



# The Foundation Newsletter

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## Enthusiasm running high for dyslexia learning centre

**A**lthough the Scottish Rite Learning Centres for Children program in Canada was only announced last Fall, enthusiasm for the project is high," says Doug Banks, Grand Secretary of the London Lodge of Perfection, who, along with Bob Barnett, Deputy for Ontario, developed the Learning Centres concept for Canada.

Each Learning Centre, which will be funded jointly by the Scottish Rite Charitable Foundation and the local Scottish Rite Valley, will provide free tutoring for dyslexic children. The London Centre is the pilot project for Canada, and is expected to be operational in September.

As part of the promotion of the Centre, London Valley provided 17,000 copies of two different flyers to 73 Masonic Lodges in southern Ontario – one of each for every member. In addition, the Centre is being promoted on the web site of the Retired Teachers of Ontario, some of whom might be among the volunteer tutors who will staff the Centre.

"By the end of 2002, about \$9,000 in donations from Scottish Rite Masons and others had been directed to the Centre before formal fund raising had begun" says Bob,

who is Chairman of the project's planning committee. "Cheques have been received from across Canada, and even from the United States. Parents of dyslexic children have been contacting us as well, and potential tutors have also been in touch. Everyone we talk to seems to be so enthusiastic about the project!"

One of the most heartening letters received so far was from England. It was from a Mason who had received a Learning Centre flyer with his Lodge summons from Canada. He explained that he, too, was dyslexic and had grown up with learning difficulties, and was so inspired about the project that he sent a generous cheque to the London Scottish Rite Learning Centre, marked for its Operations. "His own life experiences have made him understand the great benefit to dyslexic children of what we are trying to do for them and for society," Bob commented.

Others who have donated to the project have noted that the existence of the Learning Centres will provide the general public with an opportunity to better see the nature and activities of Scottish Rite and of Masonry. For this reason, the Planning Committee for the Centres

has adopted the motto, "Freemasons Helping Children".

Dyslexia is a language-based learning disability. Current studies show that some 15-20% of the population has a reading disability. Of those, 85% have dyslexia in varying degrees. Dyslexia refers to a cluster of symptoms, which result in people having difficulties with language skills, particularly reading. However, those with dyslexia may also experience difficulties with other language skills, such as spelling, writing and speaking.

Dyslexia is a life-long condition. However, with proper remedial tutoring people with dyslexia can learn to read and/or write well. Early identification and treatment is the key to helping dyslexics achieve in school and in life. Most people with dyslexia need help from a tutor trained in using a method that involves several senses (e.g., hearing, seeing, touching) at the same time. This tutoring is normally one-on-one and is unavailable in the public school systems. The London Valley will be scheduling sessions after normal school hours at a site to be determined.

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# MRI brain mapping may help epileptics

McGill University

In the neurology and neurosurgery department at McGill University in Quebec, Dr. Andrea Bernascone and his team are developing more precise methods of mapping epilepsy-causing lesions in the brain, thanks to new funding from the Scottish Rite Foundation. The work holds out hope for improved surgical intervention to help epilepsy patients who cannot be helped by medication.

The big picture: Epilepsy affects about one per cent of the population, which translates to 300,000 Canadians. That's more than the higher-profile conditions cerebral palsy, muscular dystrophy and multiple sclerosis combined. Each year in Canada, about 14,000 people learn they have epilepsy, most of them either younger than 10 or older than 60. About half of the childhood cases eventually disappear as mysteriously as they arrived. Not so the adult cases.

Epilepsy is a disorder rather than a disease. It is a symptom of an underlying neurological disorder that affects the brain and shows itself in the form of epileptic seizures. Some cases of epilepsy have no detectable cause, but many can be traced to specific areas of damage, or lesions in the brain. One such condition is Focal Cortical Dysplasia (FCD), which involves brain lesions that can be large or small, obvious or subtle. Surgery is an option in these cases as long as the surgeon can precisely determine the location and extent of the lesion.

