auto industry agree that the Big Three and other manufacturers of motor vehicles must seriously rethink their strategies if they wish to survive and regain a profitable position in the market. But what kinds of cars are likely to appeal to buyers once the economic downturn reverses itself and consumers regain the confidence needed to purchase a "big-ticket" item such as a new family vehicle?

One new product that is already starting to make an impact on the North American car market is the CUV, or car-based crossover vehicle. It is currently the fastest-growing segment of the new automobile market, with 41 models now available for sale. Ford's Escape is the biggest-selling CUV, but Japanese companies are also entering the field, and imported models of this kind of vehicle enjoy a 60 per cent market share in North America.

Another step necessary in any restructuring program is the reduction in product brands that no longer appeal to consumers because of their price and poor fuel efficiency. For example, the GM Hummer, once popularized by former film star and California Governor Arnold Schwarzenegger, is likely to be discontinued, along with the Chrysler PT Cruiser. Chrysler's proposed merger with the Italian auto manufacturer Fiat, one of the conditions in U.S. President Obama's financial bailout to the auto companies, will likely lead to the introduction of a number of smaller, fuel-efficient vehicles Chrysler's future product line.

Other new products being developed include Ford's gas/electric Fusion hybrid and a Mercury Milan hybrid. GM is introducing battery technology for its Chevy Volt and is working on a fuel-cell-powered concept car called the Equinox. Chrysler is also experimenting with hybrids, such as the Dodge Circuit EV, an all-electric sports car, .

Activity

Form small groups with your classmates to research and design a "car of the future" that you think would appeal to customers once the economic slump has ended. Once your group has completed its research and development, make a presentation on your new vehicle to the rest of the class in the form of a "product launch," with images of the vehicle and other promotional information designed to attract potential customers.

Consult the Web sites of the Big Three auto makers (Ford, GM, and Chrysler) and those of other major car manufacturers (Toyota, Nissan, Honda, etc.) in order to find out what kinds of new products they are currently either producing or in the process of developing.

Ford Motor Company: www.ford.com or www.ford.ca

General Motors: www.gm.com or www.gm.ca

Chrysler: www.chrysler.com or www.chrysler.ca

Honda: <http://world.honda.com>

Toyota: www.toyota.com or www.toyota.ca

Nissan: www.nissan-global.com or www.nissan.ca

Hyundai: www.hyundaicanada.com

Another good source of information for this activity is "Automotive industry crisis," *The New York Times* Online, http://topics.nytimes.com/top/reference/timestopics/subjects/c/credit_crisis/auto_industry/.

THE FUTURE OF THE OIL SANDS

Introduction

Focus

In this *News in Review* story we'll look at Canada's oil sands (sometimes termed "tar sands") industry. The oil sands of Alberta are an important part of the economy. But they are also an environmental nightmare. The oil sands have come under increased scrutiny lately because U.S. President Barack Obama has voiced his concerns about their environmental impact. In this *News in Review* story, we will examine the benefits and costs generated by the industry and what the future might hold for the oil sands.

Did you know . . .

Alberta produces two-thirds of Canada's oil and gas. The only region in the world that has greater reserves of oil is Saudi Arabia.

Canadians have enjoyed the economic benefits of the oil boom for quite some time. Alberta, in particular, has benefited from the boom, because most of Canada's oil reserves are located in that province. Most of the oil in Alberta, however, isn't found in "pure" oil deposits. It is actually mixed with sand, and the extraction process involves heating the sand to separate it from the oil for processing.

Oil companies are expected to invest another \$100-billion in Alberta over the next decade. And \$16-billion worth of pipeline development is expected to deliver oil directly from Alberta to the many heavy-oil refineries along the U.S. Gulf Coast. The U.S. is banking on Canadian oil as the long-term replacement for dwindling or unreliable supplies from Venezuela and Mexico. Investment in the oil industry has created thousands of jobs and drawn workers to the oil fields from every Canadian province. Money has poured into government coffers—royalties for Alberta, taxes for Ottawa.

Oil sands development, however, comes at a huge environmental cost. In fact, many scientists, researchers, and even politicians believe that much of the environmental damage already caused by oil sands harvesting is likely irreversible. This damage includes the destruction of thousands of square kilometres of boreal forest, the removal of massive amounts of water from the Athabasca River, and the creation of giant "tailings ponds" that hold the toxic chemical byproducts of the extraction process.

Environmentalists and many Canadians have been aware of the negative environmental impact of the oil sands for years. But in the last few years, a series of events thrust the problems

onto the international stage and caused Canadian citizens and politicians to wonder about the future of the oil sands.

One of these events was the passage of the U.S. Energy Independence and Security Act at the end of 2007. Section 526 of the bill bans federal agencies from buying alternative fuels that produce more greenhouse gases than conventional oil. This would preclude the U.S. military and postal service—the two biggest consumers of fuel in the United States—from purchasing oil produced in Alberta.

Another event that increased public criticism of the oil sands was the death of hundreds of mallard ducks. In May 2008, a large flock of mallard ducks landed on a tailings pond that was located along their migratory flock path in northern Alberta. Five ducks were rescued, but the rest sank to their deaths in the oily lake. Negative reaction to the images of the dying birds prompted Prime Minister Harper to declare that both the federal and Alberta government would do more to ensure that the oil sands were developed in an environmentally responsible manner.

But the Prime Minister's reassurances weren't enough to quell concerns about the oil sands development. Gillian Steward, the former managing editor of the *Calgary Herald* wrote on May 11, 2008, that "The fate of the 500 ducks (it was later discovered that 1 500 ducks had actually perished) is symbolic of much deeper problems when it comes to the environmental consequences of Canada's largest industrial project."

When the global economy collapsed in November 2008, many observers questioned the continued viability of oil sands extraction. Generating oil from oil sands is relatively expensive—

THE FUTURE OF THE OIL SANDS

Video Review

Did you know . . .

North America's first commercial oil well was established in 1858 in . . . (wait for it), Petrolia, Ontario. Western oil development came much later.

Respond to the following questions as you watch the video.

1. What are oil sands?

2. Is it more or less expensive to extract oil from oil sands than conventional methods?

3. How has the global economic crisis affected the price of oil?

4. How has the economic crisis affected the oil sands development in Canada?

5. What are some of the environmental impacts of the oil sands development?

6. How did the election of Barack Obama put pressure on the Canadian and Alberta governments to make changes to the oil sands projects?

7. What is "carbon capturing" and how is it expected to solve the problem with greenhouse gas emissions?

8. What are the criticisms of carbon capturing?

Analysis

At the conclusion of the video, Merran Smith from ForestEthics, said: "The tar sands really show our addiction to oil, that we are willing to try to squeeze oil out of mud in order to keep us driving our cars. We need to move forward on the new path, and the question really is: 'Are we going to do it now or are we going to be dragged there and do it later?'"

In a small group, discuss this quote, and decide whether you think that now is the time for the world to break its dependence on oil. This would mean drastic changes to how we transport ourselves, heat our homes, and produce goods.

THE FUTURE OF THE OIL SANDS

National Geographic

Further Research

Check out the oil sands story and the photos in *National Geographic* online at <http://ngm.nationalgeographic.com/2009/03/canadian-oil-sands/kunzig-text>.

Quote

"The blustering that passed for a political Canadian response to the article might be adequate for domestic consumption but it is unlikely to impact anyone who has just been introduced to the dark side of the oil sands through 24 pages of frankly devastating pages."
— Chantal Hébert (*Toronto Star*, March 1, 2009)

Further Research

Check out the report prepared by the Canadian Petroleum Producers at www.capp.ca/aboutUs/mediaCentre/CAPPCommentary/Pages/NationalGeographic_March2009Issue.aspx.

The March 2009 issue of *National Geographic* ran a feature on the environmental impact of the oil sands entitled "The Canadian oil boom: Scraping bottom." The feature described the negative impact of the oil sands on the environment and included 24 pages of devastating pictures. Although *National Geographic's* is not the first story to criticize the oil sands, it is certainly the one that has reached the greatest audience—an estimated 50 million people.

The feature includes information on the amount of resources needed to produce oil from the sands, the impact on the Athabaska River and First Nations communities in the area, and the growing concern over the impact on human health. For example: "In 2006, John O'Connor, a family physician who flew in weekly to treat patients at the health clinic in Fort Chip, told a radio interviewer that he had in recent years seen five cases of cholangiocarcinoma—a cancer of the bile duct that normally strikes one in 100 000 people. Fort Chip has a population of around 1 000; statistically it was unlikely to have even one case. . . . Two of O'Connor's five cases, he says, had been confirmed by tissue biopsy; the other three patients had shown the same symptoms but had died before they could be biopsied. (Cholangiocarcinoma can be confused on CT scans with more common cancers such as liver or pancreatic cancer.) 'There is no evidence of elevated cancer rates in the community,' Howard May, a spokesperson for Alberta Health, wrote in an email last September."

