

ParkinsonPost

A magazine for Canadians living with Parkinson's

Parkinson's and the environment

What we know
and what we don't

Searching
for a cause

PLUS

April is Parkinson's
Awareness Month

Can omega-3
protect you
against PD?

Stories from
the Front

TEAM PARKINSON
Parkinson Society Canada
Société Parkinson Canada



Parkinson Society Canada
Société Parkinson Canada

Ease the Burden; Find a Cure

THE PARKINSON LEGACY

What if *your* legacy is the one that makes a cure possible?

By making a planned gift through **The Parkinson Legacy**, you will be providing Parkinson Society Canada with the resources to fund research that will ultimately lead to a cure for Parkinson's disease. Your **Legacy Gift** will give hope for those living with Parkinson's today and will lead to a cure tomorrow. This will be your Legacy.

There are numerous ways that you can make a **Legacy Gift**. Here's how:

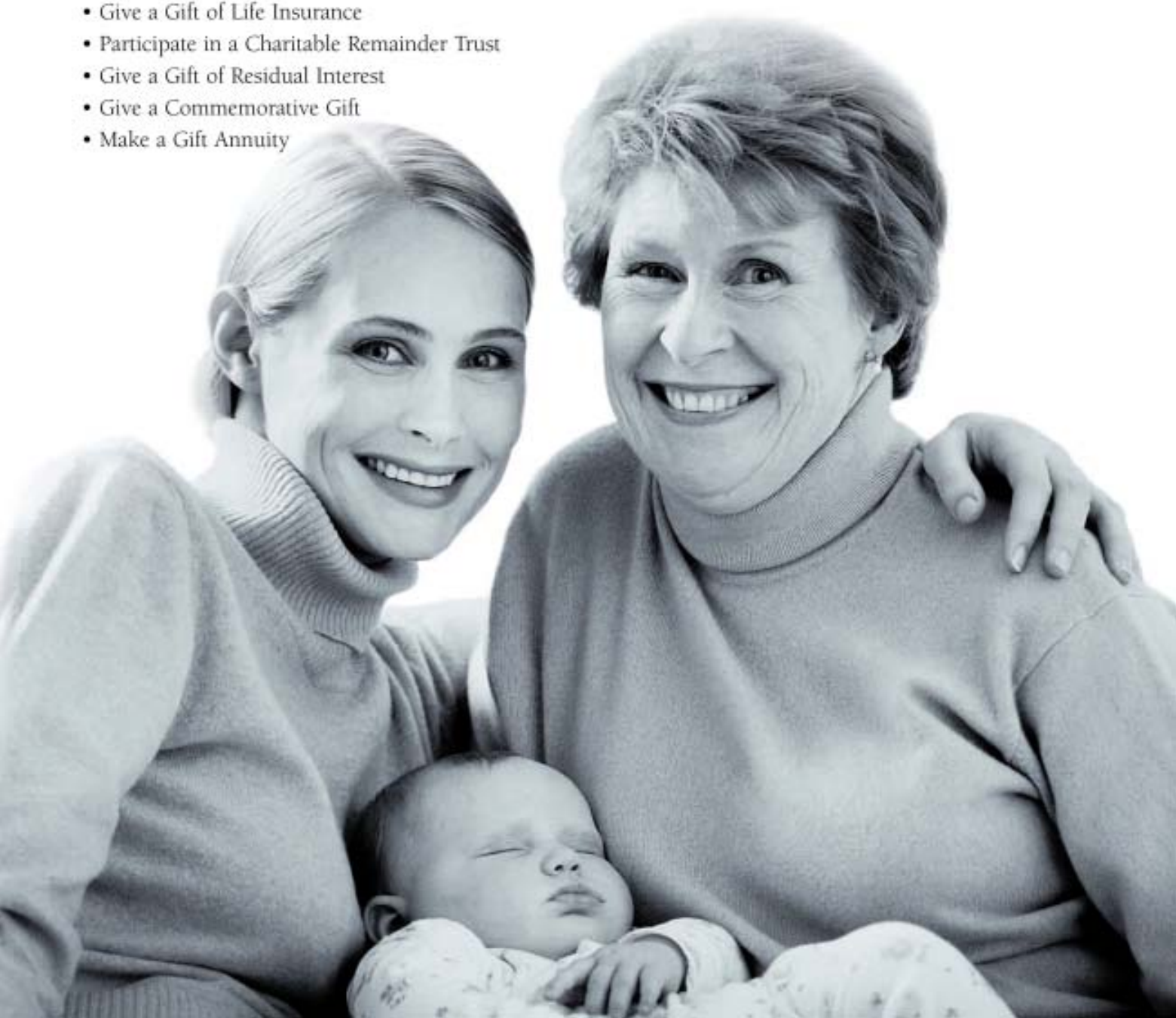
- Include a bequest in your Will
- Give a Gift of Life Insurance
- Participate in a Charitable Remainder Trust
- Give a Gift of Residual Interest
- Give a Commemorative Gift
- Make a Gift Annuity

To discuss your **Legacy Gift** or to request an information kit, please call: (416) 227-3385
Toll Free: (800) 565-3000, ext. 3385.

*A gift of hope for today
and tomorrow*



Parkinson Society Canada
Société Parkinson Canada





Editorial Advisory Committee

Bonnie Clay Riley

Person with Parkinson's
B.C.

Rebecca Gruber

Physiotherapist
Ontario

Beth Holloway

Person with Parkinson's
Newfoundland and Labrador

Dr. Mandar Jog

Neurologist
Ontario

Gisele Marcoux

Coordinator of Direct Services
Parkinson's Society
of Southern Alberta

Dr. Michel Panisset

Neurologist
Quebec

Barbara Snelgrove

Director
Education and Services
PSC National

Marjie Zacks

National Director
Communications and Marketing
PSC National

ON OUR COVER:

Dr. Shawn Hayley and other researchers are carefully exploring the connection between Parkinson's and the environment. Read about their work on page 8.

Scanning our environment

Just as we talk about understanding the impact of the environment on Parkinson's disease (PD) and the role it plays, so too is it important to understand our own Parkinson's environment. What are the needs of people living with Parkinson's? How can we better support them? What are the needs of our researchers in Canada? How can Parkinson Society Canada (PSC) better support them? How can we work better together? How can PSC do better in building on our collective past to enhance a new future? With input from all stakeholders, the National Summit was our opportunity to determine how to best create a brighter future for people living with Parkinson's.

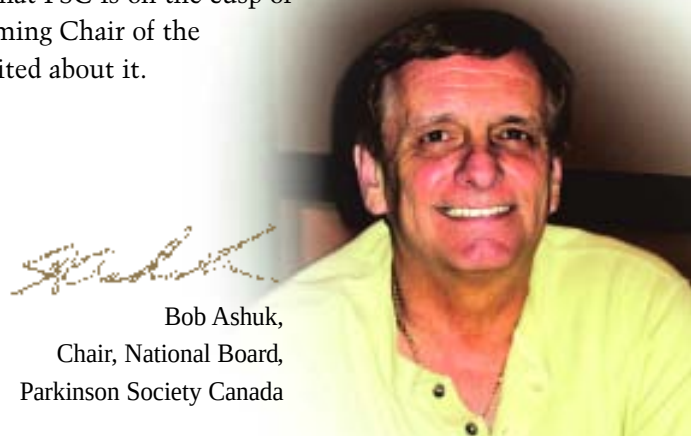
This past November, PSC took the opportunity to scan our environment and to take the pulse of our own organization. We gathered information from over 200 people across the country by phone, web interview and in person at the four-day Summit.

It was a very empowering few days and bodes well for the future of Canadians living with PD. We were successful in articulating a clear, shared vision and a set of values to guide PSC in meeting the needs of people living with Parkinson's. Together we were able to take steps toward establishing key strategic directions in all of PSC's work on behalf of those we serve. We recognized our existing strengths—research, collaboration, communication & public relations, advocacy, support, information and education, committed volunteers, maintaining quality of life—and we celebrated our successes.

