

# Vortex

Learn from the mistakes of others; you'll not live long enough to make them all yourself . . . Issue 4/2004

## Cold Weather Flying Quiz

- 1 The last autorotation RPM adjustment was done on my helicopter in August. Now that the weather is colder, I can expect the RPM to \_\_\_\_\_ for the same flight conditions:
  - (a) increase
  - (b) remain about the same
  - (c) decrease
- 2 The electrolyte in a lead-acid battery will freeze at \_\_\_\_\_ temperature if the battery is discharged.
  - (a) a warmer
  - (b) a colder
  - (c) the same
- 3 ATC issues an IFR clearance that would put your flight in a non ice-protected helicopter at an altitude above the freezing level, and in cloud. You should:
  - (a) Accept the clearance, as ATC probably has more current information than you.
  - (b) Refuse the clearance and inform ATC as to why.
  - (c) Accept the clearance and request the change once you've reached the assigned altitude.
- 4 Ice adhering to rotor blades will degrade their aerodynamic efficiency, requiring an increase in power to produce an equivalent amount of lift. During autorotation, this will result in a higher-than-normal rate of descent and it may not be possible to maintain safe rotor RPM during the descent and flare. The main reason for the loss of autorotation RPM is:
  - (a) The ice forming on the blade will decrease your forward speed.
  - (b) The ice will be first forming on the outboard section of the blade. Since this is the autorotative zone, the effect will be devastating if you enter autorotation.
  - (c) The ice will be first forming on the inboard section of the blade. Since this is the autorotative zone, the effect will be devastating if you enter autorotation.
  - (d) The ice will be first forming on the tail rotor, reducing the amount of thrust, requiring you to add more left pedal.
- 5 Graphic area forecasts (GFA) are always issued in pairs and for the same validity period. One is called Clouds & Weather, the other one is called:
  - (a) GFAN33 CWUL
  - (b) Turbulence, Icing & Freezing level
  - (c) Icing in clouds & Mechanical turbulence
- 6 What is the procedure for flight into icing conditions, if your aircraft is not certified to fly into icing conditions?
  - (a) Nothing until the windshield gets all covered.
  - (b) Turn on the heater, the pitot heat and the anti-ice.
  - (c) Leave the area immediately or land as soon as possible and turn on the heater, the pitot heat and the anti-ice.
  - (d) Call ATC and ask for a higher altitude.
- 7 What are the main indications of ice forming on the main rotor during flight?
  - (a) Ice forming on the windshield.
  - (b) An increase of torque and possible vibrations.
  - (c) Ice forming on the tail rotor.
  - (d) An increase of airspeed and possible vibrations.
- 8 What do the abbreviations ICGIC and ICGIP stand for?
  - (a) Ice Clear Generally In Cloud and Icing In Precipitation.
  - (b) Icing In Cumulus and Icing Probability.
  - (c) Icing In Cloud and Icing In Prescott.
  - (d) Icing In Cloud and Icing In Precipitation.

Answers in next issue



## Jack Fleming—An Aviation Pioneer Remembered

by Bob Petite

Jack Fleming, a highly respected helicopter pioneer in Canada's commercial rotary wing industry, passed away on March 11, 2004, at age 77.

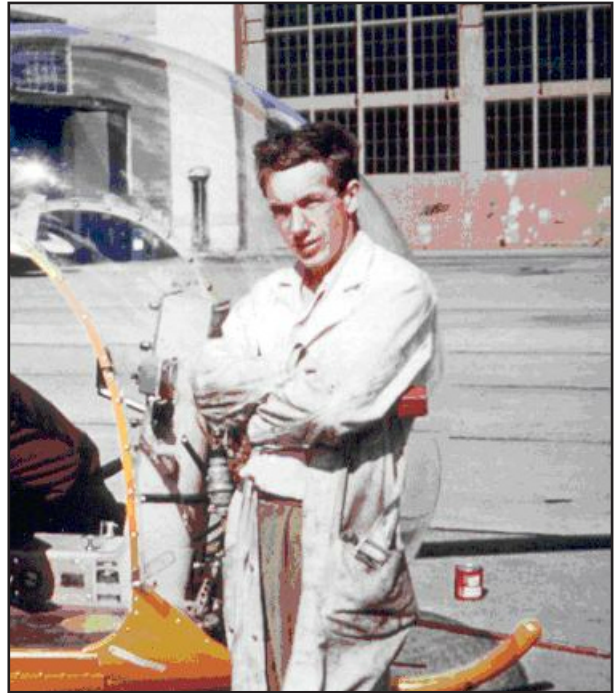
Jack obtained his start in the aviation industry back in the early 1940s, in London, Ont., at Central Aircraft Ltd., a subsidiary of de Havilland Canada, managed by W. John McDonough. McDonough noticed him through Jack's initiative and work habits, especially when it came to looking after his yellow de Havilland Dragonfly. Jack was all over the aircraft, checking it out and cleaning up any leaking oil whenever it landed. When McDonough moved to Yellowknife, N.W.T., to run the Trans American Mining Corporation mine, he took Fleming with him. Jack worked in the mining industry from 1947 to 1949.

