CJO RCO

Canadian Journal of Optometry • Revue Canadienne d'Optométrie

VOL. 51 No. 3

AUTUMN/AUTOMNE 1989

TO SEE AND BE SEEN

Non-Reflective Lens Coating, the difference is clear!

As optical professionals you can now offer your patients the most advanced, non-reflective plastic lens coating in today's market – *Eurocoat 99.*

Based on Swiss research and technology, *Eurocoat 99* is supplying the Canadian optical market with a consistency of quality that has not been available before. The innovative *Eurocoat 99* process is fully computerized, allowing for uninterrupted, contaminant-free application of coating to both lens surfaces and incomparable consistency of layer thicknesses. The result is a superior product that permits 99.9% light transmission.

Recommending *Eurocoat 99* to your patients is consistent with providing them with the best possible vision care.

EUROCOAT 99™

The Clear Leader

Eurocoat 99 is available only through Canada's leading independent optical laboratories.
If you have not received your complimentary dispensing kit, please contact your authorized Provincial laboratory.

Atlantic Provinces:	**Ontario & Manitoba:**	**Saskatchewan:**	**Alberta:**	**British Columbia:**
Eastern Optical, Dartmouth	KW Optical, Waterloo & Toronto	Pioneer Optical, Regina & Saskatoon	Tech-Cite Laboratories, Calgary	Haida Optical, Burnaby

WHAT'S NEW IN ONTARIO?

Well to start with, KW Optical has moved into new and expanded facilities in Toronto. Effective November 20, 1989, we moved our Toronto lab to 60 Overlea Boulevard, from our old location at 12 Banigan Drive. Thanks to the trust optical professionals have shown in us, we have had to expand to meet the demand. So we've not only moved to a new location, we've also added some new and exciting capabilities to serve you even better.

- Internationally renowned LOH surfacing equipment.
- CMSI Prism II production computer system with VisionWare electronic data interface.
- Additional customer service personnel.
- Increased on-site lens inventory.
- Intracompany glass and plastic anti-reflection coating systems.

These are just a few of the many new improvements we've made to assist you in supplying the best possible quality and service to your patients. Thank you for your past support and we look forward to working with you in the future.

Why not give us a call and arrange to see our new facilities?

KW Optical

TORONTO LABORATORY
Telephone: (416) 422-3344 Envoy: KWO.Toronto Fax: (416) 422-1461
Toll Free Service: (416) – (519) – (613) – (705) 1-800-268-6384

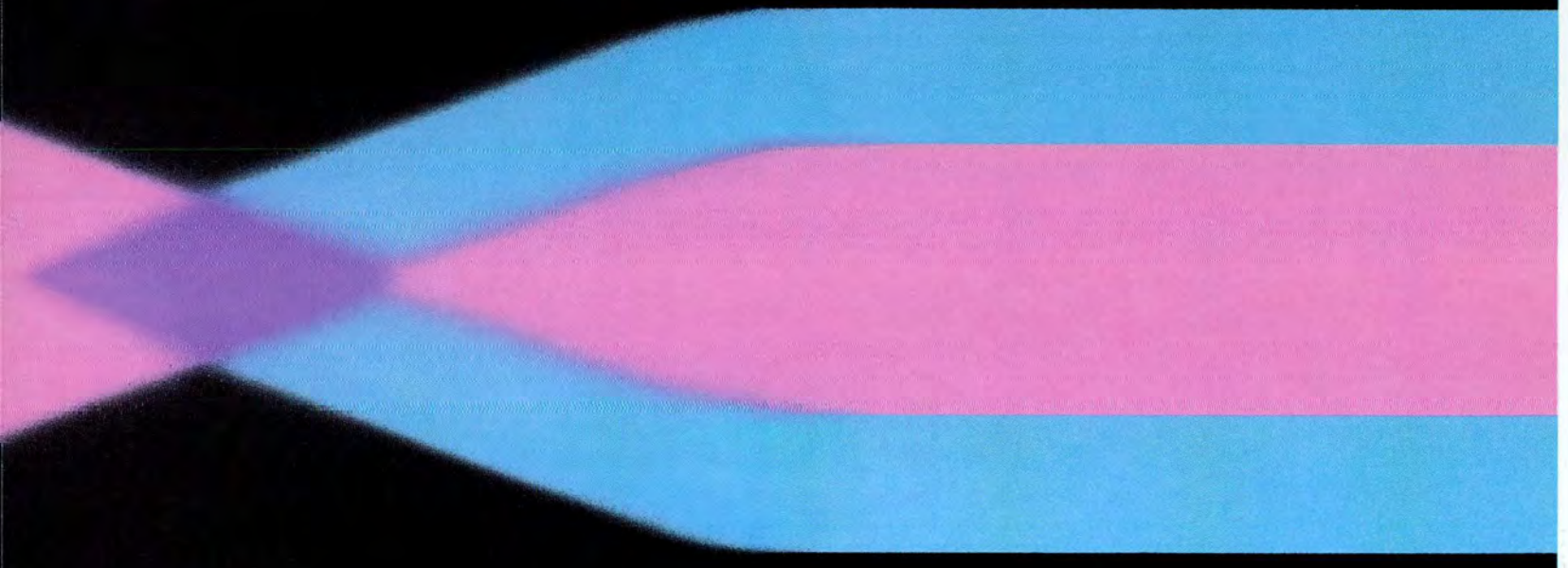
Keep an eye out for us – we're on the move.