You could feel the excitement in the room, and many people spoke about their commitment to the future: to raising more money, to making sure we have the right support services, to speaking with one voice, and to the sense of belonging and appreciation for providing the opportunity for those with PD to give voice to their priorities and needs.

There was energy and enthusiasm. There was pride in PSC and its accomplishments. There was determination to do things better, to strengthen internal relationships, to work more effectively together, to improve communication among stakeholders, to reach out to rural audiences and to youth, and to ensure we maintain a credible and respected peer review process for research funding.

It is this commitment to do better for people with Parkinson's that leaves me with the sense that PSC is on the cusp of something terrific. As the incoming Chair of the National Board of PSC, I'm excited about it.



Bob Ashuk
Bob Ashuk,
Chair, National Board,
Parkinson Society Canada

FEATURES

Research

**Parkinson's and the environment:
What we know what we don't** **8**

**The view from the lab:
Researchers offer insight
into the environment.** **11**



**Parkinson Society Canada
presents over \$645,000 in funding.** **13**

Can omega-3 protect against PD? **14**

COLUMNS

**Letter from
Parkinson
Society
Canada**
**Scanning our
environment.** **3**

Regional Partners/Roundup
**Highlights from PSC
partners across Canada.** **5**

The Advocate
**Parkinson's and the
environment: Is there
a connection?** **7**

**April is Parkinson's
Awareness Month**
Stories from the Front.



It's time to find out why.

**Canada's best and
brightest meet in Ottawa.** **16**

Volunteer Awards
**Outstanding volunteers
win top honours.** **17**

**Older adults, health
and the environment.** **18**

**What can I do to minimize my
exposure to environmental
contaminants?** **19**

Donald Calne Lecture
Beyond the decade of the brain. **20**



First Person
**Searching for a cause:
Four readers share
their thoughts on
their condition.** **22**



Website Highlights
**Learn what's new
on-line at
www.parkinson.ca.** **23**

Parkinson Post Vol. 8, Issue 1,
Spring 2008

Parkinson Society Canada
4211 Yonge Street, Suite 316,
Toronto, ON M2P 2A9

Editor:
Marjie Zacks

Publisher:
BCS Communications Ltd.

How to contact Parkinson Post:

Parkinson Post
4211 Yonge Street, Suite 316
Toronto, ON M2P 2A9
Phone: (416) 227-9700
Toll Free: (800) 565-3000
Fax: (416) 227-9600
E-mail: editor@parkinson.ca
subscriptions@parkinson.ca
Website: www.parkinson.ca

Parkinson Post (ISSN #1489-1964) is the official publication of Parkinson Society Canada and is published three times a year by BCS Communications Ltd., 255 Duncan Mill Road, Suite 803, Toronto, ON M3B 3H9. Tel: (416) 421-7944 Fax: (416) 421-8418. All rights reserved. Contents may not be reproduced without permission of Parkinson Society Canada. Printed in Canada. All material related to Parkinson's disease contained in this magazine is solely for the information of the reader. It should not be used for treatment purposes. Specific articles reflect the opinion of the writer and are not necessarily the opinion of Parkinson Society Canada or the publisher. Canadian Publication Mail Sales Product Agreement No. 40624078. © 2008

Advertising Policy

The acceptance of advertising in *Parkinson Post* is not an indication that Parkinson Society Canada or any of its divisions endorses any of the products or services listed. For people living with Parkinson's, it is recommended they consult their health professionals before using any therapy or medications. Parkinson Society Canada accepts no responsibility for any claims made in any advertisement in *Parkinson Post*.

Our mission

*Parkinson Society Canada/
Société Parkinson Canada
is the national voice of
Canadians living with
Parkinson's. Our purpose
is to ease the burden
and find a cure through
research, education,
advocacy and support
services.*



Parkinson Society Canada
Société Parkinson Canada

National Office and Regional Partners

For information, programs and services in your area, or to make a donation, contact the following offices:

PSC National Office

4211 Yonge Street, Suite 316
Toronto, ON M2P 2A9
Ph: (416) 227-9700
Toll Free: (800) 565-3000
Fax: (416) 227-9600
www.parkinson.ca

Parkinson Society British Columbia

890 West Pender Street, Suite 600
Vancouver, BC V6C 1J9
Ph: (604) 662-3240
Toll Free (BC only): (800) 668-3330
Fax: (604) 687-1327
www.parkinson.bc.ca

- Fundraising gala "An Affair to Remember," with special guest Rasheda Ali, will be held Thursday April 3, 2008, at the Pan Pacific Hotel in Vancouver. Media interviews with Ali and a presentation to Pacific Parkinson's Research Institute students will coincide with the gala.
- This April, we will launch a new awareness campaign titled "You Are Not Alone," consisting of a 30-second television spot on Global-TV, 30-second spots on three radio stations, 23 bus ads, and four ads in *TV Week* magazine.

Victoria Epilepsy and Parkinson Centre

813 Darwin Avenue
Victoria, BC V8X 2X7
Ph: (250) 475-6677
Fax: (250) 475-6619
www.vepc.bc.ca

- We will be working with community groups to train volunteer visitors to socialize and explore basic relaxation techniques with anxious clients.
- The annual golf tournament has secured a million dollar hole-in-one prize, the largest in BC.
- "Pouring for Parkinson's" was held at a local organic cidery and received outstanding promotion. Plans are underway to expand the event into wineries.

The Parkinson's Society of Alberta

Edmonton General, Room 3Y18
11111 Jasper Avenue
Edmonton, AB T5K 0L4
Ph: (780) 482-8993
Toll Free: (888) 873-9801
Fax: (780) 482-8969
www.parkinsonalberta.ca

- Our Annual General Meeting is on April 19, followed by the 30th Annual Annie Wyley Memorial Lecture.
- Three thousand potted tulips were sold across central and northern Alberta to kick off Parkinson's Awareness month.
- A new "Strategies to Live Better with Chronic Conditions" workshop for Parkinson's began in February.
- A second speech practice group started in February 2008.
- Spruce Grove/Stony Plain Support Group has been re-established.

The Parkinson's Society of Southern Alberta

102-5636 Burbank Crescent SE
Calgary, AB T2H 1Z6
Ph: (403) 243-9901
Toll Free (Alberta): (800) 561-1911
Fax: (403) 243-8283
www.parkinsons-society.org

- PSSA & the Hotchkiss Brain Institute began meetings to create a new team in Parkinson's disease research in Southern Alberta.
- We are the charity of choice for the Woody's RV Marathon in Red Deer for May 2008.
- There is a new friendship group in Lethbridge for care partners who have lost their loved ones to PD.
- The Safeway "We Care" campaign in Medicine Hat raised \$13,300 for PSSA.

Saskatchewan

Parkinson's Disease Foundation

103 Hospital Drive, Box 102
Saskatoon, SK S7N 0W8
Ph: (306) 966-1348

Fax: (306) 966-8030

E-mail: spdf@sasktel.net

- The first annual Parkinson's Research Fashion Show was held on December 2, 2007 with great success!
- On April 4 and 5, 2008, the Regina Curling Classic for Parkinson's Research, a fun bonspiel, will be held at the Callie Club and Victoria Club in Regina. We are looking for curling teams.
- We are currently planning SuperWalk 2008 in Saskatoon, and we would greatly appreciate the help of volunteers. Please call our office for details.

Parkinson Society Manitoba

171 Donald Street, Suite 302
Winnipeg, MB R3C 1M4
Ph: (204) 786-2637
Toll-Free: (866) 999-5558
Fax: (204) 786-2327

- The 2008 Regional Conference is being held on Saturday, April 26, in Winnipeg. The keynote speaker is Dr. George Turnbull, Associate Dean of the Faculty of Health Professions at Dalhousie University.
- The 10th Annual Golf Classic will be held on Monday, May 26, at Breezy Bend Country Club.
- On November 10, 2007, the Westman Region Support Group organized a special session in Brandon with guest speaker Dr. Doug Hobson. Ninety people attended.