With the closing up of operations at the Yellowknife mine, McDonough told Jack about Karl Springer—a wealthy prospecting entrepreneur in British Columbia, who was looking at buying a helicopter and starting a company to search for gold and other minerals in the B.C. mountains. Fleming flew to Edmonton, Alta., and met with Springer. A deal was struck, and in 1950, Jack found himself in Palo Alto, California, at the Hiller Aircraft Company, learning how to maintain and keep Hiller 360 helicopters flying. He spent two and a half months at the helicopter plant. Pilot Paul Ostrander was checked out on the early Hiller at the same time. Ostrander learned to fly Bell helicopters back in 1947 with Skyway Services Ltd. out of Winnipeg, Man. The Hiller helicopter was trailered back to Vancouver, B.C., using Springer's Oldsmobile, in May 1950.

There were only four commercial helicopter companies operating in Canada in 1950—Okanagan, Spartan, Kenting, and Associated—with a total of eleven helicopters. The new company, Helicopter Exploration Company, was ready for business. Springer went out and hired five of the best prospectors in Canada to work for him. Jack maintained and looked after the helicopter from 1950 to 1951, while working for Pacific Western Airlines as an engineer during the off-season, in the winter.

In 1952, he formed Canadian Helicopters with Paul Ostrander and Ernie Grant, buying a used Bell 47D helicopter from Lee Plympton, owner of New England Helicopter Service in Providence, Rhode Island. Ostrander had secured a summer contract with the Canadian Army, carrying out topographic mapping surveys in the Northwest Territories, near Yellowknife. The helicopter flew 307 hours up to the end of September. It was a very successful operation, with little down time.

By 1953, Canadian Helicopters had expanded to three helicopters, with the purchase of two more Bells from Lee Plympton. Fleming spent the winter modifying and upgrading the Bells. Canadian



Jack M. Fleming 1926–2004

Helicopters brought the first Canadian civil registered Bell 47B into Canada that year. Additional topographic surveys were carried out in the Northwest Territories and Alberta during 1953. The season was again profitable. One of the Bells, the 47D, was involved in an accident on its return from the north in the fall, with Fleming on board. Jack and Ernie Grant had to haul the wreck out with a team and wagon. All three helicopters were shipped back to Ontario for overhaul throughout the winter at their hanger facilities at the Toronto Island Airport.

In 1954, Canadian Helicopters Ltd. merged with Ambank Airlift Ltd., adding two more Bell 47s and a single Sikorsky S55 to their fleet. The Abitibi Power and Paper Company held a controlling interest in the joined Canadian Helicopters/Ambank Airlift companies. Jack completed a four-week maintenance training course on the S55 in October. The large Sikorsky was later damaged when it turned over during a landing. Fleming saw Canadian Helicopters bought out by Okanagan Helicopters before the end of the year.

Jack Fleming and Ernie Grant went their separate way and started Dominion Helicopters in 1955, under the rotary wing licence of the Leavens Brothers. Clare Leavens had operated Pitcairn and Kellett autogyros from the 1930s to the early 1950s in Canada. The Ontario Department of Lands and Forests provided the new company with two six-month contracts; supplying Bell 47 helicopters for forest fire suppression work in 1955. Money was a problem for a while; however, over time the company expanded under Jack's guidance, adding more rotary



The Aviation Safety Vortex is published quarterly by Civil Aviation, Transport Canada, and is distributed to all Canadian licensed helicopter pilots. The contents do not necessarily reflect official policy and, unless stated, should not be construed as regulations or directives. Letters with comments and suggestions are invited. Correspondents should provide name, address and telephone number. The Vortex reserves the right to edit all published articles. Name and address will be withheld from publication at the writer's request.