The Canadian Response to the *National Geographic* Article

The Canadian government scoffed at the depiction of the oil sands presented by

the magazine. Environment Minister Jim Prentice denied that the oil sands present Canada with a major public relations challenge. And Liberal Leader Michael Ignatieff said he "did not take his orders from a foreign publication" (*Toronto Star*, March 2, 2009).

Columnist and political affairs analyst Chantal Hébert believes that the Canadian government should not dismiss the *National Geographic* criticism too quickly. She believes that international criticism can have a significant negative impact on a country's reputation. She noted that East Coast sealers have never recovered from the damage done when bloodied seal pups became front-page news around the world. As well, when a group of Québec Cree leaders paddled down the Hudson River in New York to protest against Hydro-Québec's Great Whale project, the state of New York cancelled a contract to purchase power from Hydro-Québec. The Great Whale development was subsequently abandoned.

The Canadian government was not the only group of individuals to disagree with the *National Geographic* report. The Canadian Association of Petroleum Producers (CAPP), an association representing over 130 oil and natural gas companies, has a strong interest in defending and protecting the reputation of oil and gas companies in Canada. In response to the *National Geographic* report CAPP wrote and published "*National Geographic's* article on Canada's oil sands: An incomplete perspective" (citation in margin feature "Further Research").

CAPP's response addresses the fact that they believe the *National Geographic* piece represented an incomplete perspective on the oil sands

and their impact on the environment. In particular, “What readers do not see is that all oil sands developments are ultimately reclaimed and returned to a natural state.” The story is accompanied by photos of reclaimed mining sites and tailings ponds.

CBC broadcaster Rex Murphy was also critical of the *National Geographic* feature, calling it “high-minded hypocrisy” (Point of View, February 26, 2009). On the one hand, Murphy pointed out, if we want to live the way we do in the 21st century—with cars, houses, communications, a military, a transportation network—then we need oil. Yet on the other hand, we criticize companies who secure that oil for us. He also stressed that the oil sands development has done more for Canada

than “just” produce oil: “*National Geographic* didn’t take pictures of rural Nova Scotia or Newfoundland for this spread either: of the tiny towns and out ports that have sent their sons and daughters to Alberta during the last decade—spared them from EI and welfare—kept their families intact and their dignity in place, with an honest dollar for an honest day’s work. No foldouts, either, of some of the hospitals and schools and roads and research equipment—revenues from the oil sands enabled; nor did or could they take pictures of what Alberta prosperity has meant for this whole country during the decade before the recession, and how it has left the whole country better positioned than most, now that the recession is here.”

Analysis

1. Photographs can create powerful emotions. Compare the photos of the oil sands in the *National Geographic* story with the photos included in the feature written by the Canadian Petroleum Producers (Web sites listed in the margin of the previous page).

a) Do you believe that sites like the oil sands development can be reclaimed to look like the photos at the CAPP site? Why or why not?

b) Should journalists have to include photographs that show both sides of an issue they are reporting on? Explain the reasons for your answer.

2. Do you think the critical feature in *National Geographic* will actually bring about a positive change in the way companies involved in the oil sands conduct their businesses? Explain the reasons for your answer.

3. Carefully outline your personal view of Canada’s development of the oil sands.

THE FUTURE OF THE OIL SANDS

What Are the Oil Sands?

Did you know . . .

Until recently, the Alberta oil sands were often called the Alberta tar sands. A conscious effort has been made to discourage the use of that name. "Tar sands" is an inaccurate description; what is contained in the sands is an extremely heavy form of crude oil, not tar. And, of course, "oil sands" sounds much less repulsive to the average person.

Further Research

An excellent introduction to oil sands and heavy oil—its production and use—is available from the Centre for Energy at www.centreforenergy.com/generator2.asp?xml=/silos/ong/oil_sands/oilsandsAndHeavyOilOverview01XML.asp&template=1,1,1.

Oil sands are deposits of bitumen, a molasses-like oil that is mixed with sand or other deposits. The oil will not flow from the bitumen deposits unless heated or diluted with lighter hydrocarbons. The oil sands deposits cover a huge portion of the northern part of Alberta. Oil sands do exist in parts of neighbouring Saskatchewan, but it is the mammoth oil sands of Alberta that are generating the current criticism and controversy.

Areas Being Mined

The oil sands deposits are found in an area of about 140 000 square kilometres of boreal forest. Four major deposits, covering over 77 000 square kilometres, are currently being mined: Peace River, Athabasca, Wabasca, and Cold Lake.

The centre of the region—and the centre for mining operations—is the Regional Municipality of Wood Buffalo, which includes the town of Fort McMurray. Wood Buffalo is currently the fastest-growing municipality in Canada. Its population has doubled since 1999 and continues to grow at a rate of nine per cent per year.

Thanks to the oil sands, jobs are plentiful, and salaries in Fort McMurray are high. In 2004, the median family income was \$120 000. Albertans often refer to the town as "Fort McMONEY." Rapid growth, however, has led to many problems.

Giant Reserves of Oil

The amount of oil held in the Alberta oil sands is staggering, even if much of it will never be removable. About 1.7 trillion barrels of oil are contained in the sands, and about 174 billion barrels of oil are considered to be recoverable

with current technology. The only other area in the world with greater reserves is Saudi Arabia.

As new techniques for extracting oil emerge, and if extraction costs drop and prices rise, more barrels should become available. The British magazine *The Economist* (May 26, 2007) estimates that rising prices and lower costs alone could result in making an additional 141 billion barrels worth extracting. New techniques could open up even more production.

Extracting Oil from Sand

Most extraction currently takes place by open-pit mining, where the sands are dug up and then separated into their various components. The sands are mixed with hot water and shaken; the water, sand, and bitumen (the crude oil portion) then separate. The process is both water-intensive and energy-intensive. It takes two to five barrels of water to produce one barrel of oil. And producers use 17 million cubic metres of natural gas every day—enough to heat 3.2 million Canadian homes.

Only about 10 per cent of the reserves can be extracted in open-pit mining. The remainder of the oil sands, located far below the surface in porous rock, will have to be extracted by a much more complicated process, called *in situ* (in place) extraction. The costs associated with this process are much higher.

Both methods have serious environmental consequences. *In situ* extraction causes far less surface damage than open pit mining. On the other hand, it requires a much greater expenditure of energy and produces far more greenhouse gases.

The Producers

As of May 2007, Alberta oil sands production was up to 1.2 million barrels of oil per day—an amount that, less than 10 years ago, experts predicted would not be reached before 2020. Many now expect that Alberta oil sands production in 2020 will reach four million barrels per day—the same amount that Iran currently produces.

Today, there are 14 companies producing at least 5 000 barrels of oil per day—and many others producing smaller quantities—at 24 sites in the oil sands.

Another 30 projects have been approved or are already under construction. While there are many companies involved in extracting Alberta oil, three major companies are responsible for about two-thirds of the output. In 1967, Suncor was the first company to become a serious investor in the oil sands. Syncrude followed in 1978. Together, these companies produce about 560 000 barrels per day. International giant Shell began working in the oil sands in 2002 and now extracts 160 000 barrels per day.

Analysis

1. What resources are used in great quantities in oil sands extraction?

2. Briefly describe the differences between open-pit and *in situ* extraction of the oil from the oil sands.

3. What are some of the possible results of Canada being in possession of such vast oil wealth?

THE FUTURE OF THE OIL SANDS

Headlines Collage

“Canada delusional about oil”
— *Toronto Star*, January 26, 2009, pA15

“Carbon capture technology no silver bullet for tar sands; only a small portion of greenhouse gases could be sequestered”
— *Toronto Star*, February 27, 2009, pA21

“Oil sands producers stuck over a barrel”
— *The Globe and Mail*, February 20, 2009, pB3

“Cleaning up Alberta’s ‘dirty oil’”
— *Toronto Star*, February 15, 2009, pA19

“Harper rolls dice to play oil sands ‘wild card’”
— *Toronto Star*, March 2, 2009, pB01

“No stigma against the oil sands”
— *The Globe and Mail*, January 26, 2009, pA12

“The Canadian oil boom: Scraping bottom”
— *National Geographic*, March 2009-04-04

“National Geographic’s article on Canada’s oil sands: An incomplete perspective”
— Canadian Association of Petroleum Producers, CAPP Commentary, available online at www.capp.ca/aboutUs/mediaCentre/CAPPCommentary/Pages/NationalGeographic, March2009Issue.aspx

“Tarred by ‘dirty oil,’ some producers fight back”
— *The Globe and Mail*, February 19, 2009, pB3

“Obama’s message to Canadians: Alliances matter, ‘dirty oil’ not so much”
— *The Globe and Mail*, February 18, 2009, pA1

Analysis

1. Based on the headlines included here, does one newspaper or source appear to be more “pro” oil sands than the others? If so, why might that be?
2. What overall pros and cons of the industry are raised by these headlines?
3. Choose the headline that you consider to be the most accurate and explain your choice.

THE FUTURE OF THE OIL SANDS

Cap and Trade

Did You Know . . .

The oil sands are only a tiny part of the world's carbon problem; they account for less than one-tenth of one per cent of global carbon dioxide emissions. But to many environmentalists, the oil sands are the first step along a path that could lead to other, even dirtier sources of oil: producing it from oil shale or coal.