PSC Central and Northern Ontario Region

4211 Yonge Street, Suite 321
Toronto, ON M2P 2A9
Ph: (416) 227-1200
Toll Free National: (800) 565-3000
Fax: (416) 227-1520

continued on page 6



Parkinson Society Canada
Société Parkinson Canada

- ▶ "Hope on Display," the annual presentation of the talents and skills of people who have Parkinson's, will be held in Barrie (April 1) and Toronto (April 10).
- ▶ "Cut-A-Thon." Get the benefit of a great haircut by a first-class professional stylist for a fraction of the cost on April 27th in Toronto, Collingwood, Guelph, and Barrie.
- ▶ Royal Botanical Gardens. On April 9, come and hear Dr. Susan Fox, and on April 5 in Peterborough, hear Dr. Mark Guttman and Dr. John Adams.
- ▶ In the last issue, the Central and Northern Ontario Region choir was referred to as Voice of Hope. The correct name is "Voices of Hope."

PSC Southwestern Ontario

4500 Blakie Road, Unit #117

London, ON N6L 1G5

Ph: (519) 652-9437

Toll Free Ontario: (888) 851-7376

Fax: (519) 652-9267

- ▶ With the addition of a new Walk in Stratford, the 2007 SuperWalk for Parkinson's raised a regional record of \$272,015 (gross).
- ▶ The first set of trainers for PEP for Community Caregivers successfully achieved their certifications in November. Since the launch of this innovative train-the-trainer program, 18 trainers have held more than 100 total presentations to over 400 total participants.
- ▶ There are many Parkinson's Awareness Month activities, including "Spell the End of Parkinson's," a tulip benefit for Parkinson's, fresh-cut tulip sales, and the "Cut-A-Thon for Parkinson's."

Parkinson Society Ottawa

1053 Carling Avenue

Ottawa, ON K1Y 4E9

Ph: (613) 722-9238

Fax: (613) 722-3241

www.parkinsons.ca

- ▶ We had an extremely busy winter with many activities throughout the Eastern Ontario area. Speech therapists, sponsored by the Society, have visited most of the region's 16 support groups to provide support on speech and swallowing issues. The therapists are also leading a new education workshop, "Practically Speaking," in February.
- ▶ The Fourth Annual Yuk Yuk's Comedy Night for Parkinson's came close to selling out, with more than 750 patrons, on January 26. The strong community support for this event makes it one of the biggest comedy events in Ottawa, with many returning fans.
- ▶ PSO will again be active during April and is working to have April proclaimed by mayors across the region as Parkinson's Awareness Month in Ottawa, Pembroke and Cornwall. April will also offer allow our organization to publicly thank our many board, support group, office, event, program and fund-raising volunteers, whose support is vital to the important work that we do.

Parkinson Society Quebec

550 Sherbrooke Street West

Office 1470, Tower West

Montreal, QC H3A 1B9

Ph: (514) 861-4422

Toll Free: (800) 720-1307

National francophone line

Fax: (514) 861-4510

www.parkinsonquebec.ca

- ▶ The Society will host its premier event on April 11, 2008, the "Enchanted Tulip Ball," hosted by the honourable John Gomery at Windsor Station in Montreal. The Ball will benefit people living with Parkinson's and in continuing research. Above all, the event will be a fun night of dancing with an 18-piece orchestra to keep all entertained!

Parkinson Society Maritime Region

5991 Spring Garden Road, Suite 830

Halifax, NS B3H 1Y6

Ph: (902) 422-3656

Toll Free (NS, NB & PEI):

(800) 663-2468

Fax: (902) 422-3797

www.parkinsonmaritimes.ca

- ▶ Fredericton hosts its sixth annual Porridge for Parkinson's, and Bridgewater hosts its second in conjunction with the Kiwanis Club.
- ▶ We will host Tilda Shalof, a critical care nurse and the best-selling author of *A Nurse's Story*, as she launches her new book in Halifax and Moncton during April Awareness Month.
- ▶ Vogue Optical Summerside received the 2007 SuperWalk Team Challenge Award for raising the most money. The final tally for the event has surpassed \$170,000, which is a 43 per cent increase over 2006.

Parkinson Society Newfoundland and Labrador

The Viking Building

136 Crosbie Road, Suite 305

St. John's, NL A1B 3K3

Ph: (709) 754-4428

Toll Free (NL): (800) 567-7020

Fax: (709) 754-5868

- ▶ Tulip bouquets were delivered to sponsors, local media, and government officials at the end of March.
- ▶ The NL Society's 20th anniversary and World Parkinson Day was celebrated by a cake cutting in the foyer of Confederation Building in St. John's.
- ▶ Our breakfast event, "Platters and Plates for Parkinson's," will take place at the College of the North Atlantic on Sunday April 12, 2008.
- ▶ April Awareness proclamations will be signed by several town councils.



Parkinson Society Canada
Société Parkinson Canada

Issues of interest to people with Parkinson's

Parkinson's and the environment: Is there a connection?

By Yvon Trepanier, Chair, National Advocacy Committee

Since being diagnosed with Parkinson's disease five years ago, I've learned that grappling with unanswered questions is part of the Parkinson's journey. In this day and age, one might think that basic facts would be readily available, but the reality is that approximately 100,000 Canadians have Parkinson's and nobody knows why.

It certainly isn't for lack of effort on the part of researchers. Parkinson's is a very complex disease that continues to confound even the brightest and most dedicated scientists. A quick Google search will highlight the vast areas of investigation. However, much of the discussion about potential cause focuses on three key themes: genetics, trauma, and environment (Geoparkinson Study, University of Aberdeen, 2005).

As someone with no family history of Parkinson's, and no head injury, understanding the environment and its potential connection to this disease has become crucial. And, as the Chair of PSC's National Advocacy Committee, I hear from people across Canada who share my concern. But what do we really know for sure?

In the U.S., the Collaborative on Health and the Environment (CHE) set up a Parkinson's disease working

group to explore potential links. The "environment" refers to the entire world around us and includes pathogens (germs, viruses), toxic chemicals, and heavy metals.

Clearly, germs travel from person to person quite readily. Food, groundwater, and surface water may all contain pesticide residues. Airborne pollen may be another source of exposure. Some parts of the country have high levels of heavy metals that are naturally occurring in the water supply. Fertilizer products that contain hazardous industrial waste are another potential source of heavy metals in the environment. Sewage sludge, which is land-applied to farmland as a fertilizer, can contain pesticide residues and other chemicals, heavy metals, and pathogens. Furthermore, occupation or workplace may place a person in contact with some of these contaminants.

Various studies suggest a connection, specifically to herbicides, pesticides and heavy metals such as aluminum, iron, manganese and lead. In fact, these elements have been strongly linked to Parkinson's disease in animal studies.

In December 2000, Dr. Deborah Cory-Sechta published research findings in the *Journal of Neuroscience*

that raised concern about exposure to a combination of chemicals. Understanding that the safety level of a toxic chemical is determined based on the effects of that single substance, the study tested the impact of exposure to mixtures of chemicals. Findings revealed that when animal models were exposed to a combination of toxic chemicals, they developed the early symptoms of Parkinson's disease.

It is important to note that not all scientists agree. It is suggested that the cause may lie in the combination of environmental risk factors and a genetic predisposition—where "the genetics load the gun and the environment pulls the trigger."

Environmentalists have been beating the drum for decades: whatever we put into the air, the water and the land, we also put into our bodies. In truth, many questions remain about the relationship between the environment and Parkinson's disease and much more work is needed. More research must be funded and more Canadians must actively educate themselves about what chemicals are being used in their communities and the potential implications, if for nothing else than overall better health.

Parkinson's and the environment:

What we know and what we don't

By Ian Corks

It's no longer a question of whether or not the environment is a factor in Parkinson's disease (PD). In recent years, researchers have pretty much answered that question with a fairly convincing "yes." The questions they are tackling now are more along the lines of how environmental factors affect PD, what those factors are, and what we can do about it.