ASTIGMATIC MANAGEMENT SYSTEM

FROM SOLA/BARNES-HIND

The Most Complete Line of Contact Lenses for the Astigmatic Patient

- *More Contact Lens Options*
- *Guaranteed Fit Program*
- *Consultation*
- *Complete Lens Care Systems*
- *A Single Source for All Your Astigmatic Lenses*



SOLA/BARNES-HIND

A PILKINGTON VISIONCARE COMPANY

6665 Mill Creek Drive - Unit 1
Mississauga, Ontario L5N 5M4

CJO RCO
Canadian Journal of Optometry • Revue Canadienne d'Optométrie
VOL. 51 No. 3 AUTUMN/AUTOMNE 1989

Photo Contest ... page 109

CAO President's Award ... page 107

Chairman, National Publications Committee / Présidente, Comité national des publications
Dr Margaret Hansen des Groseilliers

Senior Editor / Rédacteur en chef
Dr Mitchell J Samek

Academic Editors / Rédacteurs académiques
University of Waterloo: Dr B Ralph Chou
Université de Montréal : Dr Pierre Simonet

Case Study Editors / Rédacteurs des cas
Dr Lorne G Hart
Dr Mark Pogue

Typesetting and Printing / Composition et impression
Love Printing Service Ltd.

Layout and Design / Maquette et graphisme
Acart Graphic Services Inc.

Translation / Traduction
Tessier Translations / Les Traductions Tessier

Canada Post Postage paid / Postes Canada Port payé
Second Class Mail Registration Number 5807 / Courrier de deuxième classe

Return Postage Guaranteed

Articles / Articles

Patterned Visually Evoked Potential Variability: A Nine-Hour Study
SL Lu
MM Spafford 112

Vision Screening with a Microcomputer:
Validation of Two Computerized Acuity Tests
BD Johnson
MJ Samek 117

Comparaison des verres progressifs Varilux 2 et bifocaux Telex
chez les non-presbytes : Préférences et efficacité visuelle
J-C Allary
H Toubiana
P Auger 122

Features / Rubriques

"My first editorial..."
MJ Samek 100

President's Podium: "Ten Down, Ten to Go: Reflecting on the Eighties"
TL Adamack 101

Mot du président : « Une de moins, mais encore une :
quelques réflexions sur la décennie 1980 »
TL Adamack 101

The Retirement of an Editor 104

CAO President's Award — 1989 107

1989 Biennial Photo Contest Results 109

The COETF Annual Awards Program for 1990 /
Édition 1990 du programme annuel de prix de FFOCE 130

Vision Care News / Actualité oculo-visuelle 138

Book Reviews / Lu pour vous :
Vision and Aging, General and Clinical Perspectives
History of Australian Optometry 141

The Canadian Journal of Optometry is the official publication of the Canadian Association of Optometrists / La Revue canadienne d'optométrie est l'organe officiel de l'Association canadienne des optométristes

Suite 301
1785 Alta Vista Drive
Ottawa, ON
K1G 3Y6
(613) 738-4400
FAX / Télécopieur (613) 523-0045

The Canadian Journal of Optometry * la Revue canadienne d'optométrie (CJO*RCO) is the official publication of the Canadian Association of Optometrists (CAO). However, opinions and commentaries published in the **CJO*RCO** are not necessarily either the official opinion or policy of CAO unless specifically identified as such. / **The Canadian Journal of Optometry * la Revue canadienne d'optométrie (CJO*RCO)** est la publication officielle de l'Association canadienne des optométristes (ACO). Les avis et les commentaires publiés dans la **CJO*RCO** ne représentent toutefois pas nécessairement la position ou la politique officielles de l'ACO, à moins qu'il en soit précisé ainsi.