Further Research

Many environmentalists and organizations, such as the World Wildlife Fund, believe that carbon capture technology is too expensive and unreliable to work effectively. Consider reading "Carbon Capture technology no silver bullet for tar sands" in the *Toronto Star*, February 27, 2009.

The Oil Sands and Greenhouse Gas Emissions

Producing oil from oil sands creates three times more carbon dioxide than extracting oil in liquid form. Carbon dioxide is a major component of the greenhouse gases that are believed to be contributing to global climate change. This heavier carbon footprint raises criticism of oil sands extraction and is a source of international criticism.

The Cap-and-trade Solution

In June 2008, Alberta Premier Ed Stelmach announced a plan to cap, or catch, the extra emissions. He said that his province would spend over \$1.5-billion to develop the technology for capturing carbon dioxide and storing it underground. By the year 2015, Alberta is hoping to capture five million tons of carbon dioxide from bitumen upgraders and coal-fired power plants. According to the plan, by 2020 the province's carbon emissions will level off, and by 2050, they will be 15 per cent below their 2005 levels.

Oil sands giants like Syncrude believe that much of the cost of building these carbon capture and storage (CCS) systems will be recouped when companies sell the captured carbon on the open market. New Energy Finance estimates that carbon pricing might start at USD\$10 per tonne in 2012, and climb no higher than \$15 by 2020 (*Toronto Star*, March 2, 2009).

Criticisms of Cap and Trade

There is a great deal of concern that Canada is planning on "solving" the problems of the oil sands development through a cap-and-trade carbon scheme. First of all, no one knows if it will really

be possible, or safe, to cap and store carbon emissions underground. And even if it does work, no one knows whether enough emissions can be captured to make a difference in climate change. Tyler Hamilton, an energy reporter with the *Toronto Star*, believes that "Prime Minister Stephen Harper is delusional if he believes that capturing carbon dioxide from coal plants and oil-sands operations and storing it underground is going to have a material impact on reducing greenhouse gases over the next decade, let alone the next two decades" (March 2, 2009).

Second, financial observers believe that carbon prices alone will never be high enough to cover the costs of CCS systems. The C.D. Howe Institute, an independent think-tank, estimates that it will cost anywhere between \$50 and \$100 to capture and store one tonne of carbon dioxide. If it is true that carbon prices on the open market will climb no higher than \$15 by 2020, companies will either argue that it is simply too expensive to develop CCS systems or ask the government for big subsidies to develop the systems.

Even people within the oil industry caution the Canadian government about putting all its hopes into a cap-and-trade system. Murray Edwards, a Canadian billionaire and the owner of a number of energy companies, cautions that "To the extent that cap-and-trade can deliver carbon emissions that will benefit overall society at a reasonable price, that is one alternative, but you don't want to have just cap-and-trade. At some point you are going to run into no more obvious cheap offsets, and you are going to need technology investments, where you are going to have step change to have a

THE FUTURE OF THE OIL SANDS

Activity: The Great Debate

Quote

“Last year \$20-billion was spent in Canada on oil sands projects and this year, because of all these deferrals, we’ve dropped down from \$20-billion to \$10-billion.”— Greg Stringham, VP Markets and Oil Sands, Canadian Association of Petroleum Producers (*Resource World*, March 2009)

This *News in Review* story has explored many aspects of oil sands development. It is clear that the oil sands have generated huge amounts of money. It is also clear that the impact of the oil sands on the environment is significant. So where do we go from here?

The Activity

In this activity, you will have the opportunity to participate in a debate on the future of the oil sands. Your teacher will decide which of the debate questions will be used by your class. Your teacher will also determine whether you will be in the group that argues in favour of the debate question or against it. Your teacher may also decide to create a small group of students to act as judges of the debate. You might be placed in that group.

Debate Questions

- Be it resolved that oil sands development in Alberta should be halted immediately because the damage the development has had on the environment is catastrophic.
- Be it resolved that because of continued world demand for oil, oil sands development in Alberta should continue until alternative, greener sources of energy have been developed.

The Procedure

With your group members, you will prepare a set of arguments to support your position. Make sure you refer to as many pieces of factual information as possible. You might locate that information by viewing the *News in Review* video again, by referring to other sections of the resource guide, or by conducting additional research.

Students who have been placed in the judges’ group should generate a list of arguments that they anticipate the two different sides may use during the debate. They should also spend some time determining how they think they should score the debate and discuss these ideas with their teacher.

Each group should begin with a short opening statement. The debate should then proceed on a point-counterpoint format. When all points have been discussed, the debate should wrap up with each side giving a short concluding statement. Judges should then confer and announce a winner.

Further Research

Sources that support development of the oil sands:

- Alberta Government: <http://oil.sands.alberta.ca>
- Canadian Association of Petroleum Producers: www.capp.ca
- Syncrude Canada: www.syncrude.ca

Sources that are against further development of the oil sands:

- Tar Sands Watch: www.tarsandswatch.org
- Sierra Club of Canada: www.sierraclub.ca
- David Suzuki Foundation: www.davidsuzuki.org
- Water Conserve: www.waterconserve.org

WHITE DRAGONS: THE KILLER AVALANCHES

Introduction

Focus

This *News in Review* story examines the deadly winter of 2008-09 in Western Canada. The presence of an increasing number of thrill-seekers in the backcountry means that people need to be more conscious than ever of the power of killer avalanches that locals call “white dragons.”

A heartbroken Jeff Adams returned to Harvey Pass, B.C., less than 48 hours after three separate avalanches buried him and 10 of his fellow snowmobilers on December 28, 2008. Adams and two others were able to dig themselves out. Eight people died beneath the snow. While authorities were able to find seven of the bodies, they could not locate the eighth. Adams returned to the scene of the incident and, within an hour, led search teams to the body of the final victim.

The Harvey Pass tragedy sent a wave of grief deep into the heart of the people of Sparwood, British Columbia. All 11 of the snowmobilers were from Sparwood, and it seemed that not even one of the close to 4 000 citizens of the town was unaffected. Meanwhile the rest of Canada looked on in wonder. For those who never venture into the mountain backcountry, one question persistently came up: why do so many people die each year in Canada in avalanches? On average, each year, 14 people die of asphyxiation under the snow or as a result of severe trauma in avalanche incidents.

Most of the time the victims are backcountry skiers or snowboarders who trigger avalanches either when they are hiking up a slope or descending on their skis or boards.

Recently, however, there has been a marked rise in the number of snowmobilers dying in avalanche incidents. In fact, over half of the fatalities in the winter of 2008-09 were snowmobilers. Experts claim that snowmobiles are being built with more speed and greater endurance. This allows snowmobilers to travel deeper into the backcountry and higher on mountainous terrain. Extreme snowmobiling activities

like highmarking—where a snowmobiler rapidly ascends a mountain slope, climbing as high as possible before turning and descending the slope—demonstrate the power of the modern snowmobile while also putting snowmobilers in the sights of “white dragons.”

Almost immediately people wondered if the men from Sparwood had taken unnecessary risks that day. Visions of the 11 men riding their snowmobiles wildly through the backcountry, highmarking on steep slopes, while pushing their machines to their limits ruled many imaginations. However, it quickly became very clear that the victims from Sparwood were experienced snowmobilers who took many precautions.

Nonetheless, the men were out snowmobiling on a day when the Canadian Avalanche Centre (www.avalanche.ca) deemed the risk of an avalanche to be “considerable.”

Within days of the Harvey Pass tragedy, a skier and a snowboarder died at Whistler-Blackcomb Resort in separate avalanches. The two men had ignored resort signs declaring the slopes closed and had skied to their deaths. They had broken almost every safety rule that experts say people should follow before heading onto avalanche-prone terrain.

So Canadians were faced with two extremes during the holiday season: on the one hand, eight snowmobilers took precautions and fell victim to an avalanche, while a skier and a snowboarder acted recklessly and met the same fate. Either way, cautious or not, white dragons claimed the same deadly prize.

So why take the risk? Perhaps it is the rise in popularity of extreme sports and

Did you know . . .

When *News in Review* staff first started to work on this story, 16 people had lost their lives in avalanches, and before our work was completed, this tragic number had grown to 25.

the desire of a segment of the population to push their bodies to the limit. The goal of those pursuing backcountry sports like highmarking seems to be an adrenaline rush that demonstrates an individual's ability to beat the odds and survive nature's wrath. However, is the rush really worth the cost? How can one really know if a shelf of snow is going to detach from a mountain and speed down a slope at hundreds of kilometres

per hour? How can one be certain that a white dragon won't come looking for them? Maybe it's the unpredictable nature of the backcountry that motivates recreationists to take their chances in a duel with the mountain. Or maybe some people think they are invincible. Regardless of the reasons, white dragons lie in wait, ready to strike again with little concern for the adrenaline urges of those tempting fate in the backcountry.