These are all complex questions, with no simple answers. The good news is that dedicated scientists in Canada, the U.S. and around the world are devoting unprecedented attention to the role of the environment in PD and, on an almost monthly basis, the picture is becoming a little bit clearer.

Searching for a link

Dr. Shawn Hayley is one of those dedicated scientists whose work, with help from Parkinson Society Canada (PSC), is helping us to understand the link between PD and the outside world.

As an undergraduate at Memorial University in his native St. John's, Newfoundland, Dr. Hayley first encountered people with the condition that subsequently became the focus of his research. "I was volunteering on the dementia and Parkinson's wards and saw the profound effects of neurodegenerative disease on people's lives," he recalls. "The fact that we have no truly effective long-term treatments is a motivation."

Now, as Associate Professor and Canada Research Chair in Behavioural Neuroscience at Carleton University in Ottawa, Dr. Hayley's work is being funded through a PSC New Investigator Award. He offers some insight into the Parkinson's-environment connection.

Unknown origin

"In Parkinson's, unlike other neurodegenerative diseases such as Huntington's, the exact cause can rarely be identified," he explains. "While a family connection can be traced in some instances, almost 90 per cent of cases are idiopathic, or of unknown origin. In addition, epidemiological studies from around the world have shown

that PD often occurs in clusters—in specific agricultural or industrial areas for example. These and other clues have long prompted investigators, as well as many people with PD, to suspect an environmental cause.”

Over the past few years, studies have only served to uncover more evidence pointing towards the environment. If their own work wasn’t enough, supporters of the environmental link were given a major boost recently by a study led by Dr. Caroline Tanner of the Parkinson’s Institute in the U.S. that tracked the lives of thousands of twins. The researchers found that Parkinson’s most commonly affected only one member of a twin pair, even if the twins were identical. If the disease were truly genetic in origin, both members of a pair of twins—who share the same genes—would be expected to develop it.

As Dr. Michael Walker of the National Institute of Neurological Diseases and Stroke comments, “This means we are going to have to look elsewhere for causes.”

For many, that elsewhere is obviously the environment. But the environment is a big place, with a lot of potentially dangerous substances in it. So where do you start? Dr. Hayley admits that while it isn’t easy to pin down, researchers have been able to identify some prime suspects.

“The main suspects include chemicals in pesticides, insecticides and fungicides,” he notes. “Heavy metals, such as aluminium, lead, iron, mercury, manganese and methylmercury have also been associated with PD. Heavy metals have been found in the brains of people with PD. Methylmercury, which can be found in some fish and is generated by coal-burning

plants, has been linked to disruption of motor functions in rats.”

Other more recent suspects include hydrocarbons and the effluent from wood pulp processing. “Technically, any substance that can penetrate the brain has the potential to be dangerous,” Dr. Hayley adds.

Unfortunately, as Dr. Hayley explains, as useful as tracking down these potentially toxic substances may be, knowing what they are doesn’t necessarily provide answers. In fact, it just poses more questions for investigators.

A complex connection

“Does exposure to a specific chemical cause Parkinson’s disease?” he asks. “It’s not as simple as that. Toxins have been linked to PD through the damage they appear to cause to neurons in the brain—specifically to the dopamine-producing cells that play such a big role in PD. But why does this damage occur? It’s not simply a case of a toxin appearing in a person’s brain at a certain level and causing the damage that leads to them developing PD.

“That damage may only occur in a person who has some kind of

predisposition or sensitivity to that toxin. And what are the causes of that predisposition? Is it genetic? Or is it caused by a previous exposure to that, or a different toxin?”

Dr. Hayley also notes there is evidence of other possible factors, including exposure to biological or viral infection. He points to evidence from the great influenza epidemic of 1918, a disease that killed 50 million people, more than triple the number that died in the First World War that ended the same year. An unusually high percentage of survivors of that flu developed PD in their later years.

To complicate matters even further, it may also take a combination of two or more toxins working together to cause, or accelerate, the damage to the neurons. “We are even seeing that this synergistic effect is not proportionate,” Dr. Hayley comments. “In fact, the combined effect is usually greater than you would predict from the sum of the parts. For example, if toxin A alone causes damage to two per cent of neurons, and toxin B alone damages three per cent, you might expect that if both were present,

continued on page 10



five per cent of neurons would be affected. However, the neuron loss can actually be seven to eight per cent."

How will researchers make headway through this seemingly endless myriad of questions and clues? Essentially, by the way most scientific progress is made, with individual research groups focussing on specific key avenues

of research and then sharing with, learning from and building on the work of their colleagues.

While Dr. Hayley's own work on immunotoxins and inflammatory responses of microglia in the brain (see sidebar) may seem highly specialized, the results will guide other researchers and help our understanding of the Parkinson's-environment link. This, in turn,

will eventually benefit the entire Parkinson's community and help pave the way for effective treatments.

The goals of environmental research

"What will it mean if we can really get a handle on exactly what impact toxins in the environment have on Parkinson's?" Dr. Hayley reflects. "From my point of view, I see a number of positive results."

"To begin with, we will be able to clearly identify the key compounds, or combinations of compounds, that may be dangerous. Then we can move towards banning or regulating the use of these toxins to reduce or eliminate the danger."

From a pure science perspective, these environmental studies are invaluable. "Anything that increases our understanding of the basic mechanisms of PD is relevant—for example, how neurons die, which cytokines are important, etc." says Dr. Hayley. "Once we know the pathways, we can look at ways of blocking them and stopping the damage. Of course, that is complex, as you have to administer any treatment before the damage occurs. That leads to the next potential benefit.

"Finally, research may enable us to identify biomarkers," he adds. "These internal markers or clues in the brain, blood or elsewhere could show us who is sensitive or susceptible to exposure to specific environmental chemicals or toxins. Perhaps one day we will have blood tests to tell us who might need early or preventative therapy to slow the disease, or to even prevent Parkinson's from developing at all."



Dr. Shawn Hayley in his lab at Carleton University with student Emily Mangano and technician Geoff Crowe.

Linking neurotoxins, inflammation and dopamine loss

With funding from a PSC New Investigator Award, Dr. Shawn Hayley and his team at Ottawa's Carleton University are examining the role of inflammation in the brain in Parkinson's disease, and ways to dampen that inflammation and prevent the subsequent loss of dopamine-producing cells.

Dr. Hayley's theory is that exposure to Paraquat, a common pesticide, interferes with microglia (specialized immune cells in the brain) causing them to release inflammatory chemicals that damage the dopamine-producing neurons.

Working with rats, the researchers have found that while Paraquat exposure can lead to damage to dopamine neurons by itself, the effect in rats that had received pre-exposure to some kind of biological challenge was more damaging. This biological challenge would be similar to someone having suffered from a virus or having been previously exposed to another toxin.

The work could lead to a greater understanding of the inflammatory process in PD, the impact of environmental toxins and the possible role of anti-inflammatory treatments.

The view from the lab:

Researchers offer insight into the environment

By Ian Corks

The first evidence pointing to substances in the environment as a cause for Parkinson's disease (PD) appeared only a few years after Dr. James Parkinson officially described the disease that now bears his name.

As early as the 1850s, researchers were noting symptoms in mine workers exposed to manganese and carbon disulfide. Since

then, scientists around the world have targeted environmental exposure to one or more chemicals as a major culprit in PD. While many have focused strictly on toxins in the environment, others have tied their work to aging and genetics. Interestingly, the environment versus genetics debate has actually been positive for both camps, with each providing interesting clues—

and questions—for the other.

In the last 25 years, numerous studies around the world have been conducted into the link between PD and the environment—too many to even begin to cover here. To provide insight and perspective into what is being done, *Parkinson Post* talked to some of the dedicated scientists working in this complex field.