Address correspondence to: Editor, Brad Vardy

Aviation Safety Vortex

Transport Canada System Safety AARQ
Place de Ville, 7th Floor, Tower C
330 Sparks St.
Ottawa ON Canada K1A 0N8
Tel.: 613 990-5444 Fax: 613 991-4280
E-mail: vardyb@tc.gc.ca
Internet: http://www.tc.gc.ca/vortex

Readers are encouraged to reprint or copy, but should acknowledge Aviation Safety Vortex as the source. Please forward one copy of the reprinted article to the Editor.



Brad Vardy

Regional System Safety Offices

- Atlantic: Box 42, Moncton NB E1C 8K6, 506 851-7110
Quebec: 700 Leigh Capreol, Dorval QC H4Y 1G7, 514 633-3249
Ontario: 4900 Yonge St., Suite 300, Toronto ON M2N 6A5, 416 952-0175
Prairie & Northern: Box 8550, 344 Edmonton St., Winnipeg MB R3C 0P6, 204 983-5870; Canada Place, 1100-9700 Jasper Ave., Edmonton AB T5J 4E6, 780 495-3861
Pacific: 3600 Lysander Lane, Richmond BC V7B 1C3, 604 666-9517

Sécurité aérienne — Vortex est la version française de cette publication.

Agreement Number 40063845

wing aircraft as the amount of yearly contracts increased. New facilities were built at King City, near Toronto, Ont.

By the 1960s, Dominion Helicopters was operating all across Canada and into the far north, logging over 80 000 flying hours, and employing over fifty people. The company provided support on aerial surveys, oil and geological exploration, mining, power line patrols, search and rescue, construction, and forest fire suppression, operating twenty helicopters. Dominion Helicopters was awarded a Department of Defence contract for the operation and maintenance of eight Boeing Vertol H21 transport helicopters, providing air support moving people and materials along the mid-Canada early warning radar line. This contract ended in 1965 when the radar line was closed down.

In 1967, Fleming teamed up with Bob Gillies, owner of Inspiration Helicopters (Pegasus Airlifts) out of Burlington, Ont. They started up Dominion-Pegasus, supplying Bell helicopters for an air taxi and tourist flying operation at the Canadian International Exposition (Expo 67) in Montreal, Que. The temporary new company supplied both piston Bell 47J and the new generation turbine Bell Jet Rangers for the air service. The Bell Jet Rangers were some of the first in Canada. Eight helicopters flew over 100 000 passengers between April and October.

Mining and oil exploration companies were providing a major part of Dominion Helicopters work in the late 1960s. Dominion had helicopters on the Polar Continental Shelf Project in the high Arctic carrying out oceanographic, gravity and other surveys, along with rotary wing aircraft moving steel on the Churchill Falls power project in Labrador. The company was operating over thirty helicopters by the 1970s including the Bell 47, 204, 205, 206, 212, and Aerospatiale SA 341 Gazelle.

In December 1972, a bus and taxi company called Charterways approached Jack Fleming. They wanted to buy Dominion Helicopters and merge them with Inspiration Helicopters (Pegasus Airlifts), which was recently sold to them by Bob Gillies. Dominion Helicopters became Dominion-Pegasus, with Jack Fleming as Chairman, Jim Plaxton as President, and Ernie Grant as Vice-President of Operations. This was the second largest Helicopter Company in Canada. Okanagan Helicopters bought out Dominion-Pegasus a few years later.