Questions

1. How are most avalanches triggered?

2. Why is the number of snowmobilers dying in avalanches on the rise?

3. What is highmarking? _____

4. Do you think that the Sparwood snowmobilers acted recklessly on the day they died? Explain the reasons for your answer.

5. What two extremes did Canadians face during the holiday season of 2008-09?

6. Why do you think people are willing to risk their lives in the backcountry?

7. How interested are you in extreme sports? Why?

WHITE DRAGONS: THE KILLER AVALANCHES

Video Review

Carefully respond in the spaces provided to the following questions.

1. How many people were killed by avalanches over the course of winter of 2008-09? _____.
2. What is the nickname for the killer event referred to at the beginning of the documentary?

3. Why does Bruce Allen respect avalanches?

4. What does Bruce Allen mean when he says "temperature is the engine of crystal change"?

5. What role do snow crystals and snow layers play in the start of an avalanche?

6. How fast do avalanches travel? How many avalanches hit the area around Revelstoke per year?

7. Describe a typical avalanche guard.

8. Why are more snowmobilers dying in avalanches in Canada and the United States than did so in the past?

9. Why are skiers so attracted to backcountry skiing? What precautions do skiers take before going into the backcountry?

10. a) While the experiment with the tracking dog was compelling, what is the sad reality about the fate of someone who finds themselves buried by an avalanche?

WHITE DRAGONS: THE KILLER AVALANCHES

A Deadly Season

December 28, 2008 – 1:40 p.m. – 8 snowmobilers die

Location: Harvey Pass – Rocky Mountains, British Columbia

Description: Two separate avalanches release, burying 11 snowmobilers. Three escape and are forced to leave eight others behind. On their way out of the area, a third avalanche releases, leaving the victims under three metres of snow. All 11 snowmobilers were experienced in the backcountry and were properly equipped for backcountry recreation.

December 31, 2009 – 2:30 p.m. – 1 skier dies
Location: Blackcomb Mountain – Coast Ranges, British Columbia

Description: A skier bypasses a sign reading “Ski Area Boundary – HIGH AVALANCHE HAZARD – minimal avalanche control” in order to ski the Ruby Bowl run that resort staff had closed due to avalanche danger. The skier triggers an avalanche and is buried beneath a metre of snow. He is reported missing later that evening, and his body is discovered on the mountain the next day.

January 1, 2009 – 3:00 p.m. – 1 snowboarder dies

Location: Whistler Mountain – Coast Ranges, British Columbia

Description: A snowboarder enters an out-of-bounds area known as the Secret Chutes on New Year’s Day. He gets partway down the hill when an avalanche sweeps down the mountain and buries him. Whistler Ski Patrol and rescue volunteers help dig out his body before the sun goes down that day.

January 8, 2009 – 1:15 p.m. – 1 snowboarder dies

Location: Mount Alice – Coast Ranges, British Columbia

Description: Four snowboarders trigger an avalanche on Mount Alice near Terrace, B.C. A father and his son find themselves buried in the incident. The son is rescued, but the father dies under the snow.

January 11, 2009 – 1:00 p.m. – 1 snowmobiler dies

Location: Mount Mara – Monashee Mountain Range, British Columbia

Description: A snowmobiler is traversing up-slope on Mount Mara when a third to half of the snow in the bowl releases, burying the man in the snow. He is not equipped with a transceiver, so it takes search crews a long time to find the body.

January 11, 2009 – 3:00 p.m. – 1 snowmobiler dies

Location: Hassler Flats – Northern Rockies, British Columbia

Description: A group of 14 snowmobilers is riding in the Hassler Flats area when an avalanche buries five members of the party. Investigators later discover that most of the rescuers had to dig out the buried with their bare hands. Four snowmobilers are injured in the incident and one dies.

January 14, 2009 – 2:15 p.m. – 1 hiker dies

Location: Kananaskis – Rocky Mountains, Alberta

Description: Two hikers, neither of whom have avalanche safety equipment, are caught on the same slope when an avalanche gives way, burying one and partially burying another. The completely

Quote

"You live in the mountains and avalanches come down. That's just what happens."

—Keith Grasdahl, B.C., snowmobiler (*Toronto Star*, March 10, 2009)

buried man dies under the snow.

January 16, 2009 – 1:00 p.m. – 1 snowmobiler dies

Location: Valemount – Cariboo Mountain Range, British Columbia

Description: Seven experienced snowmobilers equipped with air bag systems (ABS), shovels, and transceivers are riding up and down a hill in an area prone to avalanches. At one point, while two sleds are on the hill, the slope gives way and carries one of the snowmobilers away, ejecting him from his machine and burying him in the snow. The other six snowmobilers act quickly, setting their transceivers to "find" and digging the man out of the snow. Unfortunately, the victim is already dead when his companions reach him.

January 17, 2009 – 1:00 p.m. – 1 snowmobiler dies

Location: Babcock Mountain – Northern Rockies, British Columbia

Description: Six snowmobilers are highmarking up and over Babcock Mountain. At one point, a snowmobiler is descending the north side of the mountain when he triggers an avalanche that barrels down two of the five avalanche chutes well known to backcountry travellers in the Northern Rockies. The victim tumbles down the mountain with the avalanche and eventually dies under the snow. While the victim is equipped with a transceiver, none of his companions have one, and they spend a great deal of time trying to find him in the snow.

March 7, 2009 – 2:20 p.m. – 2 skiers die

Location: Kicking Horse Mountain Resort – Purcell Mountain Range, British Columbia

Description: Two skiers are killed by an avalanche when they venture into a closed area of Kicking Horse Mountain Resort. The men are part of a four-person

group skiing in an area called the Fuez Bowl. The men are dug out with vital signs absent about 90 minutes after the avalanche by rescue teams.

March 18, 2009 – 3:00 p.m. – 1 snowmobiler dies

Location: Mica Mountain – Cariboo Mountain Range, British Columbia

Description: Two people are snowmobiling in the Spanish Lake area when a slab avalanche descends Mica Mountain, killing one. The slab is 200 metres wide and travels for 250 metres before burying the victim in a metre of snow.

March 21, 2009 – 3:00 p.m. – 1 snowmobiler dies

Location: Whitewater Creek – Cariboo Mountain Range, British Columbia

Description: A group of four snowmobilers is traversing from bowl to bowl in this mountain area, increasing their highmarks as they move along. When the avalanche is triggered, two snowmobilers are in the bowl. One is able to ride out while the other is swept through a sparsely forested area to his death.

March 24, 2009 – 2:00 p.m. – 2 snowmobilers die

Location: Renshaw Mountain – Rocky Mountain Range, British Columbia

Description: A group of three snowmobilers is traversing Renshaw Mountain when an avalanche hits, burying all three men. One man manages to dig himself out, while the other two die beneath the snow.

March 25, 2009 – 1:00pm – 1 snowmobiler dies

Location: Hellroaring Creek – Purcell Mountain Range, British Columbia

Description: A slab avalanche is triggered when five snowmobilers are

highmarking in the backcountry. The avalanche buries one man. He is located by his transceiver signal within 20 minutes, three metres below the snow. Once his companions dig him out, CPR

is administered, but to no avail.

Source: The Canadian Avalanche Centre (www.avalanche.ca). See "Recent Avalanche Incident Info."

Activity

Identify and evaluate each of the incidents noted above by filling in the following chart.

Activity	# of fatal incidents	# of incidents you think demonstrate reckless or careless behaviour on the part of the victim(s)
Skiing		
Snowboarding		
Hiking		
Snowmobiling		

WHITE DRAGONS: THE KILLER AVALANCHES

Death in Harvey Valley

CBC Archives

An excellent audio-visual account of avalanches in Canada can be explored at the CBC Digital Archives. Explore the file "Avalanche" at http://archives.cbc.ca/environment/natural_disasters/topics/1483/.

Two separate groups set out from Sparwood, B.C., on the morning of December 28 on a snowmobile journey through the backcountry toward Golden, B.C. It was an idyllic journey through the majestic mountains of British Columbia. The 11 men were experienced "sledheads"—the nickname adopted by avid snowmobilers—who were well aware of the risks involved in backcountry adventures. The leaders of both groups took as many precautions as they could that morning. There had been a pretty sizeable dumping of snow in the previous 24 hours, and the Canadian Avalanche Centre warned snowmobilers that the likelihood of an avalanche was "considerable"—three out of five on the organization's rating scale. Based on this information, and independent of each other, they determined that their journey should be safe if they travelled below the tree line and avoided avalanche chutes in the upper mountain regions. They checked their gear to make sure their transceivers worked in case they or a member of their party was buried. They made sure their probes were strong in case they had to find someone buried in the snow. And they made their shovels accessible in case they had to dig somebody out. Within a few hours of each other, the two groups set out before dawn with the intention of being home by mid-afternoon when warm weather would likely make the snowpack unstable.

The initial group of seven men got onto the trails first and set out toward Golden via Harvey Pass. The second group of four men parked their vehicles in the same parking lot as the first group, hopped on their snowmobiles, and followed their tracks, hoping to catch up

to them before lunch time. A few hours later, at about 1:30 p.m., the lead group was travelling along the valley floor near Harvey Pass when Mike Stier's snowmobile got stuck in the snow. Little did Stier know that, while he was working to free his machine, a large shelf of snow and ice had released from the mountain, and an avalanche, obscured by the clouds, was barreling down the mountainside.

