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1998 Welcome from the Director

As we approach the new millennium it is tempting to predict the future for optometry. Of course, trying to predict the future is a dangerous occupation. As Mark Twain said "The art of prophecy is very difficult especially as far as the future is concerned." Nevertheless there are a few points worth considering:

First, it is important to reflect on the beginnings of our profession, the profession of Optometry. There is a tendency to look at optometry as a twentieth century profession, particularly insofar as its legal development is concerned. In fact, many if not virtually all of the instrumentation used in optometry was developed in the nineteenth century. The retinoscope, for example, was invented by Cuignet in 1873; the ophthalmoscope by Helmholtz in 1851; the keratometer by Javal in 1880 and the slit lamp by Gullstrand in 1890. The modern instruments that we use are still based on the same fundamental principles first described by their inventors over a century ago. In short, in spite of modernization, the development of new instruments and legislative changes involving optometric use of diagnostic and therapeutic drugs, the basic approach to eyecare has not changed dramatically during the past century. If an optometrist of my graduating class fell asleep for the past 31 intervening years, he or she would be able to function in our School's clinic.

I predict that the 21st century will be different. Dramatic new developments in the field of molecular genetics just in the last few years have or are about to produce startling new approaches to the diagnosis and treatment of many eye diseases. Optometry curricula will spend more and more time on topics related to gene expression, recombinant DNA, transcription, gene sequencing, polymerase chain reactions, etc. The genetic factors involved in a number of eye diseases such as juvenile-onset glaucoma, retinitis pigmentosa, and age related macular disease have already been described and the list will continue to grow. Moreover, a growing effort to understand and appreciate the environmental and genetic influences on ocular refractive development may, within a few decades, make it possible to develop completely new methods of dealing with far-sightedness, near-sightedness and the loss, with age, of the ability of focus at near. And one need not be clairvoyant to see that new and improved efforts to develop a variety of surgical techniques, including refractive surgery, will lead to an ever-increasing level of coordination and cooperation between optometry and ophthalmology.

I have one more prediction. I predict that optometry will play a very significant and active role in these and other changes that will unfold in the twenty-first century. This is the surest prediction I have made thus far; for optometry's presence as a major research resource in eyecare is already obvious. Having made my predictions, it is now a pleasure to welcome new and returning students to our programme for another year of academic challenge.

Jacob Sivak, Director
What's New in Research

Train movement on North American railways is primarily governed by wayside signal lights. Information is coded by using various combinations of red, yellow, and green signal lights. Engineers are required to identify these lights at viewing distances between 0.5 to 1.5 km. Obviously, this task can be problematic for individuals with a congenital color vision defect. For the past 150 years, however, the challenge has been to find an appropriate test which provides a fair functional assessment of the employee's color vision capabilities while ensuring safety concerns are addressed.

In the last half of the 1800s and early 1900s, the Holmgren Wool test was the standard test for most rail companies. However, there was also the realization that this test may not be sufficient. Thomson and Thomson stated in 1903 that "Whilst the wool test have been accepted universally as requisite for the detection of color defects, the employees of railroads and their friends have always objected to their use as having no relation to their daily duties; and have demanded such colors as are employed as signals." Their statement holds true for many screening tests that are currently used.

The objections to the Holmgren wool test led to the emergence of lantern tests developed specifically for the rail industry; however, these lanterns were no longer made after WWII. For the last 30 years, major Canadian railways have addressed the concerns raised about color vision screening tests by using a combination of lanterns designed for aviation and field trials to assess the capabilities of employees with color vision defects. The problem with this approach is that the aviation lights are not the same color as the ones used in the rail industry, and a well-controlled field trial usually requires a major section of track to be shut down for half a day.

In an effort to provide an efficient and valid test for the rail industry, Jeff Hovis, Robin Jones, Andrew Nowinski, Vincent Law (School of Optometry) and David Oliphant (class of '96) have built a lantern test that simulates wayside signal lights under a contract with Canadian National Railways. The test lights are scaled to resemble signal lights viewed from approximately 0.5 km under daylight conditions. The test, itself, is administered under normal office lighting and at a viewing distance of 4 m. It can be operated
by control panel or by remote control. Canadian National Railways is expected to implement the new lantern test this fall and Canadian Pacific is currently evaluating the test.