The Canadian Journal of Optometry * la Revue canadienne d'optométrie (CJO*RCO) welcomes new advertisers. In keeping with the **CJO*RCO**'s goal of advancing the awareness, education and professionalism of the members of the Canadian Association of Optometrists (CAO), any and all advertising material may be submitted, prior to its publication, for review by the National Publications Committee of CAO. CAO reserves the right to accept or reject any advertisement submitted for placement in the **CJO*RCO**. / **The Canadian Journal of Optometry * la Revue canadienne d'optométrie (CJO*RCO)** est prête à accueillir de nouveaux annonceurs. Dans l'esprit de l'objectif de la **CJO*RCO** visant à favoriser la sensibilisation, la formation et le professionnalisme des membres de l'Association canadienne des optométristes (ACO), ou pourra soumettre tout matériel publicitaire avant publication pour examen par le Comité national des publications de l'ACO. L'ACO se réserve le droit d'accepter ou de refuser toute publicité dont on a demandé l'insertion dans la **CJO*RCO**.

EDITORIAL/ÉDITORIAL

My first editorial; what to say? Should I pontificate upon the future of the profession and the role of the CJO*RCO? Should I be erudite and wax eloquent about social change and increased government intervention in our workplaces and homes? Should I appeal to you, my colleagues, to be less complacent and more active politically in your own profession, in your community at the provincial, federal and/or municipal level? Should I lament the growth of big business in health care delivery? Should I chastise the freeloaders of our profession who receive the benefits but who refuse to support their local organizations? Should I be disgruntled by the lack of beneficence of my professional colleagues who do not give to charities involved in their own profession?

No!

Instead, I will say that your new editorial board is intent on continuing the evolution of your journal. We are charged with developing a clinical resource that will allow you the opportunity to learn new knowledge or to reinforce existing knowledge. We are charged with providing you with an overview of events, no matter where they occur, that will impinge upon your professional lives. We are charged to outline the activities of CAO Councillors and representatives who act on your behalf.

My personal goal is to be Editor of a journal that you, its members, are proud to have; proud to display in your waiting rooms, proud enough to buy a subscription for your MP or MPP.

The journal also is your opportunity to voice your opinions, your concerns about the profession or the direction of governments, or other issues. It is your opportunity to contribute to your profession.

Read the journal; read the articles; read all aspects of the publication. Learn; develop; participate.

MJ Samek
Senior Editor

PRESIDENT'S PODIUM/MOT DU PRÉSIDENT

Ten Down, Ten to Go: Reflecting on the Eighties

No doubt, by the time you read this, you will have been thoroughly inundated with dozens, if not hundreds, of the "Best of This in the '80s" and the "Worst of That in the '80s" articles under just about any title you can name.

Performance appraisal, that is, the need for an answer to the question, "How are we doing?", is an undeniably human requirement and we see it in many ways. Who among us, for example, has not read a "Report Card" assessment of our municipal or provincial politicians after their first year, or first term in office?

We ask ourselves as family members, how do we stack up as Dads, or Moms, or sons, or daughters?

As professionals, we also have a variety of measures by which we assess our own office staffs (and, for that matter, are assessed by them as bosses). Some of us who can now look back on several years' experience as optometrists actually began this decade under the grueling assessments aimed at us as struggling students. 1980 began a long decade ago.

And, in keeping with the trend of a ten year retrospective, I've been wondering how are we, Canadian Optometry, doing?

In the long view, we began this decade in relative isolation. Our Congress was still eighteen months away from St John's, Newfoundland and my counterpart as Council's "Chairman of the Board" was Dr Jack Huber of Regina. In 1980, Optometry was operating with a somewhat outdated definition of our role; there was no Canada Health Act; our public profile was largely limited to apocalyptic warnings every time a solar eclipse made the news; there was no Save Your Vision Week in Canada. The COETF awarded its first research grant to Dr John Lovasik of the School of Optometry, University of Waterloo.

We also were seeking a third Canadian School of Optometry at the University of Victoria, or the University of Lethbridge, or Acadia University; some of our patients were profoundly shocked to discover their eye doctors couldn't act as their passport guarantors and Optometry in PEI was not an insured service under the province's health plan. (Not every ten year-old situation has changed with the passage of a hundred and twenty months' time.)

If one were to try to define a phrase to describe what best encapsulates the 1980s for Canadian Optometry, I think it was the decade in which we finally gained control of our own destiny.

CAO's Presidency has afforded me an otherwise unattainable opportunity to travel across Canada to meet with colleagues and friends from coast to coast. What I see and hear now, in 1989, is a confident certainty in what we are, in what we know, and in what we can do.