Jack Fleming retired to spend more time with his family. He saw the early underpowered helicopters in Canada mature and technologically change over time to become more efficient and effective through improved performance and economy of operation. His commitment to above-standard maintenance requirements by rotary wing engineers will be remembered by all who worked for him. Fleming's son, Michael, followed in his father's footsteps, running his own company and flying helicopters. Mike's son Mark is also a licensed rotary wing pilot and aircraft maintenance engineer (AME). \*

IN THIS ISSUE

Page

Cold Weather Flying Quiz .....1
Jack Fleming—An Aviation Pioneer Remembered.....2
Canadian Aviation Safety Seminar (CASS)—A Success .....4
Call For Nominations for the 2005 TC Aviation Safety Award .....4
Tips and Tails
Thunderstorm Stories .....5
Brown Out? .....5
The Eyes Have It .....6
Go Ahead, Have a Drink .....6
Accident Synopsis 1 April to 30 June 2004 .....8

## Canadian Aviation Safety Seminar (CASS)—A Success

### CASS 2004

CASS 2004 came to a successful close in Toronto on April 21, where nearly 400 delegates from industry and government participated. Delegates attended a very strong workshop program on day one, followed by one and a half days of presentations in plenary, by industry experts, on aviation safety and risk management topics. The emphasis throughout was placed on the continuing path towards the implementation of safety management systems (SMS). Several question and answer sessions allowed participants to discuss issues directly with guest speakers.

Dr. Scott Shappell, Manager of the Human Factors Branch of the Civil Aerospace Medical Institute of the Federal Aviation Administration (FAA), demonstrated HFACS (Human Factors Analysis and Classification System), which emphasizes the importance of addressing human factors in occurrence investigation, and the associated links in establishing accident intervention strategies. He also made an excellent point about the necessity for industry to acknowledge the importance of “general aviation,” as it is likely to become the primary pipeline for future commercial pilots, in comparison with past generations where the military route was more prevalent.

Captain Michael R. DiLollo, Director of Flight Safety at Air Transat, presented the SMS in place at his company. He demonstrated that once a company understands and buys into the SMS concepts and principles, there is no need to wait until it becomes mandatory. In support of the argument that aviation safety is an investment into “cost-avoidance,” he showed how his company, through their SMS, was actually able to measure avoided costs and improve safety. Captain DiLollo was unequivocal on how his company has bought into SMS early and now reaps the benefits of having implemented it.

CASS has been praised again by industry as one of the best aviation safety conferences in Canada. Since CASS 1998, coincidentally also in Toronto, the program’s quality and value for the industry have been very strong and have improved from year to year. Despite its successes in recent years,



however, CASS was still under represented in key areas: chief executive officers (CEO), aerodrome operators and air navigation service providers. Many aviation CEOs in Canada were passing on the event, sending middle managers and line staff, as the perception may have been that the “executive” value was not considered sufficient. This led to the creation of the Canadian Aviation Executives’ Safety Network (CAESN), which consists of a full day of dialogue between Canadian aviation executives and key decision makers. The inaugural CAESN meeting was held in April 2003 in Montreal, concurrently with CASS 2003, and was repeated this year in Toronto. Gathering the industry leaders for a productive annual meeting while getting them to CASS at the same time was quite a feat! Read more on CAESN on our Web site at: [www.tc.gc.ca/CivilAviation/SystemSafety/CAESN/menu.htm](http://www.tc.gc.ca/CivilAviation/SystemSafety/CAESN/menu.htm).

### CASS 2005

CASS 2005 is taking place from April 18 to 20, 2005, in Vancouver, British Columbia at the Fairmont Hotel Vancouver. The theme is *Aviation Risk Management in the 21<sup>st</sup> Century*.

CASS 2005 aims to explore innovative methods for managing the risks that confront civil aviation. The keynote address will be delivered by Donald J. Carty, retired Chairman and CEO, AMR Corporation, the parent company of American Airlines and American Eagle, as well as the past President of CP Air. Mr. Carty will be joined by leaders in risk management not only from the air industry but also from academia, government and other industry sectors.

For more details on CASS 2005, please visit our Web site at: [www.tc.gc.ca/CASS](http://www.tc.gc.ca/CASS). 🍀

## Call for Nominations for the 2005 TC Aviation Safety Award

*Do you know someone who deserves to be recognized?*

The Transport Canada Aviation Safety Award is presented annually to stimulate awareness of aviation safety in Canada by recognizing persons, groups, companies, organizations, agencies, or departments that have contributed in an exceptional manner to this objective.