Within seconds, the snowmobilers spotted a "white dragon" and prepared for the worst. Three members of the group: Mike Steir, Danny Bjarnson, and Jeff Adams were buried in the avalanche. The other four members of the group turned their transceivers to "find" and set about the task of digging the men out of the snow. By this time, the second group arrived and found their friends from Sparwood digging frantically. They too set their transceivers to "find," and eventually Bjarnson and Adams were pulled out of the snow. The rescuers set about making contingency plans. Kurt Kabel pressed 911 on his spot transmitter to let the authorities know there was a problem in Harvey Pass. Jeremy Rusnak prepared his machine to go and get help. Meanwhile, the other men continued to dig down toward Stier. Before any contingency plans could be enacted, and before they could get to Stier, a second, more powerful avalanche stormed down the hill and buried everyone.

The second avalanche hit shortly after 2:00 p.m. Jeff Adams was first out of the snow about five minutes after the avalanche buried the group. When he looked around he could not see anybody or any of their gear. It was just a sea of snow. He shouted and heard someone shout back. He followed the sound of the

Quote

"The entire town is going to be crushed. It would be bad enough to heal after one. How do you heal after eight?" — Lana, a longtime friend of some of the men, who didn't want her last name published (*Vancouver Sun*, December 30, 2008)

voice and discovered Jeremy Rusnak. With his shovel and gloves buried in the avalanche, Adams spent 15 minutes digging Rusnak out with his bare hands. They both got up and started shouting again in a desperate search for survivors. Finally they heard someone respond. It was James Drake. Adams and Rusnak rushed over and started to dig out Drake. A few minutes into the rescue they heard another crack in the mountain. Consumed with fear, Adams and Rusnak ran for their lives with Drake shouting in the background, "Don't leave me here! Don't leave me here!" Whatever made the cracking sound didn't hit the men and they returned to finish digging out Drake.

The three men gathered their strength and took a look around. It was absolutely eerie; no equipment, no debris, and no people. They checked their transceivers and could only pick up Mike Stier's signal. He was far too deep for three exhausted men with no rescue equipment to get to. Sadly, the other men could not be found either. Their transceivers were useless at this point since everyone under the snow had switched their units to "find" in their efforts to save Stier. They surveyed the area, looked for any sign of life, and finally made the painful decision to walk away from the avalanche scene to find help. About 10 minutes after leaving the area they heard another crack and turned to see the snowpack on the centre of the mountain slip from the hill. It was the largest of the avalanches that

day and it completely buried everything in the valley floor.

The men walked for a few more kilometres when they saw a helicopter hovering over the avalanche site. Eventually, the helicopter made its way away from the scene and, after a few minutes, found the three men. It picked them up and brought them to safety. The bodies of the other eight men would be retrieved over the course of the next two days, with some of them buried three metres below the snow.

Officials from the Canadian Avalanche Centre (CAC) investigated the incident and concluded that the men had taken the necessary precautions prior to setting out that day. While forecasters deemed the likelihood of an avalanche as "considerable," the men made the wise decision to travel in low areas and avoid activities like highmarking. What the men didn't know, and the CAC wasn't able to predict, was the effect of a rapid rise in temperature over the course of the morning. The warm weather made the top layer of snow heavy enough to slip off the layer of ice that rested below it. This is likely what triggered the series of avalanches that killed the eight men from Sparwood and sent a community into heartbreaking grief.

Sources: *The Globe and Mail*, "Avalanche tragedy: One of three survivors tells his gut-wrenching tale," January 1, 2009; "A cold new year in the valley of tears," January 3, 2009.

Questions

1. What precautions did the snowmobilers take prior to heading into the backcountry?
2. Make a point-form timeline of the events of December 28.
3. What likely caused the avalanche that killed the eight men?
4. Should anyone be snowmobiling in mountain areas at all? Explain.

WHITE DRAGONS: THE KILLER AVALANCHES

Avalanche Facts

Further Research

To learn more about these powerful forces of nature, consider a visit to the official Web site of *National Geographic* magazine (www.nationalgeographic.com) and search for "avalanches."

Review the following point-form information and complete the activity that follows.

- There are approximately 150 avalanche fatalities reported every year by the 17 member countries of the International Commission for Alpine Rescue (ICAR-www.ikar-cisa.org).
 - According to the Canadian Avalanche Centre (CAC), Canada has experienced over 350 deadly avalanches since 1782, resulting in the deaths of more than 700 people. Around 60 per cent of avalanche fatalities occurred in BC.
 - Each year an average of 14 people die in avalanches in Canada.
 - The worst avalanche fatality count in recent history occurred in 2003 when 29 people died in Canadian avalanches; the winter of 2008-09 came close with 23 deaths, 17 of whom were snowmobilers.
 - Most avalanche victims are men in their 20s participating in backcountry skiing and snowboarding. Snowmobiling fatalities are rising because of a growth in the number of snowmobilers and improvements in snowmobile technology that allow snowmobilers to travel deeper into the backcountry.
 - 73 per cent of people killed in avalanches died during the months of January, February, and March, compared with 23 per cent during November, December, and April
 - Most avalanche fatalities occur between the hours of noon and 2:00 p.m.
 - 55 per cent of avalanches are triggered by people hiking, skiing, or snowboarding.
 - 32 per cent of avalanches are triggered by snowmobilers.
 - Almost half of avalanche incidents in Canada occurred in the interior ranges of British Columbia (compared with 34 per cent in the Rocky Mountains and 16 per cent in the Coast Mountains).
- Most killer avalanches:
- Occur under clear skies with little or no snowfall and light or calm winds.
 - Occur within 48 hours of a heavy snowfall.
 - Are slab-type avalanches, with an average thickness of less than one metre.
 - Are triggered by victims or members of the victim's group.
 - Start above or near the tree line on slopes that are loaded with drifting snow or fresh snow that is resting on an unstable layer of snow or ice beneath it.
 - Occur on 30–40° slopes, often at a convex part of the hill.
- People buried in an avalanche have a:
- 92 per cent chance of survival if they are dug out within 15 minutes.
 - 30 per cent chance of survival if they are dug out within 30 minutes.
 - 27 per cent chance of survival if they are dug out within 90 minutes.
 - 3 per cent chance of survival if they are dug out within 130 minutes.
- Leading causes of death for avalanche victims:
1. Asphyxiation
 2. Trauma
- Source: Canadian Avalanche Centre (http://avalanche.ca/CAC_Knowledge_Incident)

Activity

Use the information above to write a newspaper article called "Killer Avalanches." Length of article: 350 – 500 words

WHITE DRAGONS: THE KILLER AVALANCHES

Staying Alive

Venturing into mountain backcountry requires a conscious respect for “white dragons.” An avalanche can strike at any time, and proper preparation is essential to avoid the fate of those who have died under the snow due to poor decision-making and poor preparation.

Staying Alive – Step 1: Education

If you are planning to explore the backcountry, avalanche education is a must. Most avalanches form during erratic weather cycles involving warm temperatures followed by cold temperatures, with precipitation accompanying both weather fronts. For instance, a snowstorm in cold weather followed closely by rain and warmer weather followed by another snowstorm and colder weather is a perfect recipe for an avalanche. The combination of mixed precipitation and temperature changes often creates an unstable snow pack resting on an ice shelf. When hikers, skiers, or snowboarders traverse this type of terrain, or snowmobiles agitate the snowpack, the potential for the snow to detach from the hill and slide along the ice is great. Backcountry thrill-seekers should educate themselves about the nature of avalanches and the various things that trigger them.

Skiers, snowboarders, hikers, and snowmobilers also need to train their eyes to identify potential avalanche paths. If a person enters an area of sparse forest with broken trees, odds are they are in an avalanche path. Backcountry adventurers should also avoid chutes where snow can collect and funnel down the mountain. They should also look for snowdrifts near mountaintops that form on slopes that are protected from the wind. Drifting snow that blows over from another mountain is often the

most unstable snow in the snowpack and poses a tremendous avalanche risk. According to the Canadian Avalanche Centre (CAC), the inability to recognize avalanche terrain and snow stability are two of the leading mistakes that people make when travelling in backcountry areas. With close to 1 400 avalanche paths in British Columbia alone, recreationists have a lot to know before venturing into the backcountry.

Staying Alive – Step 2: Preparation

The CAC sees poor trip preparation as the leading cause of avalanche fatalities and injuries. Travelling into the backcountry is risky business and people should never venture there alone. Groups are the way to go, so people can look out for each other in case something goes wrong. The inexperienced should always seek out leaders who have plenty of experience in traversing backcountry terrain.

The CAC sees the following as essential preparation steps for backcountry recreationists:

Essential Planning

- Plot a route that avoids avalanche chutes.
- Check the weather forecast.
- Check the CAC forecast.
- Travel with a group of people and designate one member of the group as the leader.