Une de moins, mais encore une : quelques réflexions sur la décennie 1980

Il est certain qu'au moment où vous lirez ces lignes, vous aurez été proprement inondés de douzaines, voire de centaines d'articles sur le meilleur (ou le pire) de ceci (ou de cela) dans les années 1980, sous à peu près n'importe quel titre imaginable.

L'évaluation de rendement, c'est-à-dire le besoin de savoir à quel point nous faisons bonne figure est, à n'en pas douter, un désir bien humain, qui peut se traduire de diverses façons. Qui parmi nous, par exemple, n'a pas reçu le «bilan des réalisations» de nos élus municipaux ou provinciaux après leur première année ou leur premier mandat?

Dans notre famille, nous voulons savoir où nous nous situons en tant que père ou mère, fils ou fille?

En tant que professionnels, nous avons aussi divers étalons par lesquels nous évaluons notre personnel de bureau (et par lesquels ce même personnel nous évalue en tant que patrons). Certains d'entre nous qui peuvent désormais jeter un regard sur plusieurs années d'expérience comme optométristes ont en fait commencé la décennie sous la meule impitoyable des examens, en tant qu'étudiants. L'année 1980, c'était il y a au moins ... dix longues années!

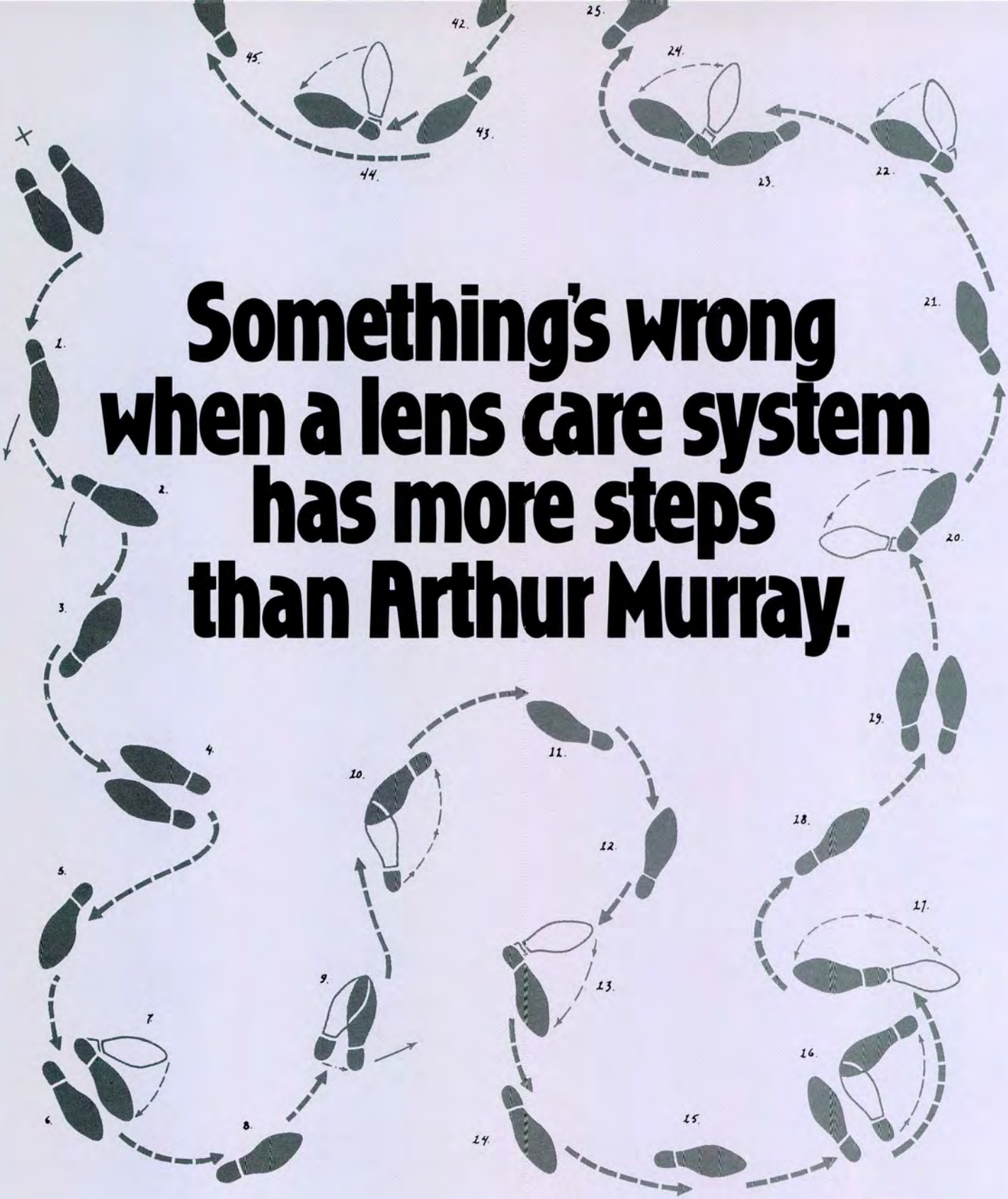
C'est dans cette idée de rétrospective sur dix ans que je me suis demandé comment se portait l'optométrie au Canada?