You can obtain an information brochure explaining award details from your Regional System Safety Offices, or by visiting the following Web site: [www.tc.gc.ca/CivilAviation/SystemSafety/brochures/tp8816/menu.htm](http://www.tc.gc.ca/CivilAviation/SystemSafety/brochures/tp8816/menu.htm).

The closing date for nominations for the 2005 award is **December 31, 2004**. The award will be presented during CASS 2005. 🍀

# Tips and Tails

*Tips and Tails is a forum for you to share information with your fellow pilots. We're looking for those little tricks you use to deal with a specific challenge, or more elaborate tales of how a lesson was learned. Because of the nature of this exchange, publication here does not imply that Transport Canada endorses the techniques or procedures. Pilots should use their professional judgement in assessing the value of these ideas for their individual operations. If you have something to contribute, refer to the editorial / credit bar on page 3 for details on how to contact us.*

## Thunderstorm Stories...



*In issue 3/2004, we ran an article called Stormy Weather, in which the potential dangers of thunderstorms were discussed. In response to that article, we have two more accounts that highlight readers' experiences with this phenomenon. Both highlight the extremely unpredictable nature of cumulonimbus clouds, their enormous power, and their potential to cause disaster. Remember, the ONLY method that helicopter pilots have for dealing with thunderstorms is to give them a wide berth. —Ed.*

The geologist and I were headed back to camp in our Hughes 500D one late-summer afternoon, when the western sky began to take on an intimidating grey colour. It quickly became evident that there

was a line of thunderstorms headed our way. As I didn't have a huge reserve of fuel, I decided that going around it was out of the question—I'd have to land and sit it out. Of course, I pressed on a little too far, not realizing how fast the line was approaching. When it began to rain heavily, I was still flying around looking for a suitable landing place—a small marsh or clearing, anything would do, but there weren't many of them.

I turned around and headed back towards the east to try and outrun the storm while looking for some terra firma for the skids. I finally found a small bog with plenty of room, and landed up close to the western edge, snuggled up into the Spruce trees for shelter.

Big mistake. The winds were now howling, probably in the order of 50 kt, with large spreads in the gusts. The trees began to gyrate in the squall to the point that I feared they would break off and strike the rotor. I couldn't shut down, as the gusts would surely cause the rotor blades to sail and relieve the helicopter of its tail boom. Lifting off and moving the aircraft was out of the question. In short, we were out of options.

The rain, wind, thunder and lightning continued for about 10 min, but it seemed like hours. Watching the Spruce trees bend almost to the point of breaking was nerve-racking to say the least, and I couldn't believe how stupid I was to get myself into a situation like that with no way out. Needless to say, I had the accident report already written in my head many times over.

*Name withheld by request*

---

## Brown Out?

I was flying a 206L across a vast expanse of prairie country. The build-ups were getting larger and more frequent as the day progressed, and I knew I'd be lucky to get through to my destination without getting seriously wet at some point during the day.

The weather held for most of the trip—there were a few storms around but no problems along my direct track. About 30 min from destination, a line of cells lay across my path, but it looked like I could easily go between two of them with only a small deviation from my route and a little rain to fly through.

I pointed the Long Ranger toward the gap, and could see through the rain to the other side without difficulty. Something looked funny, though—the outer edge of the storm cells and the rain showers

between them had a brownish tint to them, not the usual grey. I dismissed this as being a product of the funky lighting and the vast expanse of brown prairie that dominated the landscape, and pressed on into the tempest.

The winds picked up as I approached the line of weather, and I was pleasantly surprised to find the groundspeed steadily increasing on the GPS. A few large drops of rain began smacking the windshield, and I concentrated on the bright patch of light that represented the other side, and clear weather. The rain got heavier, with giant drops exploding against the Plexiglas, reducing visibility significantly, but I had expected that.

What I had not expected was for my windshield to turn brown with mud. I was now between the two cells, and the rain had turned to large drops of mud, which I presume had been roiled up from the dry prairie below. I had zero visibility out the front, and



precious little out the side. I started to think about the engine—all that grit couldn't be doing it any good. I had a particle separator, but I wasn't sure that the manufacturer had thought about 1/2 mi. in mud when the thing was designed.