Essential Equipment

- Portable shovel: for digging victims out
- Probe pole: for finding victims under the snow
- Transceiver: a beacon that pinpoints the precise location of someone buried in the snow

Staying Alive – Step 3: Know the Risks, Work as a Team

When travelling with a group, the leader should take the point position when traversing the terrain. The leader should look for potential instability in the snowpack and steer the group away from danger. Those who are following need to pay attention as well; the more people watching the snow, the better it is for the entire group. If it becomes necessary to cross a potentially dangerous slope, group members should cross one at a time. This rule applies to all backcountry recreationists. The other group members should watch for shifts in the snowpack to see if they can spot any avalanche warning signs. It is best for groups moving through the backcountry to think as a team. While one person is designated the leader, the others play an equally important role in ensuring the team is able to move through the backcountry safely as a cohesive unit.

Staying Alive – Step 4: Save a Friend, Save Yourself

The unpredictability of the snowpack can leave even the most experienced backcountry traveller susceptible to an avalanche. If an avalanche strikes, people are advised to forget about their equipment and use a swimming motion to pull themselves to the top of the snow. While skiers, snowboarders,

or snowmobilers might think that they can outrun a white dragon, they need to keep in mind that avalanches can travel at hundreds of kilometres per hour. For a person to stay close to the top of the sliding snow they are advised to keep moving and reach up, because once the avalanche stops, the snow instantly hardens. By reaching up they keep an arm or two free so they can dig themselves out. If they become completely immersed in the snow, they should keep their mouths closed so that they don't swallow snow, and use their hands to create an air pocket around their face. Finally, they will need to stay calm and avoid wasting energy.

The people in the group who aren't buried need to act quickly and rationally when they see a member of their group go under. If a group member gets swept away, each member of the group should maintain visual contact with the person to see where they may be buried. Once it is safe to go toward the spot where the person is likely buried, all group members should set their transceivers to "find" and try to locate the victim. Probes should be used to confirm the precise location of the person. Then it's time to dig—carefully and evenly until the victim can be brought to the surface.

Source: Canadian Avalanche Centre, http://avalanche.ca/CAC_Knowledge_Incident

Questions

1. How are avalanches formed?
2. Why is avalanche education so important for someone who is thinking about venturing into the backcountry?
3. What planning and equipment provisions need to be made before heading out on a backcountry trip?
4. Why is having an experienced leader so important in the backcountry?
5. Review the information regarding what needs to be done if you or a member of your group is buried in an avalanche. Does the information make you think backcountry adventures are worth the risk or not worth the risk? Explain fully.

WHITE DRAGONS: THE KILLER AVALANCHES

VI *Activity: An Informal Debate*

Each year people are rescued by emergency services personnel after engaging in high-risk behaviour in the backcountry. Rescues cost a lot of money and require substantial resources. For example, if snowmobilers trigger an avalanche while highmarking on a mountainside and they need to be rescued, odds are rescuers will have to rush to the scene and a helicopter will have to be dispatched to pick up anyone who is hurt. The question you need to consider for this task is:

Should a person or group engaging in high-risk behaviour like highmarking or backcountry skiing be required to cover the cost of their own rescue?

Group Format

- Form a group of four.
- Two group members will take the position that emergency services are for everyone and that no one should have to pay to be rescued.
- Two group members will take the position that people engaging in risky behaviour should have to pay for their rescue in the event that they need emergency services to get them out of trouble.

Process

1. You and your partner should find another area of the room to work away from the two people who are going to oppose your view.
2. Make a list of pros and cons surrounding your position. This will give you an idea of the strengths involved in your argument and the arguments the other side might use against your position.
3. Get back together with the other two members of your group. Be careful not to let the other side see the piece of paper on which you wrote your points.
4. State the points for your position and debate those points one at a time. State your points clearly and allow the other side a chance to challenge your points. When you are finished let the other side state their points, and you challenge what it is they have to say.
5. Finally, share your pros and cons list with the other side. How effective were you at predicting the arguments they used against your argument?

Extension

Write a 200- to 300-word report answering the debate question. What do you think? Should a person or group engaging in dangerous behaviour have to cover the cost of their rescue?

THE FLIGHT OF THE *SILVER DART*

Introduction

Focus

This *News in Review* story commemorates one of the significant events in Canadian history: the first powered flight. During the following century, that breakthrough helped to bring Canadians together and to transform this country, which has the second-largest landmass in the world. This story looks at the men responsible for the initial triumph of the *Silver Dart*, and those who planned its commemoration in 2009. It also follows the story of Canadian flight through its first 100 years.

Further Research

To learn more about Canada's astronauts, consider a visit to the Canadian Space Agency's official Web site at www.space.gc.ca.

On February 23, 2009, Canada celebrated 100 years of aviation history. On that date in 1909 a biplane (two-winged aircraft) called the *Silver Dart* was towed by horses onto a frozen lake near Baddeck, Nova Scotia. A young engineer named Douglas McCurdy sat on a plank at the airplane's primitive controls. Before a crowd of cheering watchers, McCurdy piloted the plane on a short flight of slightly more than a kilometre. Canada had entered the age of powered flight, and Canadians embraced it with enthusiasm.

A country the size of Canada is exactly the kind of place where powered flight could flourish. In both peace and war, Canada has had an illustrious history in the air. Canadian pilots played central roles in both World Wars, and pilots and air crews from across the Commonwealth received their training here. Flight training for NATO and allied forces continues in Canada to this day.

Canadian airmen returning from the First World War drove the peacetime development of the civilian air industry in Canada. Some became the first transporters of airmail. Others became the bush pilots who opened services to isolated areas of the country. Some became the surveyors and mappers of areas of Canada rarely visited before.

Others involved themselves in aircraft design, manufacture, and testing. Still others helped develop Canada's first national airline, Trans-Canada Airlines, now known as Air Canada.

In the 21st century, Canada continues to be an important centre for the aerospace industry. One Canadian company, Bombardier, is currently the third-largest manufacturer of civilian aircraft in the world. As well, the aerospace industry has made enormous contributions to the exploration of space. One contribution, the Canadarm, is a prominent part of every space shuttle mission. Several Canadian astronauts have played important roles in some of those missions.

Thus, it seemed very appropriate when Aerial Experiment Association 2005, the group that built a replica of the *Silver Dart*, chose astronaut Bjarni Tryggvason as the pilot for the 100th anniversary flight. A man who had flown on the fastest and most sophisticated flying machine ever developed would now pilot one of the slowest and most primitive.

Because of adverse weather conditions, the anniversary flight actually took place a day early, on February 22. Nevertheless, it was an enormous success and a glorious reminder of Canada's aviation history.

Pre-Viewing Activity

Have you ever seriously considered what life in Canada would be like without travel by air? Air travel has had an enormous impact on all of us, even if we rarely or never get on a plane. After all, planes carry plenty of things besides people.

Take a few minutes before you watch the video and make a list of some of the ways in which your life would be different if airplanes did not exist. There might be favourite foods that you would never get to eat, or activities that wouldn't take place, or friends or family that you might never get to see. The number of ways in which air travel has an impact on your lifestyle may surprise you.

THE FLIGHT OF THE *SILVER DART*

Video Review

As you watch the video, answer the questions in the spaces provided.

1. What famous Canadian airplane was used by bush pilots to open the Canadian interior? _____
2. Where in Canada is the village of Baddeck located? _____
3. What is the name of the famous inventor who lived in Baddeck?

4. What type of equipment did Bell use for his first aviation experiments?

5. Who financed Alexander Graham Bell's aviation work and recruited some of his assistants?

6. What name did Bell's group of developers call themselves?

7. Where were the AEA's first airplanes built and flown?

8. What is the reason that Douglas McCurdy believes Bell wanted to fly one of his airplanes in Baddeck?

9. How long did the flight of the *Silver Dart* last? _____
10. In 1959 a group tried to recreate the flight of the *Silver Dart*. How did the re-creation go?

11. How many attempts did it take in 2009 at Baddeck to get the *Silver Dart* airborne? _____
12. What is the name of the Canadian company that is the world's third-largest manufacturer of civilian aircraft? _____
13. A Canadian airplane, not built for over 20 years, is about to make a comeback. What is that plane called? _____

THE FLIGHT OF THE *SILVER DART*

History of the Silver Dart

Further Research

A 1949 interview with J.A.D. McCurdy is available from the CBC Archives at archives.cbc.ca/science_technology/aeronautics/clips/2424/. YouTube (www.youtube.com) has clips from the anniversary flight, along with other associated items (search for "Silver Dart").

Quote

"It feels great. I've flown the fastest thing in the world. I've flown the slowest thing in the world. I've flown the newest thing, I've flown the oldest thing." – Bjarni Tryggvason, *Hamilton Spectator*, February 7, 2009

Baddeck, Nova Scotia, is a small community in the heart of Cape Breton Island. Baddeck is now best known as a resort community, the centre of access to the beautiful Bras d'Or lakes. It was already a well-known resort in 1909 when the lake became the runway for Canada's first powered aircraft flight.