Although the new lantern test provides a better functional assessment of color discrimination, it remains an extremely challenging test for most individuals with a color vision defect. This level of difficulty directly reflects the nature of the real life task of identifying the actual signal lights. Correct identification of red, green and yellow lights from long viewing distances is extremely difficult for individuals with moderate-to-severe color vision deficiencies. Individuals with mild color vision defects may be able to do this task successfully and pass the lantern test.

Jeff Hovis, PhD, OD

Student Awards

AAO  The American Academy of Optometry has awarded 1998 travel fellowships to optometry students for travel to the Association for Research in Vision and Ophthalmology. The annual meeting was held in May 1998 at Ft. Lauderdale. The recipients were from the following institutions:

- 3 students from University of Waterloo
- 3 students from the State University of New York
- 2 students from the Ohio State University
- 1 student from the University of Alabama-Birmingham
- 1 student from the University of Berkeley
- 1 student from the University of Houston
- 1 student from New England School of Optometry

The three Waterloo recipients were:

Tanya Flood
Sandra Priolo
Sharon Wong

Dr. James Terekoff Memorial Golf Fundraiser

The first annual James Terekoff Memorial Golf Fundraiser was held on August 28, 1998 at The Links at Quarry Oaks (the best golf course in Manitoba). James life was taken suddenly last year by complications due to diabetes. What began as a concept for a golf tournament in James’ honor grew to involve professionals like James, from areas of health care (medicine, pharmacy and optometry) dealing with diabetes. Dan Richenhaller, a close friend, was the event coordinator. The morning seminars dealing with complications of diabetes were well attended by all three groups of health care professionals. Experts in each profession provided thorough presentations of pertinent areas in diabetes care. The weather was nearly perfect for the entire day. The sunshine gave each golfer a healthy glow at dinner, though no golfer was lucky enough to win the numerous Hole-In-One prizes throughout the golf game. At the conclusion of the golf game, a foursome comprised of
doctors and pharmacists walked away with the Ciba Vision sponsored leather jackets and Terekoff Memorial Trophy. Dr. Ted Smith of James' graduating class of '94 eloquently addressed the group with some details of what it was that made James such a special individual.

There were over 50 sponsors for cash and prizes. Donations in excess of a thousand dollars was raised by classmates and friends of James' who were unable to attend. Silent auction bidding gained support of over $5,000 and other contests and competitions during the golf game raised $3,000. In total, the 1st annual Terekoff Memorial Fundraiser will donate over $20,000 to the Canadian Diabetes Association for further diabetes research in Canada.

With continued interest and support, it is our intention to plan the 2nd annual Terekoff Memorial Fundraiser for Saturday, August 28th, 1999. Don't miss it!

Dan Richenhaller, BSc, Pharm

Continuing Education 1998

This year's Continuing Education Programme, held June 13th and 14th, combined with a symposium held on the 12th to celebrate the Centre for Contact Lens Research's (CCLR) 10th anniversary.

Attendance this June was quite impressive with 268 attendees for the School of Optometry programme on Saturday and Sunday, while the CCLR 10th Anniversary Symposium held on Friday attracted 200 participants. Topics ranged from surgical procedures on the eye to the intricacies of being an expert court witness in the eye care field. The programme included a mix of technology, computerized information searching, current standard of care, new research and a variety of hands-on workshops. The invited speakers included Drs. Brien Holden, Deborah Sweeney, Gullapalli Rao, Jean-Marie Parel, Adrian Glasser, Jeffrey Machat, Robert Mandell, and Mr. Roy Stevenson. Dr. Martin J. Steinbach, Director of the Eye Research Institute of Canada was invited to give the Woodruff Lecture during Saturday's programme on the topic "Visual Development With One or Two Eyes." This lecture alone attracted over 200 people.