Dr. Nicolas Dupré,
Associate Professor,
Faculty of Medicine, Department
of Neurological Sciences,
Laval University

"We definitely know that there is a link between toxins in the environment and Parkinson's," comments Dr. Nicolas Dupré. "The MPTP story clearly demonstrated that a chemical toxin can damage the cells in the brain causing Parkinson's-like symptoms. And it has also been shown that there are a lot of potentially dangerous chemical toxins out there."

The story Dr. Dupré is referring to dates back to 1982, when a number of students in California developed severe symptoms overnight after taking a synthetic heroin drug that was contaminated with a chemical known as MPTP. The drug permanently damaged cells in the substantia nigra of the brain—resulting in motor symptoms almost identical to the ones seen in people with PD.

According to Dr. Dupré, one of the problems with tracking down the real causes of PD lies in the numbers. "There are scientists looking at the genetic roots of PD, but that represents a small percentage—perhaps 10 or 15 per cent," he explains. "Then you have others studying obvious environmental exposures, but in extreme amounts that most people don't encounter. Again, these subjects represent only a small percentage of people with PD. What about all the others? What about the majority that fall in the middle—those who don't have a genetic cause, and who don't work closely with potentially dangerous substances?"

"What we need to look at are large study groups, in the hundreds or thousands, and follow them for a long time. It's difficult to do."

Dr. Dupré is optimistic, however, and believes answers will come from two directions.

"Right now, there is a lot of research at two levels: (1) basic science, looking at genes and genetics, and (2) risk factors, looking at environmental and similar causes," he says. "The real hope is in bringing these two together. That's where the good, new science will come from."

Dr. Wayne Bowers,
Research Scientist, Environmental
Health Science and Research
Bureau, Health Canada



Dr. Wayne Bowers is trying to determine exactly what is "out there" in the environment, and what it

does to us. "The objectives are to examine the impact of early life exposure to mixtures of chemicals that are found in human populations," he notes. His particular project is focusing on the children of Inuit communities in the

Arctic—specifically on the effects of a mixture of 26 chemical pollutants that were detected in the blood of an Inuit mother.

"The studies examine neurotoxicity of the chemicals with a focus on the development of neurobehavioural disturbances," he continues. "Exposure to chemical pollutants may be affecting the structuring of the nervous system and may translate into permanent alterations in brain function. This work also aims to identify which chemicals in the mixture are responsible."

His work, while broad in nature, is directly affecting Parkinson's research through an ongoing collaboration with Dr. Shawn Hayley (see article page 8). "By working with Dr. Hayley and using his model to assess the development of PD, we can determine if exposure to chemicals in early life affect later onset of this disorder," Dr. Bowers explains.

Professor Kay Teschke,
Director, The Bridge Program,
Health Care and Epidemiology,
University of British Columbia



"Evidence that PD may be caused by environmental agents arose from dramatic clusters of

cases, such as 19th-century workers exposed to manganese or the California MPTP group, rather than population-based epidemiological research," comments Dr. Kay Teschke. "Although the clusters collectively represented only small numbers of cases, they were suggestive that environmental etiologies may apply to the broader population."

Dr. Teschke's current research is looking at what might cause Parkinson's by examining associations with occupational exposures, and the effect of genetic susceptibilities on these associations. The study is a collaboration between the University of British Columbia and the Pacific Parkinson's Research Centre. Among the exposures it will examine are pesticides, metals and solvents.

Interestingly, it will also look into the role of stress in PD. "Stress, which has been a hypothesized etiology (origin) since the identification of the disease, will be examined for the first time within the occupational context," Dr. Teschke notes.

"At the moment there is virtually no prevention advice available for chronic neurological diseases like Parkinson's—in contrast to conditions like cancer and heart disease—because of the difficulty of studying these diseases," she adds. "Evidence of causal exposures would be most welcome as the basis for changing this situation. Where prior hypotheses are confirmed, such as exposure to suspected toxins, the results could lead to prevention programs and workers' compensation."

Dr. Caroline M. Tanner,
Director of Clinical Research,
Parkinson's Institute, California



Dr. Caroline Tanner's work has gone a long way to confirming the link between Parkinson's and the environment. Her major contribution, to date, is the landmark study of nearly 20,000 twins

(white males who had served in the Second World War, and thus are in their mid-60s or older).

The study showed that twins do not get Parkinson's any more often than do two unrelated individuals. If the disease had a genetic origin, then identical twins, who share every gene, would be expected to get the disease. The study results showed that this simply does not happen, thus indicating that no genetic component is evident in cases of late-onset PD. "For the first time, we were able to say that for people with PD diagnosed after age 50, it is most commonly caused by environmental factors," says Dr. Tanner.

Pointing out that there have been numerous studies aimed at the role of environmental factors, Dr. Tanner notes, "Many of these have implicated agricultural or chemical exposures, but have focused on broad groupings of agents rather than on specific exposures. While these categories provide important leads, they have been too broad to pinpoint causal agents."

To help address this, Dr. Tanner's team collected a lot of data about environmental exposure among the twins, which is now being analyzed. In addition, she is involved in the Agricultural Health Study. This major study will look at the incidence of various medical conditions among approximately 50,000 farm and nursery workers and their families who are regularly exposed to a number of agents, including herbicides and pesticides. "This study utilizes a unique opportunity to investigate the association of farming-related exposure to Parkinson's disease," says Dr. Tanner.

Parkinson Society Canada presents over \$645,000 for research



Ottawa grant recipients (from left) Dr. En Huang of the Ottawa Health Research Institute; Dr. Shawn Hayley of Carlton University; Dr. John Woulfe of the University of Ottawa; and Dr. David Park of the University of Ottawa.

For most people living with Parkinson's, their hope is that a cure will be found. Parkinson Society Canada (PSC) is working towards this goal by funding ground-breaking Canadian research that will one day bring that hope to fruition.

This past fall, research grant recipients, representing some of the best and brightest in Canadian Parkinson's research, were honoured when PSC presented successful grant applicants with more than \$645,000 in research grants.

Funds raised by dedicated SuperWalkers, volunteers and staff have given PSC the ability to support Canadian talent and their efforts to cure Parkinson's disease.

At an event in Ottawa, PSC awarded \$266,615 to researchers seeking to find answers into the cause and cure for PD.

Dr. David Park, an Associate Professor at the University of Ottawa, was awarded a Pilot Project Grant (\$45,000) to uncover

the secrets of a particular gene to increase its protection of dopamine-producing cells.

Dr. Shawn Hayley, a Canada Research Chair in Behavioural Neuroscience from Carleton University, received \$90,000 for the New Investigator Grant for his research that links environmental factors to the death of dopamine-producing neurons.

Dr. En Huang is a Post Doctoral Fellow at the University of Ottawa, and his grant for \$90,000 as a Basic Research Fellowship will further investigate the cause of death of dopamine-producing brain cells.

Dr. John Woulfe, Neuropathologist and Assistant Professor at the University of Ottawa, was awarded a Pilot Project Grant worth \$41,615 to study intranuclear rodlets and to determine if they protect dopamine cells in the brain from oxidative stress and toxic chemicals that corrupt cell coding.

At a similar event in Toronto, PSC awarded \$379,000 to researchers from Mount Sinai

continued on page 14



PSC grant recipients (from left to right) Raluca Petrican, Dr. Antonio Strafella, Dr. Damian Shin, and Dr. Satoshi Suo are taking a bite out of Parkinson's with a \$379,000 cheque, which came in the form of a cake, to fund their quest for a cure.

Can omega-3 protect against Parkinson's?

By Gina Collymore

The Ancient Greek scientist Hippocrates, often called the founder of modern medicine, once said, "Let food be thy medicine."

More and more, we hear how external influences such as food and the environment affect our health and well-being, which should prompt us to make informed choices about what we eat and feed our families.

A natural chemical

A recent study funded by Parkinson Society Canada shows that the natural chemical omega-3 might help to prevent diseases like Parkinson's. Omega-3, found in different types of fish, eggs and nuts, is something missing from most Canadians' diets.