It only lasted a minute or two, and I was out the other side, still covered in mud. I knew that nobody would believe what had just happened, or at least

believe how bad it was, so I couldn't wait to get to my destination to snap a picture. As luck should have it, it began to rain again—real rain this time, the clear stuff—and I arrived with a relatively clean aircraft. Traces of the muddy encounter remained, but nothing like when I emerged from the line of storms.

*Name withheld by request*

### **The Eyes Have It**

While I was on vacation in Hawaii last winter, I met a retired U.S. helicopter pilot who related a lesson to me about spatial disorientation that he said he would never forget. The story went something like this:

One of his former classroom instructors, who also coached little league baseball in his spare time, would show up to the evening helicopter ground school classes armed with a bagful of baseball bats.

As the late evening lectures progressed, and enough of the students' eyelids began drooping, the instructor would stop the lesson. He would then hand out a baseball bat to each student, have them all stand up on one foot, and balance their bats vertically in the palms of their hands for a few minutes.

After a few of these evening escapades, one brave student challenged the instructor as to what purpose the bat-balancing exercises provided. To which the instructor replied, "to improve your piloting skills should you ever approach being engulfed in IMC [instrument meteorological conditions] flight conditions."

After many subsequent evening lectures, the budding helicopter students soon became quite proficient at baseball-bat balancing; some becoming cocky enough to balance two bats—one vertically in each hand—while walking around the classroom.

During one particular evening lesson, towards the end of the ground school course, the instructor initiated the bat-balancing routine for the last time, but with a new twist. He asked the students to balance their bats for as long as they could as if their very lives and the lives of every student around them depended upon it.

Then, after mere seconds into the balancing routine and without warning, the instructor shut off the classroom lights. The sound of baseball bats crashing to the classroom floor was deafening; the silence thereafter even more so.

To which the instructor replied in the darkness, "Gentlemen, your eyes are your best friends; without your eyesight your best piloting skills are useless when flying VFR into IMC. Avoid it at all costs and you may live to retirement."

That retired U.S. helicopter pilot on the Hawaiian beach was proof enough for me.

*Name withheld by request*

### **Go Ahead, Have a Drink**

*by LCdr. Denny Shelton*

*Hopefully, you will remember an article on dehydration that we published a couple of years ago (I Need a Drink, Vortex 3/2002). That piece examined some of the physiological effects associated with failing to drink enough fluids. An excellent example of what can happen appeared in the May–June 2004 issue of Approach, the aviation magazine of the United States Naval Safety Center. The following is an adaptation of that article. The story is about a fixed wing aircraft of unknown type, but the message is universal. It's chilling to think about how this story would have ended had there not been an instructor on board. —Ed.*

Summer in South Texas—what could be better? I mean, the fishing is good and the beer is cold! OK, the heat is oppressive, the days are long, and Corpus Christi Approach occasionally calls out radar contact on the mosquitoes.

I was a well-established instructor pilot (IP), about to take what seemed like my millionth student for early manoeuvres familiarization. Our flight was scheduled for just after lunch, right as the sun was approaching its highest point. The student was solid and a real go-getter; the pressure he exerted on himself was more than I ever could. We completed our brief and walked to the aircraft for pre-flight. As promised, the temperature was in the high 90s (F), and the humidity was matching. We were sweating profusely, and I was more than glad this was not a "fam 1" flight, where it would take a good 30 min just to get the air conditioning going.

Once airborne, we practiced level turns, and, after chasing the horizon with the nose a couple times, I took the controls. I began my normal lecture about fixing a point on the nose with the horizon and then pulling that point across the blue Texas sky. We completed a 360 at 45° bank angle one way, rolled through level and into a 45° bank in the other direction.

Halfway through the turn, my student said he didn't feel well, so we rolled out. I offered sage advice about going to 100-percent oxygen, turning up the air conditioning, looking at the horizon, and making sure your sick bag is ready—just in case. When I thought everything was all right, I saw my student go for the bag! No big deal, I've been here before; just wait until he's done and return to base. Nope—fate dealt me a different set of cards this time as I saw his entire body stiffen, go into convulsions, and then go limp.

"Holy *frijoles*" and "*Madre de Dios*," I exclaimed. This kid just died on me, and I can't do a thing about it. Not only that, but, when he convulsed, his feet shot up under the pedals and jammed them solid—no rudder control at all for the home team. After what seemed like four hours, but was actually about 10 seconds, I saw his chest rise and fall in a normal rhythm. But, he still was out cold.