Nous avons commencé la décennie dans un isolement relatif. Notre congrès de Saint-Jean de Terre-Neuve n'était que dans 18 mois et mon homologue au poste de président du Conseil était le Dr Jack Huber de Regina. En 1980, l'optométrie subsistait dans le cadre d'une définition un peu désuète de notre rôle; la Loi canadienne sur la santé n'existait pas encore, notre image dans la population se limitait en grande partie aux avertissements de mauvais augure chaque fois qu'une éclipse solaire faisait la manchette; il n'y avait pas de Semaine de la vision au Canada. La FFOCE accordait sa première subvention de recherche qu Dr John Lovasik de l'École d'optométrie de l'Université de Waterloo.

Nous voulions aussi une troisième école d'optométrie, soit à l'Université Victoria, à l'Université de Lethbridge ou à l'Université Acadia; certains de nos malades étaient profondément étonnés de découvrir que leur «médecin des yeux» ne pouvait agir comme répondant pour l'obtention d'un passeport; à l'Île-du-Prince-Édouard, l'optométrie n'était pas un service couvert par le régime d'assurance-maladie de la province. (Même en dix ans ou 120 mois, certaines choses n'ont pas encore changé.)

S'il failait en une phrase dire ce qui décrit le mieux les années 1980 pour l'optométrie canadienne, je crois qu'il faudrait dire que dans cette décennie, nous avons enfin pris le contrôle de notre propre destinée.

Something's wrong when a lens care system has more steps than Arthur Murray.



Some people find lens care systems a little tough to follow. That's why there's AOSept.™

The AOSept system lets your patients disinfect and neutralize their lenses in one easy step. And that means they can waltz through their regimen–with a system that's completely preservative-free.

Recommend AOSept. Because when it comes to mastering lens care, your patients shouldn't have to think on their feet.

CIBAVision™

PRESIDENT'S PODIUM

We stopped apologizing a long time ago for "not being medical doctors"; now we're just simply the best in town for all around vision and eye care service. Some sixteen million Canadians are our patients!

Many of my own classmates and our peers are just now moving through positions of optometric leadership. We have to recognize that controlling our own destiny means accepting the blame for our mistakes as well as donning the laurels for success. The flavour we bring to the profession will undoubtedly have a strong influence on our own grades when we too are evaluated at the next turn of the decade as the year 2000 clicks into place. We can only hope that CAO's President then will be able to view with pride the way we are taking Optometry into the 90s today.

I have some thoughts about what perspective he or she will be looking back from, but they're for the next issue...

Dr Tom Adamack
President

MOT DU PRÉSIDENT

La présidence de l'ACO m'a offert une possibilité irréalisable autrement, celle de voyager d'un océan à l'autre et de rencontrer collègues et amis. Le son de cloche que j'entends, en 1989, est celui d'une certitude confiante en ce que nous sommes, en ce que nous savons et en ce que nous pouvons faire.

Il y a bien longtemps que nous ne nous excusons plus «de ne pas être docteurs en médecine»; nous sommes désormais simplement les meilleurs en tout ce qui touche la vision et le soin des yeux. Notre clientèle; environ 16 millions de Canadiens!

Nombre de nos confrères de classe et de nos pairs parviennent à des postes où ils peuvent imprimer leur leadership en optométrie. Nous devons reconnaître que la maîtrise de notre propre destin suppose l'acceptation du blâme pour nos erreurs et des lauriers de nos succès; ce que nous apportons à notre profession aura certainement une forte influence sur nos propres cotes, lorsqu'on nous évaluera au tournant de la prochaine décennie, quand nous passerons le cap de l'An 2000. Il faut espérer que le président de l'ACO de l'époque pourra regarder avec fierté la façon dont nous amenons aujourd'hui l'optométrie dans les années 1990.

Il m'est venu quelques réflexions sur le point de vue qu'aura le président de l'époque, mais je les garde pour le prochain numéro...