That's the area of Dr. Bernascone's research. He is using advanced

applications of Magnetic Resonance Imaging (MRI) machines, which are powerful medical scanners that use the magnetic properties of atoms in the body to build images more finely detailed than x-rays. "We're trying to quantify the abnormalities related to this dysplasia (abnormal growth)," says Bernascone. "We're not just looking at the images but trying to get more information out of them."

The idea is to squeeze out all possible information from the MRI scans and use it to build a computer model of the characteristic FCD lesions – essentially a storehouse of information more detailed than even the most experienced human eye can detect by examining the images. "Lesions may be characterized, for example, by a thickening of the cortex," says Bernascone. "You can see these on the MRI, but you can also measure them."

By creating such a computer model they will enhance the power of the MRI as a diagnostic tool. "The purpose is to be able to detect very subtle lesions. It's easy to detect big lesions, but if they are small subtle ones you can miss them. By creating a computer model you can increase the rate of detection of lesions. In the future this will make it possible to create a system for automatic detection of these lesions."

The work requires as much computer science as medical science, which is why his collaborators on the project are biomedical engineers. The system they will eventually create will at



*Dr. Andrea Bernascone*

first only be used only as an aid to expert human interpretation of MRI images. But the eventual goal is to automate the procedure as much as possible. Yet Dr. Bernascone adds, "The human element will always be necessary, in the sense that the information must be related to the whole clinical picture."

Indeed, it will improve the clinical picture for patients whose epilepsy cannot be managed by drugs, and whose only hope of treatment is brain surgery which must be carefully guided by MRI maps of the problem areas. "The key element in epilepsy surgery is the detection of the lesions. The more precisely you map the lesion the better the chances to operate on a patient successfully."

The work holds out hope for significant progress against an important yet under-recognized neurological disorder, says Bernascone. "Epilepsy is less recognized than many other conditions, and research for it is very much under funded. By funding this work, the Foundation is helping with a disorder that has a huge social impact on people, including children and young adults."

## B.C. team tests estrogen to slow brain degeneration

University of  
British Columbia

Since we spoke with him in 2001, Dr. Christopher Shaw of the University of British Columbia has made important progress studying degenerative diseases of the brain and nervous system, with funding provided by the Scottish Rite Foundation. The Foundation continues to fund his work.

Previously, the team set about creating an animal model for studying neurological disease. They focused on an obscure disease called ALS-Parkinsonism Dementia Complex, which occurs only on Guam. ALS is Amyotrophic Lateral Sclerosis, commonly called Lou Gehrig's disease. ALS-PDC combines symptoms of ALS with those of Parkinson's Disease and Alzheimer's, and suggests they are all related. Last year, Dr. Shaw told this newsletter: "We think we have duplicated the disease in mice. And our view is that the various age-related neurological disorders – ALS, Alzheimer's and Parkinson's – share many features and are not as separate as people think."

Shaw's new research will focus on how the ALS-PDC breaks the chain of normal neurological processes when they induce it in their lab mice. "In some sense, we don't care how it got broken, as long as we can reliably break it. If we can reliably break it we can test things being considered as therapeutics, and see if we can prevent it from being broken. That's where this new grant comes in."



Dr. Christopher Shaw

One possible therapeutic effect comes from the female hormone, estrogen. Twice as many Guamanian men as women get this disease before the women reach the age of menopause; after menopause the incidence in women rises to match that in men. This doesn't prove much by itself. But studies of cells grown in lab cultures show that adding estrogen gives the cells resistance to the cycad toxin. Taken together, those facts suggest that estrogen is protective.

The question then becomes: Can estrogen or chemicals that act like estrogen interfere with the disease? If so, then estrogen mimetics – chemicals which may provide the same protective effects as estrogen without the feminizing effects the hormone would cause in male patients – would be candidates for effective medication.

Now, thanks to new Foundation funding, they will proceed with detailed studies of how much estrogen produces how much protection. "I am extremely excited," Shaw says. "Scottish Rite, bless them, have made this possible."