According to Drs. Francesca Cicchetti and Frédéric Calon, the two Quebec scientists who spearheaded the experiment at Laval University, laboratory mice fed a diet rich in omega-3 fatty acids had a lower rate of dopamine loss. The loss of dopamine-producing cells causes symptoms of Parkinson's disease to appear. Dopamine is a neurotransmitter in the brain that is responsible for movement.

In the study, four groups of eight mice each were used. Two groups were fed a diet high in DHA (docosahexaenoic acid), a specific type of omega-3. Two groups had no DHA diet. Half of the mice were given MPTP, a toxic compound that causes similar effects on the brain as Parkinson's.

The mice that were fed the DHA and received MPTP did not lose the dopamine cells. This finding suggests that the DHA offered protection from the MPTP.

A human connection

"If we can extrapolate this data to humans, reasonably high consumption of omega-3 fatty acids found in fish such as salmon and tuna, some types of eggs, and dietary supplements are likely to have a positive effect in humans," says Dr. Calon. "Many people don't have enough omega-3 fatty acids in their diets and could be at potential risk for neurological diseases," he adds.

The work of these talented scientists supports the ideas of Hippocrates—maybe we should too.

Parkinson Society Canada presents over \$645,000 for research *continued from page 13*

Hospital, Toronto Western Hospital, and the University of Toronto.

Dr. Susan Fox and **Dr. Antonio Strafella** received a Pilot Project Grant of \$45,000 to find out why some people with Parkinson's have visual hallucinations.

Dr. Qi Wan received a Pilot Project Grant of \$45,000 to learn what role enzymes play in the death of dopamine-producing brain cells.

Dr. Satoshi Suo received a two-year Basic Research Fellowship of \$100,000 to understand why a

particular protein forms within neurons and kills important dopamine-producing cells.

Raluca Petrican received a Psychosocial Doctoral Award of \$44,000 to determine if damaged motor function, which hinders spontaneous emotional expression, also affects one's ability to experience emotions.

Dr. Damian Shin received a two-year Basic Research Fellowship of \$100,000 to learn why deep brain stimulation only works for 40 to 60 per cent of the patients who undergo the surgery.

Dr. Rosalind Chuang received the Novartis Pharmaceuticals Canada Clinical Movement Disorder Fellowship for \$45,000 to find out how to better manage and diagnose aspects of PD.

Research applications are part of a peer-reviewed process of PSC's Scientific Advisory Board, an expert panel of prominent and respected neuroscientists and physicians.

With the assistance of the Scientific Advisory Board, PSC hopes to continue funding successful research, which will lead to a cure for PD.

naturegg makes omega-3 nutrition easy

a simple way
to fill the
nutrition gap

Most Canadians don't eat nearly enough of the omega-3 experts suggest are vital for good health – specifically DHA and EPA omega-3. Naturegg™ Omega 3 and Omega Pro™ eggs and Naturegg™ Break-Free™ Omega 3 liquid eggs are a tasty and versatile way to make sure you get more of these essential nutrients you need each day.

DID YOU KNOW?

Canada's Food Guide recommends that you eat at least two 75 gram servings of fatty fish each week. This equals about 250 mg of DHA + 250 mg of EPA omega-3 daily.

It's good to know each 2 egg food guide serving contains:

NATUREGG BREAK-FREE OMEGA 3

250 mg DHA omega-3

250 mg EPA omega-3

NATUREGG OMEGA 3

150 mg DHA omega-3

NATUREGG OMEGA PRO

250 mg DHA omega-3



IT'S NOT JUST ANY EGG.
IT'S NATUREGG.™

www.naturegg.com

Save 75¢ NOW



ON YOUR NEXT PURCHASE OF ANY NATUREGG™ OMEGA 3 OR OMEGA PRO™ EGGS OR NATUREGG™ BREAK-FREE™ OMEGA 3 LIQUID EGG PRODUCT

TO THE DEALER: BURNBRAE FARMS WILL REIMBURSE THE FACE VALUE OF THE COUPON, PLUS OUR SPECIFIED HANDLING FEE, PROVIDED YOU ACCEPT IT FROM YOUR CUSTOMER ON PURCHASE OF ITEMS SPECIFIED. OTHER APPLICATIONS MAY CONSTITUTE FRAUD. WE, IN OUR SOLE DISCRETION, MAY REFUSE REIMBURSEMENT WHERE WE SUSPECT FRAUDULENT REDEMPTION HAS OCCURRED. REIMBURSEMENT WILL BE MADE ONLY TO THE RETAIL DISTRIBUTORS WHO REDEEMED COUPONS. A REDUCTION IN ANY APPLICABLE TAXES PAYABLE IS INCLUDED IN THE COUPON FACE VALUE. **FOR REDEMPTION, MAIL COUPON TO:** BURNBRAE FARMS, P.O. BOX 3000, SAINT JOHN, N.B. E2L 4L3.

STORE COUPON: LIMIT ONE COUPON PER CUSTOMER. **OFFER EXPIRES: DECEMBER 31, 2008.** ™TRADEMARKS OF BURNBRAE FARMS LIMITED.



April is Parkinson's Awareness Month

This story and others will appear in newspapers across the country in April.

It's time to find out why

By Shannon MacDonald

Over 100,000 Canadians are battling Parkinson's disease (PD) today, the second most common neurodegenerative condition in Canada. And while researchers continue to develop improved treatment and therapies, key questions remain unanswered—most specifically, questions about cause and cure.

Does the environment cause it? Could it be work-related? Maybe it's genetic. Most scientists and clinicians believe that Parkinson's is caused by a combination of genetic and environmental factors. It's time to find out why.

PD affects more men than women, increases significantly with age, and may be more common among certain occupations. It's time to find out why.

Anecdotal evidence suggests that more and more people are being diagnosed with Parkinson's

in their 20s, 30s and 40s. It's time to find out why.

PD is severely debilitating and forces unplanned, early retirement because there's no way to halt its progression. It's time to find out why.

Experts predict that in the absence of a cure, the population of Canadians with PD will double over the next 10 years. The potential social and economic impact of this reality is devastating, so the time to find answers is now.

And it is an exciting time in Canadian Parkinson's research. Canadian investigators, among the world's best in the field of Parkinson's science, are conducting leading-edge research in the areas of genetics, cell replacement, robotics, drug therapies, and population studies, to name a few. They are ready to accelerate the pace of discovery.

With support from Parkinson Society Canada (PSC), they stand

to make major discoveries, but research is expensive work. PSC is the largest non-government funder of Parkinson's research in Canada and has invested over \$5 million in basic and clinical research over the past five years. Unfortunately, it simply isn't enough to fund the volume and diversity of work needed to answer the complex questions of PD.

So we're stepping up our efforts, increasing our commitment, and working harder than ever to create a brighter future for Canadians with Parkinson's today, and a world without Parkinson's tomorrow.

Editor's note: To learn more about Parkinson's research or to find out how you can support the effort, please visit www.parkinson.ca or call 1-800-565-3000.

Stories from the Front

Watch for these stories during Parkinson's Awareness Month

The **Stories from the Front** campaign tells the personal accounts of people living with Parkinson's disease (PD). Stories were gathered from across Canada and made into 30-second videos to help create awareness and to educate Canadians about life with PD. **Stories from the Front** will run on national, regional and community TV stations. They will also be used by local chapters and support groups and for advocacy efforts.

Please visit www.parkinson.ca and click on "Media Centre."



Peter Davidson



Judy Hazlett



Maureen Brison



Lynda Mackenzie

Peter, Judy, Maureen and Lynda help educate the public and create more awareness of Parkinson's disease (PD) by sharing their personal stories. They and 11 others taped their stories for television public service announcements in various regions across the country.



Help us reach our \$2.5 million goal

Hold these dates

**Saturday, September 13 and
Sunday, September 14, 2008**



To register, visit www.superwalk.com

Canada's best and brightest meet in Ottawa

In January, about 50 of Canada's leading researchers and clinicians met with representatives of PSC to share and nurture ideas to advance the Parkinson's research agenda. The goal was to strengthen the Canadian Parkinson's network in order to collaborate, promote, and advocate for excellence in clinical care and research in PD.