Baddeck was the Canadian home of one of the world's greatest inventors, Alexander Graham Bell. Already famous as the inventor of the telephone, Bell had become interested in the possibility of human flight.

Bell's initial experiments involved giant kites. His kite designs were featured in *Scientific American*, then (as now) a leading popular scientific magazine. Bell continued working on his kites until 1907. The last one—a huge contraption called *Cygnets*—actually flew, with a passenger, 51 metres above Bras d'Or Lake. It was not self-powered but was pulled behind a steam launch.

However, the successful flight of the Wright brothers' airplane in 1903 changed the way in which inventors looked at human flight. The Wright brothers' flight was unique in that it was powered, controlled, and sustained: powered by an engine, controlled by a pilot, and sustained for a distance.

Encouraged—and financed—by his wife, Mabel, Bell founded the Aerial Experiment Association (AEA) in October 1907. This brought together a group of Canadian and American engineers who would compete for an annual trophy awarded by the Aero Club of America to the inventors of heavier-than-air flying machines.

Working in the United States, the AEA was soon successful in its airplane design. Their first aircraft, the *Red Wing*, made its pilot, Casey Baldwin, the first

Canadian to pilot an airplane. Their second plane, the *June Bug*, won the second annual Aero Club trophy.

For Canadians, however, the *Silver Dart* will always be Bell's greatest airplane. Bell, born a Scot who later became an American, loved his British roots and his Canadian home in Cape Breton. Determined to fly an aircraft in British airspace, he shipped the AEA's latest creation to Baddeck for its first flight.

That aircraft was the *Silver Dart*, the plane that made the first heavier-than-air flight in Canada, on February 23, 1909. Piloted by J. A. Douglas McCurdy (soon to become Canada's first licensed pilot), the *Silver Dart* flew about 1.2 kilometres, rising nine metres above the frozen lake. Its speed was 65 kilometres per hour.

The *Silver Dart* went on to set records and win prizes. On March 10, 1909—less than a month after its first flight—the plane won another trophy as the first plane in North America to fly a mile (1.6 kilometres). Piloted by McCurdy, the *Silver Dart* flew not just one mile, but 20 miles (32 kilometres). It later became the first plane to carry a passenger as well as a pilot.

The *Silver Dart* was eventually destroyed in an accident, when McCurdy crash-landed after demonstrating the plane to officers of the Canadian Army.

100 Years Later

In 2005, a group of 25 aviation fans founded the Aerial Experiment Association 2005. Their objective was to build a replica of the *Silver Dart* and fly it at Baddeck on the 100th anniversary of the first flight: February 23, 2009.

Fascinating Facts

The replica's specifications include:

- Weight: 500 kilograms
- Wingspan: 14.7 metres
- Height: 3 metres
- Length: 10 metres
- Engine: 65 horsepower V-8 (the original was about 45 horsepower V-8)

The group, based in Welland, Ontario, found six sponsors and raised \$35 000 to build the plane, as near a replica as modern materials and safety measures would allow. For example, the “balloon cloth” used on the original, which gave the plane its silver colour and its name, was replaced with nylon. Dirt-bike wheels were used for the landing gear. Safety requirements meant that brakes and rudder pedals needed to be installed. A proper seat for the pilot was also added. For the first flight, McCurdy sat on a wooden plank. The 2009 version weighed about 113 kilograms more than the original plane. It took 6 000 hours of volunteer labour to build.

This time the designated pilot was Canadian astronaut Bjarni Tryggvason. He first flew the finished plane at the airport in Hamilton, Ontario—a test

flight that permitted the engineers to tweak the plane's performance before the actual centennial flight. The plane's builders did not want a repeat of the 1959 commemoration, when the replica crashed on landing.

This time it was the weather that refused to co-operate. With the forecast threatening blizzard conditions for February 23, Tryggvason successfully—on his second attempt—took to the air on the 22nd. The plane made a total of four successful flights. It was a wise move; the weather did force the cancellation of the commemoration on the 23rd.

The replica of the *Silver Dart* is expected to have a permanent home at the innovation centre at the Alexander Graham Bell National Historic Site (www.pc.gc.ca/lhn-nhs/ns/grahambell/index_e.asp) in Baddeck.

Inquiry

1. Name the two planes that preceded the *Silver Dart* at Baddeck.
2. What happened later to the *Silver Dart*?
3. Who flew the re-creation of the McCurdy flight of 1909?

THE FLIGHT OF THE *SILVER DART*

J.A.D. McCurdy

Further Research

A fascinating illustrated McCurdy archive is available online at www.gov.ns.ca/nsarm/virtual/mccurdy/results.asp?Search=.

Fascinating Fact

How Bell and McCurdy's father met is an interesting story. Evidently Bell dropped by the newspaper office while the senior McCurdy was trying to fix his office telephone. Bell offered to repair it. Once he had done so, he introduced himself to McCurdy—as the telephone's inventor!

John Alexander Douglas McCurdy (who usually went by the name Douglas) is one of the most important pioneers of Canadian aviation. His accomplishments went far beyond his being the first person to pilot an airplane in Canada.

Douglas McCurdy was born in Baddeck, Nova Scotia, on August 2, 1886. His father was a newspaper editor who was acquainted with Alexander Graham Bell. Bell befriended young Douglas, who often visited the Bell estate and helped with some of Bell's experiments with kites.

McCurdy was educated in Toronto at St. Andrews College and the University of Toronto, graduating with a degree in mining engineering. But his first love was aeronautics, and in 1907 he was back in Baddeck with Bell. There he became one of the members of the Aerial Experimental Association (AEA), the group that went on to design several successful aircraft, including the *Silver Dart*.

The Pilot

McCurdy quickly became the main pilot for the AEA as they designed and built new aircraft. By the time of the *Silver Dart*'s first flight in 1909, McCurdy had already made at least 200 short flights at the AEA's U.S. location. The success of the *Silver Dart* made him a Canadian hero. Future accomplishments made him even more famous. These included:

- The first flight longer than a mile (1.6 kilometres). This was a 20-mile (32 kilometre) round trip in the *Silver Dart* made less than a month after the first Canadian flight.
- The first licensed Canadian pilot (1910).
- The first pilot to transmit by wireless to

Earth while in flight (1910): “Another chapter in aerial achievement is recorded in the sending of this wireless message from an aeroplane in flight.”

- The first pilot to fly a figure eight.
- The first pilot to fly a flying boat (a plane designed to take off and land on water).
- The world biplane speed record (1910).
- The first flight over the ocean, from Key West, Florida, to Havana, Cuba (1911). His plane crashed at sea less than 20 kilometres from its destination. He flew 145 kilometres in less than two hours.

Because of vision problems, McCurdy piloted a plane for the last time in 1916. But while he himself was not flying, he made it possible for hundreds of others to do so. In 1915, with the support of the British government, he opened the Curtiss Aviation School. It trained more than 600 pilots to fly in the First World War for the Royal Air Force (Canada did not get its own air force until 1922).

The Businessman

After retiring as a pilot, McCurdy managed Curtiss Aeroplanes and Motors Ltd., a company that built two-seater training planes. In 1928 he created his own company, Reed Aircraft. This company eventually merged to form Curtiss-Reed Aircraft Ltd. McCurdy was its president until the beginning of the Second World War.

During the war McCurdy was in Ottawa as the Assistant Director General of the Aircraft Production Board, Department of Munitions and Supply. As such, he oversaw most of Canada's aircraft production during the war.

After the war, McCurdy became president of another airplane company,

Montreal Aircraft Industries Ltd. In 1947 he was appointed Lieutenant Governor of Nova Scotia, the province where he had made his most famous flight.

Douglas McCurdy received many awards during his lifetime. Two of the most important awards were presented in 1959, the 50th anniversary of the flight of the *Silver Dart*. The Minister of Defence gave him the honorary rank of Air Commodore in the Royal Canadian Air Force, recognizing his outstanding 50-year contribution to Canadian aviation.

As well, the Canadian Aeronautics and Space Institute (CASI – www.casi.ca) gave him the McKee Trophy, their most prestigious award, for his outstanding achievements in aerospace. CASI had already created a McCurdy Award (1953), which it continues to present for outstanding achievement in the art, science and engineering related to aeronautics and space research.

Douglas McCurdy died on June 25, 1961. He was buried at Baddeck.

To Consider

In your view, what was Douglas McCurdy's most important contribution to aviation in Canada? Why?

THE FLIGHT OF THE *SILVER DART*

Baddeck's Great Inventor

Quote

"The inventor is a man who looks around upon the world and is not contented with things as they are. He wants to improve whatever he sees, he wants to benefit the world; he is haunted by an idea. The spirit of invention possesses him, seeking materialization."

— Alexander Graham Bell, quoted in the *Dictionary of Canadian Biography* (DCB), online at www.biographi.ca/009004-119.01-e.php?&id_nb=7894&interval=25&&PHPSESSID=en1itee8tvrmoueehpq1ra3rp5. The DCB is the source for much of the information in this article.