Le président
Dr Tom Adamack

Editor's Note

In the Winter 1988 issue, the review of *Binocular Indirect Ophthalmoscopy* contained the following errors:

First of all, with reference to the paragraph,

"Open it, for example, to p.28 and read, 'The field into which the patient is looking is the area of fundus being examined. (For example, for right-eye examination, when the patient looks towards his/her right shoulder, the inferior temporal portion of the right eye is being observed.)' This is a nine-line (in this book) paragraph that is repeated verbatim on p.44 and again on p.46!"

After reviewing the original text, and our editing of it, we inadvertently linked the material on pp.28 and 44 to the paragraph quoted from p.48 and this was not intended by the author of the review. The sentence, in fact, should have read,

"Open it, for example, to p.48 and read, 'The field into which the patient is looking is the area of fundus being examined. (For example, for right-eye examination, when the patient looks towards his/her right shoulder, the inferior temporal portion of the right eye is being observed.)' Meanwhile, a nine-line paragraph on p.28 contains information that is repeated almost identically on p.44.".

Secondly, with reference to the sentence,

"It appears to this reviewer that the authors got together with an instrumentation dealer who, in turn, provided them with a textbook illustrator from the company ranks"

subsequent correspondence from the authors provided the following information:

"We wrote to all of the manufacturers of binocular indirect ophthalmoscopes seeking grant money for the preparation of the figures. MIRA, Inc was the only one to accommodate our request...MIRA, Inc did not supply us with 'a textbook illustrator from the company ranks'. Ms Laurel Cook works in her own company, Medical Graphics, which is in no way associated with MIRA, Inc."

The Editors of the *CJO*RCO* regret the confusion caused by our misinterpretation of the reviewer's text as originally submitted and, in the second instance, apologize for the inappropriateness of the comment in light of subsequent information received from the authors.

OPTOMETRIST NEEDED

FOR A BUSY AUTOMATED PRACTICE
WITH AN EMPHASIS ON CONTACT LENSES
GREAT INCOME

PLEASE CONTACT:
Dr. Don Bishop
#560 Southcentre Mall
100 Anderson Road SE
CALGARY, Alberta, Canada
T2J 3V1
Phone: Office (403) 278-0766

The Retirement of an Editor

As reported in our last issue's summary of the activities held in conjunction with **Rendez-vous Ottawa '89**, the 21st Biennial Congress of CAO, the Welcoming Luncheon on Wednesday, August 2, was also the occasion at which Dr. Maurice Bélanger's long and distinguished contribution to this journal was formally acknowledged and honoured. CAO Council had earlier approved the establishment of the position of Editor Emeritus, *CJO*RCO* and the highlight of this luncheon was the formal tribute to Dr Bélanger.

It began with a presentation from Dr Bill Lyle, retired as Professor at the School of Optometry, University of Waterloo and still active as Editor of *Optometry and Vision Science*, the Journal of the American Academy of Optometry:

Maurice Bélanger has edited the Canadian Journal of Optometry for 36 years. For comparison, Carel Koch edited the Academy Journal for 44 years and Milt Eger edited the Journal of the American Optometric Association for 20 years.

Optometry in its almost 100 year history in North America has had three challenges:

1. *Medical opposition*
2. *Educational advancement*
3. *The threat of commercial practice.*

Throughout our struggle the competition with ophthalmology has not changed much but it has been very good for us because it has forced us to be better than anyone else in our field.

Educational advancement has made giant strides so that the new graduate is eminently well qualified to begin providing eye care to Canadians.

For generations Optometry struggled to become professional in conduct, outlook and appearance. This achievement is now threatened at least in part by government attempts to dilute professional autonomy and thereby commercialize all professions.

In all these endeavours the clear-seeing eye of Maurice Bélanger has played a major role in Canada. Maurice has represented the heart and soul of Optometry effectively. His editorials have been perceptive and timely; informative and inspiring. Maurice has never hesitated to call a spade a spade. He has praised and prodded, credited and criticized all in a sincere effort to improve vision care in Canada.

From an editor's point of view I envy him his editorial skills and wish I could obtain a copy of his little black book, i.e. the one where he lists his referees. Maurice is uniquely able to bridge the gap between English and French.

The Canadian Journal of Optometry is not an easy journal to edit. It must play several roles in addition to the traditional one of reporting new advances in science. The Canadian Journal serves as a sociopolitical record of the progress of the profession. It publishes papers from practitioners and from the two schools in Canada. It helps to link ten provincial optometric organizations.

Anyone who has served as an editor for 36 years has had to deal with problems including finances, prestige, jealousy, and changes in Association officers and aims. All this besides the routine problems with authors, referees and publishers. There is a price to be paid by an editor. Many days and evenings are borrowed from his family and personal life and allocated to the service of his profession, often for little recognition and minimal money. We all owe a debt to Françoise too.