The two-day meeting, which took place at Ottawa University on January 18 and 19, was the second annual meeting of this Parkinson Research Alliance.

Day one was dedicated to basic research. Presenters from coast to coast talked about their work in population studies, genetics, the

environment, cell restoration and transplantation, the use of robots, assistive technology, novel drug studies, the effects of deep brain stimulation, making sense of motor function, and neurodegeneration.

Day two was dedicated to the clinical aspects of PD. There was open discussion among the movement disorder clinics regarding outreach to under-served areas, piloting restorative programs for advanced Parkinson's, developing partnerships in the regions and identifying common challenges, such as increased workloads, wait times, and lack of sustainable funding.

Over the course of the two days, participants got to know each other

and understand each other's areas of focus. There was discussion on the potential for joint projects and the need to dramatically increase research funding. By the end of the meeting, there was informal collaboration and an agreement to share ideas and maintain momentum. The Alliance will meet again in January 2009.

The Parkinson Research Alliance Meeting was generously supported by the Parkinson Research Consortium, Parkinson Society Canada, Parkinson Society Ottawa, University of Ottawa, Canadian Stroke Network, OHRI, and TEVA Neuroscience.

Outstanding volunteers win top honours

By Gina Collymore

Honouring two dedicated and altruistic individuals, Parkinson Society Canada (PSC) recently announced its 2007 volunteer award recipients at the National Summit.

Felicity McKendry, a long-time Kingston resident, and Diane Patenaude, of Montreal, were awarded the Dr. Morton Shulman and David Simmonds awards, respectively.

Their contributions to the Parkinson's community are significant, from Felicity's campaign that spearheaded the creation of the successful 2007 Parkinson's Calendar to Diane's goal to increase Parkinson's disease (PD) awareness through words and laughter in her book, *À nous deux, Parkinson!*

The Morton Shulman Volunteer Award honours the memory of Dr. Morton Shulman who, through unorthodox methods, perseverance and innovative approaches to solving problems, achieved much in his life and helped people with Parkinson's and their families across Canada.

The award is given annually to an individual who exemplifies creativity, energy and tenacity. This year's award was presented to McKendry for her ability to influence others and to make a difference in the face of adversity.

After her husband was diagnosed with PD in 1989, McKendry became a passionate advocate to educate her community about PD. Felicity single-handedly increased the scope and awareness



Felicity McKendry wins the Morton Shulman Award.

of PD in the Kingston area through the creation and sale of calendars, the proceeds of which went to PSC Central and Northern Ontario.

The David Simmonds Parkinson's Leadership Award is presented each year to a person who embodies the unique contribution and charisma of David Simmonds, the chairman of PSC from 1999 to 2001, who through his exceptional vision, leadership, perseverance, and commitment, redefined and strengthened the voice of those living with Parkinson's in Canada.

Diane Patenaude exemplifies these values. Diagnosed with Parkinson's at a young age, Diane has not let having PD slow her down. She has demonstrated extraordinary leadership skills as a member of Parkinson Society Quebec and in her efforts to increase awareness of PD.



Diane Patenaude of Quebec is presented with the David Simmonds Award from David Simmonds himself.

Information for the 2008 Nominations for Volunteer Awards will be posted on our website this summer.

Older adults, health and the environment

A growing body of scientific evidence indicates that older adults may be particularly affected by environmental factors.

Recognizing this and the fact that environmental risk factors are largely preventable, Health Canada hosted a two-day workshop on February 5 and 6. Researchers, policy makers, those who work in risk management and non-governmental organizations, environmental experts, and representatives from a number of not-for-profit organizations, including Parkinson Society Canada (PSC), met in Ottawa to discuss issues to enhance the understanding of the relationship between older adults and the environment. Of concern was the potential effect of toxic chemicals and air pollution on health.

Preventable risk factors

The environment is a health issue for older adults (anyone over 65 years of age) because of an aging population, the fact that caring for

adults requires significant resources, both financial and human, and the fact that the contribution of contaminants to the burden of disease borne by older adults may be considerable. Parkinson's disease (PD) was listed as one of the neurological diseases affected by the environment. Environmental risks were defined as chemical, biological, and radiological contaminants, exposures, or toxins.

Recognizing that environmental risk factors are largely preventable, the discussions focused on identifying key areas of importance and finding ways to help protect the health of older adults from environmental risks.

Workshop participants heard expert panels on such topics as the profile of the older adult and identified health concerns including PD and the role of various environmental risks. The group discussed how to identify gaps and challenges and what role Health Canada could play in addressing the issues.

It was determined that there is a need for consensus among all stakeholders, a need for education of front-line health care workers who provide care to older adults (e.g., personal support workers), and greater awareness of exposure throughout the course of one's life and how it relates to health as one ages.

Future priorities

The key priorities for Health Canada to look at include legislation/policy, research/knowledge transfer, services, education, training professionals, public awareness of issues, and partnerships and collaboration.

This initiative was undertaken by Health Canada's Vulnerable Populations Group, which includes children, pregnant women, and aboriginals. A suggestion was made to include older adults in the vulnerable populations category to address specific issues that affect them as they age.

What can I do?

What can I do to minimize my exposure to environmental contaminants?

- Know where contamination sources are.
- Find out what chemicals are in the products you use every day.
- Learn about community sources of pollution, such as hazardous waste sites and incinerators.
- Consider buying organic food.
- Purchase produce, meats and dairy products from local vendors when you can.
- Use organic gardening methods.
- Use non-toxic or least-toxic pest control methods.
- Use non-toxic cleaning products.

Source: Collaborative on Health and the Environment (CHE-PD), www.healthandenvironment.org/index.php.

Beyond the decade of the brain:

Challenging conventional wisdom about Parkinson's disease

By Shannon MacDonald

Parkinson Society Canada (PSC) honoured 2007 Donald Calne Lectureship recipient Dr. Anthony E. Lang in Ottawa on January 18, 2008.

While it's true that understanding the cause of and cure for Parkinson's disease (PD) continues to elude scientists around the world, new information about this complex disease is continually coming to light. In his presentation, Dr. Anthony Lang suggested that a better understanding, and ultimately more effective treatment for PD, might come by looking at PD differently.

Dr. Anthony Lang, Director of

the Morton and Gloria Shulman Movement Disorders Centre at Toronto Western Hospital and the Jack Clark Chair at the University of Toronto Centre for Research in Neurodegenerative Disease, is an internationally renowned neurologist and movement disorder specialist. In introducing Dr. Lang, fellow neurologist Dr. Jon Stoessl described him as "a stupendous clinician and prodigious producer in terms of his contribution to the literature on Parkinson's disease." Dr. Stoessl credited Dr. Lang

This event was held in partnership with Parkinson Society Ottawa and made possible with the support of Solvay Pharma.

with being a major contributor in many areas of clinical neuroscience, particularly related to PD.

Thinking differently about Parkinson's

Speaking to an audience of over 150 scientists, health care professionals, and members of the Canadian Parkinson's community, Dr. Lang positioned his comments about PD in relationship to the U.S. initiative "Decade of the Brain (1990-2000)"—highlighting happenings since, demonstrating progress, and emphasizing controversies that exist in the field of PD. Admittedly, Dr. Lang hoped to be a little controversial in his effort to encourage people to think differently about PD.

Dr. Lang raised many questions about our current understanding of Parkinson's. "Is it a clinical syndrome? Should we define Parkinson's as a clinical syndrome

Sponsor George Wielgosz (left) of Solvay Pharma with Dr. Tony Lang and PSC President & CEO Joyce Gordon.





Dr. Tony Lang (left) accepts the award from last year's winner, Dr. Jon Stoessl.

with a specific pathology? Is it appropriate to think of Parkinson's as a single disease, or more probably many diseases coming together?"