Shaw's team is focusing on ways to derail neurological diseases even before they understand the detailed workings of those diseases. "We'd love to understand all the nuts and bolts but the reality is millions of people have the disease right this minute. We want to understand everything about the disease, but we also want to do everything we can for people who are already sick."

### Dyslexia learning centre

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Experience in Learning Centres in the United States indicates that children, on average, gain one or two years growth in reading "by sight" and comprehension with one year of tutoring. This is particularly significant because the children who have attended the Scottish Rite Learning Centres in the US are generally two years below grade level in reading, as is common with dyslexia.

For further information, contact the London Valley Office at (519) 434-5081 or email [scotrite@gent.net](mailto:scotrite@gent.net).

# Taking a fresh look at autism for Sick Children

**A**t the Hospital for Sick Children in Toronto, Dr. Jessica Ann Brian is trying to unravel the mystery of autism. Dr. Brian is a first-time recipient of funding from the Scottish Rite Charitable Foundation.

Autism occurs in about 15 births in every 10,000. It is a neurological disorder affecting the way the brain functions. It shows itself in the way a person reasons, communicates and interacts socially, and is usually diagnosed by age three.

Dr. Brian is looking at a fundamental aspect of autism, called inhibitory impairment – meaning impairment of the ability to tune out extraneous information. For normal people, the ability is so basic it's taken for granted. You pay attention to a movie on television, and tune out the myriad micro-events going on elsewhere in the room. But if someone knocks over a lamp with a crash, you definitely react to that. Shifting attention, and tuning out things not important to the task at hand, are basic functions of the mind. But these are things autistic people cannot do well. "It not cut-and-dried," says Dr. Brian. "For some kinds of information, they block out too little. For some they block out too much."

Traditional autism research tests have focused on the autistic person's intellectual skills – how they understand human social relationships and learn things that involve more language and thinking skills.

"There are standard tests, but they are not telling us the things we need to know. They tell us, for example, that people with autism have difficulty when two things appear on

a screen at the same time. But they fail to tell us why. Is it because the appearances were close together in time, or close together on the screen? Why is this difficult for people with autism? We're designing tasks that separate those factors."

The tests are based on simple tasks, to look at the way in which these people process information, because that is what is different about them. With this approach, she hopes to find out more about what autism actually is. "We're still at the very basic science stage. We're trying to figure out the specific nature of the difficulty these children have with inhibition."

Tasks must be simple yet the reasoning behind them must be sophisticated, because in order to figure out autism it's necessary to figure out what is going on in the autistic person's mind, and the usual way to do that with someone is to communicate – which is precisely what autism makes so difficult. "We design tasks that are easy to explain, without a lot of language. The tasks are relatively easy to do so you're not measuring the person's intellectual abilities. So you might have someone look at a computer screen and you say, 'press this button when you see a circle.' Then you cause the circle to appear in different places on the screen, or at different intervals. You look at the person's response – how quickly they tell you they have seen the signal, by pressing the button. Under certain conditions the response is better, and under others not so good. It's a way to learn about autism at its fundamental level."

Consider the falling lamp. "If you're looking at a TV and there is a loud

crash behind you, you turn towards the sound; it's quite automatic. You just react. But let's say the person with autism is slower to turn around. Is it because the person had trouble removing attention from the TV? Or trouble moving their attention to the different location? Or applying it to the new sensory input? Any or all of those components could be impaired, and we really need to look at all of them. We know people with autism react differently to their environment, and that means that a lot of the things seen in autism, such as difficulty with social relationships and difficulty with language, might occur because of this very different way of perceiving things."

## Foundation's overhead low despite investment decline

The percentage of donations to the Scottish Rite Charitable Foundation that go to cover expenses is rising slightly, but the percentage is still at the low end of the scale, says Foundation Treasurer Ed Standish.

In 1999, the percentage of expenses to income was 4.5%. In 2002, this figure had risen to 7.5% and it may reach 8.3% this year. By comparison, expenses are in the 20% range for a typical United Way campaign.

The explanation for the increase, says Ed, is that investment income is declining while some costs, particularly communication with members, are increasing.