The Saturday trade exhibit and buffet lunch arranged by Marilyn Smith was again a resounding success with 26 companies represented in the exhibit. This year, the Graduates in Vision Science (GIVS) put on a Sunday barbeque.

Special recognition should go to all the people who worked together to make this Continuing Education Programme a success -- Coordinators, CE Staff, and Dr. Desmond Fonn, Programme Chair.

Elizabeth Reidt,
Continuing Education Coordinator

The Tactile Mouse
The Virtual Reality Mouse (VRM), a unique vision rehabilitation product developed at the University of Waterloo, was selected as one of five finalists for the First Annual SAP/Stevie Wonder Product of the Year Award. The VRM, or tactile mouse as it is sometimes called, provides blind or visually impaired computer users with enhanced access to Microsoft Windows by allowing them to "feel" objects and controls encountered by the mouse pointer. Icons, menu items, buttons, and Internet hyperlinks can be identified, operated and navigated by feel alone with this device.

Two hundred entrants from twelve different countries around the world were competing for the $250,000 US cash award. An intense two-day test and demonstration session was held at the University of Missouri. Students, researchers and consumers (including Stevie Wonder himself) evaluated and judged each of ten semi-finalist products. Five finalists were invited to attend a Gala event on August 12th at the Plaza Hotel in New York, where the winner was announced. This year's winner was Kurzweil Educational Systems, from Waltham, Massachusetts. Attending the Gala on behalf of the VRM project, were Graham Strong (CSE Director), Brian McCarthy (president, Betacom Corporation) and Frank Fitzgerald (VRM consultant with Control Advancements). Although not a winner this year, the team was heartened by the endorsements and accolades for the VRM, which they expect will greatly assist future development and marketing of the product.

The VRM was developed by researchers at UW's systems design engineering laboratory Optometry's Centre for Sight Enhancement. The project then was transferred to Control Advancements Inc., a Kitchener-based UW spin-off company, who carried out the pre-production development and commercialisation. Currently, the VRM is marketed world-wide by Betacom Corporation, a CAI subsidiary, which has continued to develop the Virtual Reality Mouse in partnership with the CSE's Sight Enhancement Engineering (WatSEE) laboratory. Ongoing support for research and development of the VRM is provided by the Ontario Rehabilitation Technology Consortium (ORTC), Control Advancements Inc., the University of Waterloo, and the Centre for Sight Enhancement (CSE).

For further information check the Press Announcement website:

http://www.sap-ag.de/germany/discsap/vis-ind.htm

The Museum With Vision

The onset of September marks the end of another successful summer at the Museum of Visual Science. This was the second year in which the museum has hosted children from the Kitchener-Waterloo community wishing to learn more about optometry. Beginning in July, groups of children ages 7 to 12 could be found wandering through the museum looking at whale eyes, telescopes, and stereoscopes. They also spent time experimenting with optical illusions and donning glasses from times preceding their great grandparents.

As the only Canadian museum dedicated to the history of visual science, the goal of the Museum of Visual Science is to introduce children to optometry and convey to them the importance of our visual heritage. Special emphasis is placed on conveying the history of the evolution of eyeglasses and society's ever fluctuating attitudes towards the wearing of them. By the end of each tour, children not only begin to appreciate the
importance of visual aides, but any apprehensions they may have had regarding the wearing of glasses are diminished prior to the onset of the new school year.

The above photograph shows three young guests from Engineering Science Quest during a tour in August. At left Kyle is wearing a pair of Japanese sunglasses ca. 1965, in the middle Grace is wearing a pair of black, zylonite spectacles with skull temples ca. 1925, and at right Jade dons a pair of lady's engraved, pearl, plastic frame with rhinestones ca. 1955.

Eye Care Centre Renovations

The addition of The Laser Centre to the clinics within the Eye Care Centre has created an opportunity to reorganize the examination space within the clinic area. The planning began last fall when an agreement was reached between the School of Optometry and TLC. This agreement included the addition of a laser surgical suite as patient numbers increased. As the laser requires significant floor stability to maintain optical integrity during the surgery, it was necessary to put the surgical suite on the first floor of the clinic.