Looking for earlier clues

Conventional wisdom defines Parkinson's as a movement disorder resulting from the loss of dopaminergic neurons in the substantia nigra compacta. However, a host of other symptoms such as depression, constipation, loss of smell, sleep disorders, and cognitive disturbances are now accepted as part of the Parkinson's experience—some of which may precede the onset of movement symptoms. With this in mind, Dr. Lang suggested that PD may not begin in the substantia nigra compacta after all, but in the lower brain stem and/or olfactory bulb. "It is probable that the disease spreads upwards into the brain as it progresses. If so, a dopamine

disturbance is not an early manifestation of Parkinson's but a later one. If we're trying to hit Parkinson's in the early stages, looking for a dopamine disturbance is too late."

Understanding the true picture of Parkinson's is critical, not only in uncovering the cause and cure but also in treating Parkinson's today. Parkinson's can occur with many different manifestations, some which have nothing to do with dopamine. Patients may present with non-motor symptoms years before they develop a movement disorder. Dr. Lang emphasized the need for physicians to try to see the entire disease. Moreover, he suggested "this will become increasingly important in the future as we develop ways to screen patients—when neuro-protective therapy has been developed to slow the progression of the disease."

Searching for causes

But what causes PD in the first place? Dr. Lang indicated that most investigators believe the cause lies somewhere in a combination of genetic and environmental factors. Certainly, PD can be inherited; however, only a small percentage of people with Parkinson's can be readily associated with an exclusively genetic cause as we currently recognize them. Age plays an important role, and Parkinson's is more common in men. Some occupational association has been identified, including farming and professionals, such as teachers. However, Dr. Lang stressed that there are lots of question marks and that much more research is needed in this field.

For a DVD copy of Dr. Anthony Lang's Donald Calne Lecture, please contact your regional Parkinson Society office (see pages 5 and 6).

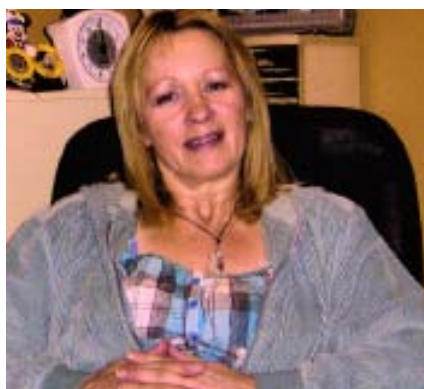
Searching for a cause

Parkinson's disease (PD) remains a mystery in many ways. There is no known cause or cure, and more and more Canadians are being diagnosed. Many people living with PD have their own reasons and theories as to how they might have developed

it. We asked a number of people with Parkinson's across Canada about their suspicions, and there are some surprising similarities: from prolonged exposure to ammonia to the spraying of pesticides in their communities.

Their suspicions may not be

grounded in scientific evidence, but when you are living with the reality of PD, it's hard not to want to find a cause. As research continues into the causes of PD implicating environmental toxins, the stories take on a new significance as we move forward to finding a cure.



Alice Lake
Newfoundland

I was diagnosed with Parkinson's on April 17, 1997, at the young age of 40. The neurologists told me I should get 10 good years out of it. Well I'm into my 11th year now and I'm still standing. It's a hard disease to live with, but I refuse to give in. My motto is "Stay active," and believe me I'm doing just that!

For over 17 years I worked in various capacities in the fishery plants: the cutting department, the trimming and packing room, and four in the first aid room. During my many years, there were different types of gas leaks and constant exposure to chemicals commonly used in the fishing industry, but for the most part I got out on time

and never had prolonged contact.

However, one day in particular stands out. Around 1988-89, I was working in the first aid room, and a young lady came in because she was ill. When she opened the door, I was blanketed by a horrible odour and a veil of smoke.

Realizing there was a leak and we had to evacuate, we tried to exit but we could see nothing but white. In our rush to exit, we lost each other. I couldn't tell where I was going, but I ran through it thinking that this was my day to die.

When it finally cleared, I realized I was by the watch house and remember asking my friend and neighbour to quickly get me to a doctor. By this time, my lungs were starting to fill up.

When I reached the clinic, the doctor had already been called. He did what he could. This was the most horrifying experience I've ever had.

Ten years later, I was diagnosed with Parkinson's. Coming from a large family of 16 kids, and not one of us having any neurological disorders, I feel that day plays a big part as to why I have Parkinson's.

Patricia Morrissey
Newfoundland

My father worked for the railroad, for the better part of his life. He was a section man, and his duties were to make sure the tracks were in operational order and to fix anything that was not.

During the late 1970s and early 1980s, there was considerable spraying to control shrubbery on the tracks.

He told me story after story, about his team of men travelling on the speeder to examine the tracks, and getting caught in the midst of a spraying. They were never given notice of when a spray was scheduled, and while examining the tracks they would not have enough time to move, thus getting covered with the spray.

This happened on more than one occasion, and being from a small community we heard similar stories from other workers.

For the most part, we have no scientific evidence that this is how he developed PD. However, you don't need much when members of his railroad team have also since been diagnosed with the disease.

John Dillabough
Manitoba

I was born and raised on a farm in Southwest Manitoba and was involved in all aspects of farming. Often we sprayed the weeds with chemicals such as 2-4-d and used pest control substances that contained dichloro-diphenyltrichloroethane, commonly known as DDT.

In our small community, homes were often sprayed with DDT as well, and the refilling of the sprayer took place right at the well where we got our drinking water, leaving little doubt that all these chemicals entered the drinking water in the township.

This was before the time when people used protective masks and gear. We were unaware of any dangers that could have been associated with constant exposure to these chemicals. What we mistook as common colds or illnesses could have been the side effects of this exposure. After being diagnosed in October 2003, I recalled this time in my life and am fairly certain that my constant contact with these chemicals played a role in my being diagnosed with Parkinson's.



Chris Kozakowski
British Columbia

I am a facilitator with the Campbell River Parkinson's Self Help Support Group, and my husband has had PD for over 10 years. I have heard many stories that led me to believe that what we are exposed to in our daily lives can play a factor in the development of Parkinson's.

In my support group of 15 members, seven worked in pulp mills, two were nurses (exposed to chemo drugs and cleaning agents), one worked in a print shop, one was a firefighter, one fueled planes, and one worked with fiberglass

as well as in a furniture manufacturing plant where he breathed in lacquers.

Editor's note: These stories are anecdotal, and we do not suggest that a single exposure to some of the things mentioned could easily cause PD. Rather, cumulative exposure may increase the risk, particularly in vulnerable individuals. Moreover, certain combinations of such toxins might act together to synergistically enhance the likelihood of developing the disease.

WEBSITE HIGHLIGHTS

Visit us on-line: www.parkinson.ca

Our website is being updated regularly! Please watch for more changes in the months ahead.

- The national website will display a new feature called **Stories from the Front**, chronicling the stories of people living with Parkinson's and their personal experiences.
- A new **Donor Recognition** page has been added to acknowledge the contributions of Parkinson Society Canada's dedicated donors.
- **Parkinson's Awareness Month in April** will see the launch of the new national ad campaign. Please check the website for details.

Send your comments and general suggestions for our website to general.info@parkinson.ca.





*Thank you to all walkers, volunteers,
donors and sponsors who made*
SuperWalk 2007
an outstanding success!

***\$2.1 million dollars was raised
across the country!***

More than a 6% increase over last year!

Parkinson Society British Columbia	\$223,000
Victoria Epilepsy and Parkinson's Centre	16,000
The Parkinson's Society of Alberta	152,000
The Parkinson's Society of Southern Alberta	150,000
Saskatoon SuperWalk for Parkinson's	38,749
Parkinson Society Manitoba	89,000
PSC Central and Northern Ontario Region	684,984
PSC Southwestern Ontario Region	271,784
Parkinson Society Ottawa	105,468
Société Parkinson Québec	179,346
Parkinson Society Maritime Region	170,000
Parkinson Society Newfoundland and Labrador	37,085

***A passionate 12,000
walkers turned out
at 82 locations
across the country!***