I turned toward Corpus, calling to my student and going over contingencies in my mind. I'll make as many approaches as I need to put down safely,

even if it means gear up. If I don't feel I can get it down and bring us home, then I'll point it toward the Gulf and take the silk-nylon elevator down.

As it turned out, I never had to make any approaches with stuck pedals. After about 2 min, my co-pilot woke enough to understand me, but it still took a couple seconds for him to become coherent.

We landed, and I got my student to medical for a complete check-up. He returned to flight status soon after.

What happened up there? He experienced a combination of several physiological effects. First and foremost, he was dehydrated, which lowered his tolerance for stress. The dehydration also helped to bring on the nausea and affected his blood pressure. When he became sick, he lost by cutting off the blood supply to his brain, which turned out his lights in a dramatic show.

I should have had him drink water before we even went flying, especially since his flight suit was drenched before we strapped in the plane. 🍀

## **Accident Synopsis 1 April to 30 June 2004** *cont. from page 8*

Source: Transportation Safety Board of Canada (TSB)

disassembled and the fuel control and oil pump spur gearshaft was found to have broken in two pieces, and there was extensive damage to the gearbox and all associated gearing. The parts will be sent to the TSB Engineering Lab for further study.  
**A04P0202, BELL HELICOPTER, 206B, DEASE LAKE, 45 NM S, BRITISH COLUMBIA, 2004/06/07**—The Bell 206 helicopter was being used to sling equipment into a mining camp south of Dease Lake, B.C. During one takeoff, after releasing the slung load, the tether moved aft and contacted the tail rotor. The helicopter landed hard and the main rotor chopped off the tail section. There were no injuries.

**A04P0206, MD HELICOPTERS, MD369D, BOB QUINN AIRSTRIP, BRITISH COLUMBIA, 2004/06/11**—The MD Helicopters (HUGHES) 369D was on departure from Bob Quinn airstrip, B.C., with a sling load when it experienced an engine malfunction/power loss (Rolls Royce Allison 250 C20B). The pilot performed an auto-rotation to the ground, but the helicopter rolled over on touchdown. The pilot was not injured but the 369D was substantially damaged. The engine will be disassembled and examined in order to determine the cause of failure.

**A04P0229, BELL HELICOPTER, 212, ELIGUK LAKE, BRITISH COLUMBIA, 2004/06/21**—The Bell 212 helicopter was engaged in water-bucketing

from Eliguk Lake, B.C., to support fire-fighting operations nearby. As the pilot descended to the lake surface with the water-bucket attached, the tail rotor struck the water, causing the helicopter to enter the water and submerge. The pilot escaped with minor injuries.

**A04P0240, AEROSPATIALE, AS350B2, FLOURMILL VOLCANO, BRITISH COLUMBIA, 2004/06/25**—The Eurocopter AS350B2 was in a hover after lifting off from a sloping hill-side helipad, with the pilot and 3 passengers on board. As the pilot climbed to about 20 ft AGL and began to turn left, the main rotor RPM began to decay and the low rotor RPM warning horn sounded (at 360 RPM). The pilot continued the left turn and attempted to return to the helipad; however, the helicopter had descended and drifted left in the turn and was now below the pad. As a result, the main rotor blades struck a tree stump adjacent to the pad and rolled over. The passengers escaped rapidly, while the pilot delayed his exit to shut the engine down. The helicopter was substantially damaged but the occupants sustained minor injuries. There was no fire. The occupants were later retrieved by another helicopter and taken for medical observation. 🍀

## Accident Synopsis 1 April to 30 June 2004

Source: Transportation Safety Board of Canada (TSB)

### **A04A0033, AEROSPATIALE, AS350B, GOOSE BAY, NEWFOUNDLAND AND LABRADOR, 2004/04/01**

The AS350B helicopter was on a positioning flight from Pasadena, Nfld., to Goose Bay, Nfld., via Blanc-Sablon, Que. After the helicopter had landed on the company pad in Goose Bay, and the pilot had completely lowered the collective and engaged the collective down lock, a severe vibration developed and the helicopter started to rock fore and aft on the landing gear skids. The pilot immediately shut down the engine and the vibration subsided as the main rotor spooled down. Inspection of the helicopter following the occurrence revealed that one of the arms on the main rotor head starflex had broken off. The helicopter also sustained damage to the tail boom and fuselage in the area where the tail boom attaches to the fuselage.