The space that was determined to be the most acceptable was a series of five Primary Care examination rooms along the back hallway on the first floor of the clinic as well as a portion of the shipping and receiving area. For those of you who are new enough graduates to remember the room numbers, it is rooms 147 through 152. This represented five of 22 Primary Care examination rooms. This reduction in available space for Primary Care made it impossible to run the third and fourth year clinics simultaneously, as the program requires on Tuesdays and Thursdays during the fall and winter terms. Therefore, it seemed prudent to try to increase the number of examination rooms by dividing the large examination rooms into groups of smaller rooms.

The challenges of this process included designing around the pillars that occur throughout the space and not moving beyond the firewalls that separated the waiting room from the examination rooms. The most feasible way to do this was to move the Ocular Health and Electrodiagnostic clinics to space occupied on the second floor by Primary Care examination rooms. The vacated first floor space could then be used creatively for Primary
Care. This also necessitated the move of the Pediatric and Special Needs Clinic to the first two examination rooms adjacent to the external entrance to the clinic.

What started out as the addition of one new member to our clinic team ended up as a three-phase renovation project. A design consultant, Gary Kosar from the University of Waterloo Plant Operations department, is designing the three phases of the project. In an attempt to become familiar with the design and layout of optometric office space Gary and I visited two offices in our area. Many thanks to the practices of Drs. Brisson, Harrison and Leis and Drs. Grant, Lutzi, MacDonald and Furniss for allowing us to see their offices and for discussing office design. Gary also met with the heads of the clinic areas, Dr. Lisa Prokopich for the Ocular Health Clinic, Dr. Trefford Simpson for the Electrodiagnostic Clinic, myself for the Primary Care clinic and Beth Hahn and Marion Baird of TLC to determine the needs and utilization of each space. The clinic director, Dr. Marlee Spafford, oversaw the process. There were many tentative plans and many consultations with the users of each space before the plans for the first two phases were finalized. Planning for the third phase is still underway.

We are now in the second phase of the three-phase project. The first phase was completed in the winter term. It involved creating a new Ocular Health suite of rooms as well as moving the Electrodiagnostic clinic to the second floor. The Electrodiagnostic Clinic has a new dark adaptation room to facilitate dark adaptation for ERG testing. It also has new cabinetry and lighting.

The Ocular Health suite includes internal waiting space, private staff office space, five examination rooms, two visual field testing rooms, storage space and a case consultation/clinician office room. The examination rooms are mirrored and can be used for refraction as well as health testing. There is new cabinetry and new lighting in each of the examination rooms. Many readers will remember the problems with trying to dim the fluorescent lighting that was present in most examination rooms. The new lighting includes a combination of fluorescent lighting and incandescent pot lamps that can be dimmed easily. The colour scheme is a professional combination of blue carpeting and cream cabinetry. We have had many compliments on the results of these changes.

The Ocular Health suite opens into a student room that is intended to serve all of the interns on the second floor. This room has computer access and printing for word processing letters, it has reference texts, facilities for showing slides as well as tables and a microwave oven (donated by Dr. David Buck). This room is also intended to be used for private consultations between interns and clinicians.

The second phase of the construction is underway. The new Primary Care space is divided into three identical modules. Each module has four mirrored examination rooms, a case consultation room and an internal waiting room. There will also be a pretesting room (for autorefractioin, colour vision testing and NCT), a visual field testing room and storage. We are hoping to move the examination equipment into these rooms the first week of September. With this renovation the Primary Care Clinic will have 12 examination rooms on the first floor and eight on the second floor for a total of 20 examination rooms.

The new clinic areas were designed to be accessible for persons with special needs. Unfortunately, getting to the second floor for person who uses a wheelchair is not an easy task. The only elevator in the building is a freight elevator located outside the Eye Care Centre space. Elderly people who are not able to use the stairs find the process of getting to the second floor a difficult one. One of our new challenges will be to find funding for a patient elevator within the Eye Care Centre space. A second challenge is to find funding to update the patient waiting area. The chairs are from the 1970s and can be very difficult for some people use comfortably.
The third TLC phase is currently in design. The TLC space will be essentially self contained and include a surgical laser suite, a preoperative room, an examination room, a pretest room, a washroom, internal waiting space and administrative office space. This design will be in the tradition of the other TLC clinics. This phase should be completed by the end of the fall term.