Definition

A *patent* is a form of copyright that gives the owner of an invention control over its use. Patents are usually granted by government agencies.

Alexander Graham Bell is remembered by most people as the inventor of the telephone. The patent for the telephone, however, was only one of 30 patents that Bell received during a lifetime of inventing. It was certainly his most profitable invention, financing much of his other research.

The Breakthrough

Bell's first invention was made at the age of 11 in his native Scotland. When a friend's father suggested that he find something useful to do instead of just hanging around the local mill, he did. He developed a process to remove the husks from grain, using wire brushes on rotating paddles placed in an already existing machine.

Bell's family moved to Brantford, Ontario, in 1871. Bell was soon dividing his time between Brantford and Boston, Massachusetts. By 1872 he had opened his own school for the deaf in Boston.

Bell always saw himself first, by profession, as a teacher of the deaf. He was an expert in speech physiology and specialized in teaching the deaf how to speak.

At the same time, Bell was fascinated with the idea of transmitting sound—especially speech—over wires. As early as 1874 he had developed the method that he would use for the telephone. He filed for a patent two years later. This first telephone patent is believed to be the most valuable patent in the history of invention. It meant financial independence for Bell, so that he could devote his attention to his many interests.

Other Inventions

Bell's subsequent inventions and research activities include:

- The audiometer, used to measure hearing ability. The unit of measuring sound and electric signals was named the decibel in his honour.
 - The graphophone, a machine that recorded and played sound using reusable wax cylinders. Bell always wished he had devoted more attention to phonographic devices. But it was Thomas Edison who developed the first phonograph.
 - The financing of a laboratory in Washington, D.C., to promote research and invention to benefit the deaf.
 - A metal detector that used sound waves to detect a bullet in the body. He developed this in hopes of saving the life of U.S. President James Garfield, who was shot by an assassin. Garfield died, but the invention is recognized as an early type of ultrasound.
 - A vacuum jacket that acted as an early form of iron lung to assist breathing. Bell invented this after the death of his son from respiratory failure.
 - The presidency of the National Geographic Society, from its founding in 1888 until 1903. Bell was always interested in geographical exploration. His interest in photography led directly to the establishment of the ever-popular *National Geographic* magazine.
- Beginning in 1885, Bell divided his time between Washington and Baddeck, Nova Scotia, where he built himself a large estate. Here he conducted genetic research and experimented with eugenics—selective breeding—with sheep. Bell is credited, in his genetic research on deafness, with producing the most useful study of human heredity in the 19th century. At Baddeck he also performed some of Canada's earliest experiments with x-rays.

In 1881 Bell began his experiments with flight. Over the next 31 years he and his fellow enthusiasts conducted more than 1 200 flight-related experiments. Most of these, especially the kite experiments, took place at Baddeck. The flight of the *Silver Dart* was only one of those many experiments.

By 1912, Bell had moved on to a new enthusiasm: the hydrofoil, developed for rapid travel over water. In 1919, one of Bell's hydrofoils set a world record of

114.04 kilometres per hour—a record that would not be broken until 1929.

Bell was also a visionary. In a 1917 scientific paper he predicted that burning fossil fuels would lead to a “sort of greenhouse effect” and global warming if the burning continued unchecked.

Bell died on August 2, 1922. During his funeral, the Bell system was briefly shut down, and every phone in North America was silent. He was buried in Baddeck, on a hill, overlooking the bay.

Analysis

In your view, what was Alexander Graham Bell's greatest achievement? Why?

THE FLIGHT OF THE *SILVER DART*

Timeline: Canadian Aviation

Further Research

Much more inclusive timelines are available online at www.canadiancentennialofflight.ca/en/history.php, and www.canadiangeographic.ca/Magazine/so00/aviation_history.asp. A timeline of Canadian military air history is available at www.airforce.forces.gc.ca/site/hist/origine.asp.

Canada's century of aviation history has been a proud one, with many outstanding achievements. Here is a very selective list of 11, taken from only the first 50 years of powered flight in Canada.

1909 The *Silver Dart* flies Canada's first powered heavier-than-air flight.

1915 The Curtiss JN-3 aircraft is the first production plane to be built in Canada. It became the standard trainer for the Royal Naval Air Service in the First World War. In total, 104 were built, 18 of them in Canada at a Toronto factory. It was the forerunner of the JN-4 "Jenny," the first mass-produced plane and one of the most popular of all time. (For more information on the JN-3, see www.canadiancentennialofflight.ca/en/canadasAircraftLegacy_CurtissJN-3.php.)

1918 Canada becomes a centre of aviation activity when 22 000 Canadian pilots and air support crew return from Europe after the First World War. Canada made a huge contribution to the war effort in every area of aviation, even though it had no air force of its own. One of the greatest fighter aces of the war, Billy Bishop, was Canadian. (For more information on Canada's war effort, see www.airforce.forces.gc.ca/site/hist/ww_1_e.asp.)

1918 Captain Brian Peck, a war pilot, makes the first official airmail run in Canadian history, from Montreal to Toronto. He carried 120 letters with special stamps marked "Inaugural Service via aerial mail – Montreal 23.6.18." But, because of a rainstorm, he didn't actually fly until June 24.

Less than three weeks later, on July 9, Katherine Stinson becomes the first woman to deliver airmail on a flight in Western Canada. (For more information on the first airmail flight, see www.mysteriesofcanada.com/Canada/first_airmail_flight.htm.)

1919 On June 14, the first successful direct trans-Atlantic flight leaves St. John's, Newfoundland, for Cliften, Ireland. The pilots were two British airmen, John Alcock and Arthur Whitten Brown, flying a Vickers Vimy bomber. The 3 040 kilometre flight takes 16 hours and 27 minutes. The plane crashes on landing, but the men are uninjured. Alcock and Brown won a large prize that had been offered for the first flight by the *Daily Mail* newspaper. They were also soon knighted by King George V. (For more information on Alcock and Brown, see www.absoluteastronomy.com/topics/Alcock_and_Brown.)

1920-1924 Recognizing the contribution of Canadians to the air war in the First World War, Canada establishes its own Canadian Air Force. King George V names it the Royal Canadian Air Force in 1924. (For more information on the beginnings of the Air Force, see www.airforce.forces.gc.ca/site/hist/inter_war_e.asp.)

1928 Eileen Vollick becomes the first woman in Canada to receive a private pilot's licence. Vollick was born in Warton, Ontario, and trained to fly in Hamilton. She was so short that she had to sit on pillows to see out of the windows of her trainer. But she proved to be an accomplished pilot who flew in both Canada and the United States.

(For Vollick's personal recounting of her flying experiences, see [www.owensoundsuntimes.com/ArticleDisplay.aspx?e=1145293&auth=EILEEN M. VOLLICK](http://www.owensoundsuntimes.com/ArticleDisplay.aspx?e=1145293&auth=EILEEN.M.VOLLICK).)

1937 The Canadian government creates Trans-Canada Airlines (as a subsidiary of Canadian National Railway!). The company is intended to provide air service to all regions of Canada and has two passenger aircraft and a biplane for surveying new routes. Its first regular service from Vancouver to Montreal begins on April 1, 1939. Trans-Canada is renamed Air Canada in 1965. (For a first-person oral account of the first Vancouver to Ottawa flight on Trans-Canada, see <http://archives.cbc.ca/lifestyle/travel/clips/8671/>.)

1940-1945 During the Second World War, Canada becomes the home of the British Commonwealth Air Training Program. Over 131 500 students are trained here from Canada, Britain, Australia, and New Zealand; 50 000 of them are pilots. (For more information on the program see www.lancastermuseum.ca/bcatp.html.)

Follow-up

There are many highlights in the second half of Canada's century of flight. Using the suggested timeline Web sites—and any other sources you discover—make a list of five events or developments between 1960 and 2009 that you feel are especially significant in Canada's aerospace history. Be prepared to justify the reasons for your choices when you share them with your classmates.

1949 The Canadian Avro C-102 becomes the second commercial passenger jetliner to fly (the first, a British de Havilland Comet, beats it by only two weeks). The plane is built under contract from the government, but never goes into production. The project is cancelled so that the company can concentrate on producing CF-100 fighter planes. (For more on Avro's aircraft, see www.canadiancentennialofflight.ca/airforce/hist/history_Avro_Canada_e.php.)

1952 Jan Zurakowski, chief test pilot for Avro, breaks the sound barrier for the first time in Canada. Engineers had told Zurakowski that his CF-100 probably could not withstand the forces generated by supersonic speed. He puts the plane into a dive and aims it at the building where the company's engineers are discussing that very prospect. The resulting sonic boom settles the argument. (For more on Zurakowski, see www.geocities.com/buckeyepa/JZurakowski.html.)

News in Review Index

A list of the stories covered last season and to date in the current season is provided below.

The complete chronological index for all 18 seasons of *News in Review*, and a subject-oriented index listing *News in Review* stories appropriate for various subject areas can be accessed through our Web site at <http://newsinreview.cbclearning.ca>. Hard copies of these indexes can also be obtained by contacting CBC Learning.

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