### **A04C0093, BELL HELICOPTER, 206B, ISLAND LAKE AIRPORT, 3 NM SW, MANITOBA, 2004/05/05**

The pilot of a Custom Helicopters Bell 206B had taken off from the Island Lake, Man., airport en route to St. Theresa Point, Man., to pick up passengers for a charter flight. The weather was 3/4 mile visibility in light snow with an overcast ceiling at 500 ft. The pilot climbed south-westerly to 300 ft above ground level (AGL) and flew over a snow-covered frozen lake using the far shoreline as a visual reference. Contact with the shoreline was lost in the resulting whiteout conditions and the pilot slowed the helicopter to begin a gradual descent. Visual reference was regained but the helicopter struck the frozen lake surface. The helicopter bounced and the pilot issued a Mayday call before the helicopter re-contacted the ice and slid to a stop. The helicopter was in a level flight attitude at approximately 40 mph when contact was made. The pilot was uninjured and inspected the helicopter for damage. On site, the damage was assessed as minimal, and the pilot flew the helicopter back to Island Lake. A hard landing inspection is to be completed; however, preliminary information is that both skid tubes are damaged and the strike pin, mounted on the bottom of the transmission, made contact with the strike plate.

### **A04A0050, AEROSPATIALE, AS350B3, TABUSINTAC, 2 NM E, NEW BRUNSWICK, 2004/05/15**

The AS350B3 (AStar) helicopter was conducting aerial surveillance of a lobster fishing dispute off the coast of Tabusintac, N.B., at an altitude of 700 ft above sea level (ASL). During a right turn downwind, a cockpit alarm sounded, accompanied by the illumination of the red "gov" light. The pilot continued the right turn and headed toward

the shore for a precautionary landing. Seconds later there was an increase in rotor RPM (RRPM) above limits, and a severe vibration developed. He then lowered the collective and reduced twist grip throttle, but there was no apparent reduction in RRPM. Believing he did not have manual control of the throttle, the pilot reopened the throttle to the "flight" detent, and tried to reach the overhead fuel control mode selector switch to move it to the "man" position; however, he was unable to activate the caged switch because of high vibrations in the cockpit. He then raised the collective to see if he could decrease RRPM, but there was no apparent change. As the aircraft was in rapid descent and was nearing the ground, he abandoned his attempts to select the switch to "man" and focussed instead on landing on the beach. At landing, the pilot was still not able to reach the overhead switch, and severe ground resonance developed. In an effort to stop the ground resonance, he lifted the helicopter into a hover. However, the vibrations continued, so the pilot landed a second time. This time the pilot managed to grasp and pull the ceiling-mounted fuel shut-off lever to shut down the engine. After the main rotor came to a stop, the pilot and two passengers exited the helicopter uninjured.

### **A04Q0084, EUROCOPTER, AS350D, HAVRE ST-PIERRE, 60 NM NE, QUEBEC, 2004/06/02**

The AS350D was manoeuvring to land in a restricted area. The tail rotor hit a branch that was 1½ in. in diameter. The pilot landed without any difficulty controlling the helicopter. The tail rotor blade trim tab was bent and one blade was delaminated.

### **A04W0110, BELL HELICOPTER, 206B, VICINITY TOMMY LAKES, BRITISH COLUMBIA, 2004/06/04**

The Bell 206B helicopter was en route from a staging area near Tommy Lakes, B.C., to a forestry cut block approximately 12 mi. away, when the aircraft suddenly yawed to the left. The pilot corrected, and then saw the engine (Allison 250-C20) chip and engine out lights illuminate and heard the engine-out horn. The pilot transmitted a Mayday call and initiated a forced landing. The helicopter struck trees during the forced landing and sustained substantial damage to the main rotor blades, the tail boom junction and the cross tube mounts. The pilot and three passengers were uninjured. The helicopter has been transported to the TSB Regional Wreckage Examination Facility in Edmonton, Alta., for examination. Update, 10 June: The engine was

*cont. on page 7*