**Distinguished Teaching Award**

The graduation awards were held Thursday, May 28th at the School of Optometry for this year's graduating class. Addresses were given by Dr. Jacob Sivak, Director, Dr. Pierre Simonet, Director, Universite de Montreal and Alphonse Carew from the Canadian Association of Optometrists.

This year's Distinguished Teaching Award for the second year in a row was presented to Dr. T. David Williams (l). The Distinguished Clinical Associate Award was presented to Dr. Kenneth Hadley (r).

**Information Services for Optometrists**

The University of Waterloo School of Optometry Learning Resource Centre (OLRC) offers the following services to optometrists across Canada.

**Reference service** We will search Medline or Visionet for articles on your chosen topic and send the references for them. To assist us in interpreting your needs, please define the subject in as much detail as possible, indicate the reason you need the information, and how recent the material must be. We regret that we often cannot handle "rush" requests.

**Photocopies of optometric and ophthalmic journal articles**

For each article you request, please specify the title, author, source, and date of publication.

The OLRC can provide only articles that are housed in the Centre. You may be able to obtain other articles via CISTI (see below) or your local public library.
OLRC service charges
Charges include regular mail delivery. General Services Tax (7%) will be added to the total.

Literature searches: $6.00* per subject
Photocopies: $2.00* for up to 10 pages (20¢ per additional page) plus royalty fees* (charged by CANCOPY):
  per page of a book: $0.25*
  per article (1 to 7 pages): $4.00*
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For facsimile transmission (within Canada), add: $3.00 for the first page, $0.50 per additional page.

For courier delivery (within Canada), add: $10.00 (no G.S.T.)

*Cost is defrayed in part by a subvention from the Canadian Optometric Education Trust Fund.

Send requests to:
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University of Waterloo
Waterloo, Ontario N2L 3G1
Telephone: 519-888-4005
Fax 519-725-0784
E-mail: optlib@sciborg.uwaterloo.ca

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$9 plus tax per article (of up to 50 pages) if the article is requested via the Web and delivered by fax.

$12 plus tax per article (of up to 50 pages) if the article is requested by fax, telephone or mail, or is delivered by courier.

A much higher fee is charged for articles from one particular publisher or from outside CISTI's own collection, so to avoid surprises, whenever you request an article, indicate the maximum you are willing to pay.

University of Waterloo in Chile

The last two-week module of the programme for upgrading Chilean optometrists was completed this past July by Drs. Susan Leat, Jeffery Hovis and Trefford Simpson. Two fourth year students, John Peacock and Shawn Charland also accompanied the team to demonstrate lab work and help with interpretations. This module was scheduled for last fall, but a short delay postponed the team until this past July. Trying, but not succeeding for a serious pose was two of our 4th year students, John (on left) and Shawn (on right) with Chilean students in a lab.
Fond Farewell

We will all miss Dr. Bill Baldridge who is moving to a new role in retina research at Dalhousie University in Nova Scotia. For two years Bill has taught neurobiology and physiology at the School of Optometry. We all wish him well and hope he likes lobster.

Obituary

Dr. Maurice Belanger died on August 24, 1998 at the age of 79. For thirty years he was the senior editor of the Canadian Journal of Optometry. Maurice was a family man whose wife died last December. Not only his sons but a host of friends around the world will miss him sadly. As editor he was a keen observer of everything optometric who based his observations on diligent research. Maurice expressed his opinions in a way that showed that he was a gentlemen.

Tenth Annual Clair Bobier Lecture in Vision

Thursday, October 22, 1998
7:30 p.m., Room 347

David Regan, PhD, DSc, F.R.S.C.
Distinguished Research Professor,
York University

Professor of Ophthalmology and Medicine, University of Toronto