There are about 20,000 health care journals in the world. The oldest is the New England Journal of Medicine founded in 1812. The next is the Lancet (1823) which beginning in 1990 will be published in America by Williams and Wilkins of Baltimore. Each year new journals appear and some disappear. I mention this to remind everyone that it is no mean feat to keep a journal going for 36 years. Maurice has been able to do this in Canada almost singlehandedly.

Maurice has led Optometry along the right path for more than a generation and all of us hope he will continue to contribute in the same idealistic manner for many years yet to come.

Canadian Optometry salutes a leader who, often almost alone, has carried Canadian optometric journalism on his shoulders.

Following his remarks, Dr Lyle, on behalf of the President and Council of CAO, then presented Dr Bélanger with a framed certificate recognizing the establish-

ment of the new position of Editor Emeritus, *CJO*RCO*, and the appointment of Dr Bélanger to the position.

Dr Bélanger then took the microphone to offer a few of his own thoughts on not only the accolades, but also on the many other people involved in the Journal's production over the years he served as Senior Editor.

President Tom, Colleagues and Friends. . .

After listening to Bill Lyle's introduction, I am sure that he must be somewhat confused and is alluding to some other person. I am confused as well and, frankly, do not recognize myself in his description, but I thank him most sincerely for having come to this Congress specifically to make this presentation.

Success in any walk of life is rarely if ever the result of a single person's activities, but rather it encompasses the support and understanding of many people. In this present situation, and in any situation, an individual's family is involved and the longer a person remains in an office, the greater the family involvement, particularly that of the spouse.

To my devoted Françoise, my sincerest thanks and appreciation for having endured so many years of an untidy home, piles of books and papers on the dining room table, magazines and articles from the living room to the bedroom, not to mention the orderly confusion in the study. But above all, for the lack of conversation as I tended an Editor's tasks.

Next, a thank you to all the CAO Councillors from the years of President John Mulrooney to Tom Adamack, for their expressions of confidence as they maintained me in office.

But in developing the Journal, I cannot but publicly repeat what I have frequently said — that Mel Katzman was a tower of strength in those early years. It is unfortunate that he is not present to be thanked personally and acknowledged by this audience.

To all my advisors and counsellors, among whom I must mention Ed Higgins, Irving Baker, Ted Fisher, Clair Bobier, Bill Lyle, Emerson Woodruff, Bert Jervis, Austin Forsyth, Jim Gilmore, a hearty and deeply felt vote of appreciation.

To the innumerable reviewers who are responsible for the quality of papers published, we owe a debt of gratitude.

*To all the authors who have honoured the **CJO*RCO** by submitting papers, the life's blood of any publication, much, much more than a mere thank you is due.*

No Journal, at any time in its history is ever self-supporting. We acknowledge with gratitude the funding obtained from our advertisers over these many years and we trust you will patronize them.

Finally, we cannot overlook the services provided by the Executive Directors and CAO office personnel, beginning with Ed Higgins, Jim Gilmore, Greg Walsh, Mel Mellow, Don Schaefer, Peter Welch, Gérard, Tom Little and Mike. To these go the credit for the physical appearance and improvement of the Journal.

To my successor, Mitch Samek, my sincere wishes for every success. May he and his associates guide the Journal to even greater heights.

The presentation concluded with thanks and appreciation expressed by Dr Margaret Hansen des Groseilliers, on behalf of the Ontario Association of Optometrists, and Dr Ian Edmison, speaking on behalf of Dr Bélanger's colleagues in the Ottawa Society of Optometrists.

optica
optica
optica

International Fair for Ophthalmic Optics
Cologne, 21st to 24th April, 1990
and 41st Annual Congress of the WVAO

At optica '90 nearly 700 exhibitors from 30 nations will display the latest international production of frames, lenses, sunglasses, contact lenses and accessories. Fashionable styling is the focal point – all well known international lines will be present. In addition everything in support of customer service and for best sales potential: the latest ophthalmic instruments, workshop supplies and store fixtures as well as attractive items to complement your sales lines.

See for yourself, make sure you stay successful in your market: visit optica '90 next April in Cologne.

The Cologne Fair Service in Canada will assist you in preparing your trip to optica simply return the coupon below to:
Mrs. Edel Wichmann, Cologne International Trade Shows, 480 University Ave., Suite 1410, Toronto, Ontario, M5G 1V2, Tel.: (416) 598-3343, Telefax: (416) 598-1840

— Coupon —

Please send me the following information:
☐ Visitor's brochure
☐ Advance registration
☐ Travel package
☐ Preliminary list of exhibitors
☐ I would like to exhibit at optica

professionals in the trade fair business
Lufthansa
Kindly attach your business card.

KölnMesse

8th INTERNATIONAL CONTACT LENS & ANTERIOR SEGMENT CONFERENCE

May 25-26, 1990

The Sheraton Centre, Toronto, Canada

FACULTY LIST

Chairman: Harold Stein, M.D., F.R.C.S.(C)

M.K. Bochner Lecture: Louis Wilson, M.D.
Distinguished Visiting Surgeon Lecture: Spencer Thornton, M.D.

INTERNATIONAL

James Aquavella, M.D.
Patrick Caroline, FCLSA
Dean Clements, PhD.
Jack Dodick, M.D.
Charles Fritch, M.D.
Ellis Gruber, M.D.
Irvin Kalb, M.D.
Peter Kastl, M.D.
Jonathan Kersley, M.D.
Bruce Koffler, M.D.
Jack Moore. C.O.A.
Craig Norman, FCLSA
Emanual Rosen, M.D.
Perry Rosenthal, M.D.
Dennis Shepard, M.D.
Spencer Thornton, M.D.
Lou Wilson, M.D.

CANADIAN

Jean Pierre Chartrand, M.D.
Albert Cheskes, M.D.
Helson Chew, M.D.
Herb Fitterman, M.D.
Irvin Gollish, M.D.
Keith Harrison, MOCLA
Josh Josephson, O.D.
Steven Kemp, MOCLA
Marvin Kwitko, M.D.
Lynn Maund, MOCLA
Kenneth Moffat, M.D.
Jack Morgan, M.D.
Clive Mortimer, M.D.
Leon Solomon, M.D.
Harold Stein, M.D.
Raymond Stein, M.D.

TOPICS COVERED

An international anterior segment conference emphasizing contact lenses, cataract and refractive surgery

- Contact Lens and Corneal Disorders
- Management of a Contact Lens Practice
- New Gas Permeable Contact Lenses
- Solving Contact Lens Problems
- Managing the Dry Eye
- Disposable Contact Lenses
- Understanding Corneal Disorders
- The Red Eye
- Management of Astigmatism
- Problems with Intraocular Lenses
- Advances in Refractive Surgery
- Contact Lens Care System Update
- Corneal Research Today
- Basic Contact Lens Course

ADDED FEATURES

Workshops, panel discussions, and product exhibitions. Exciting social functions, as well as Toronto's many tourist attractions

- Hands-On Contact Lens Workshop
- Hands-On R.G.P. Contact Lens Modification
- Welcome Reception Thursday Evening
- Cocktail Reception Friday
- Phacoemulsification Wet Lab for MD's
- Exhibition of Latest Contact Lens and Medical/Surgical Ophthalmic Products
- Scientific Workshops
- Breakfasts & Lunches Included

SEPARATE OPHTHALMIC TECHNICIANS & NURSES PROGRAM

REGISTRATION

- ❑ Early Registration $225
  After April 10 $275
- ❑ Residents (with letter of verification) $50
- ❑ Ophthalmic Medical Technicians, Nurses, and Opticians $125
  After April 10 $175
- ❑ Basics of Contact Lenses Course $60
  Thursday, May 24 (Pre-Registration)
- ❑ Hands-On Contact Lens Workshop $60
  Sunday, May 27 (Limited Registration)
- ❑ R.G.P. Hands-On Modification Course $25

Make reservations directly with hotel at convention rates: **Sheraton Centre,** 123 Queen St. W., Toronto, Canada M5H 2M9 (416) 361-1000

Please enclose cheque payable to: OPHTHALMIC EDUCATIONAL SEMINARS and send to: Ms. Jill Klintworth, Bochner Eye Institute, 40 Prince Arthur Ave.,Toronto, Canada M5R 1A9. For information call (416) 966-3336.

PLEASE PRINT M.D. ❑ O.D. ❑ OPTICIAN ❑ C.O.A. ❑
R.N. ❑ Other _____

Surname First Name

Address City Province/State

Postal Code/Zip Code Area Code/Business Telephone

CAO President's Award – 1989

At the 1989 CAO Biennial Congress, Dr Hugh MacKenzie of Regina was given the national Association's highest honour, the CAO President's Award.

In presenting the award to Dr MacKenzie, Past President Dr Scott Brisbin paid tribute to a long and distinguished contribution to Optometry in Canada, service that has included terms as President of the Saskatchewan Association of Optometrists and, from 1967 to 1969, the Canadian Association of Optometrists.

Having been a visiting lecturer at the School of Optometry, University of Waterloo, Dr MacKenzie has also had a direct hand in shaping the education of many of the ODs who are presently practising in Canada. It is a task that likely will carry well into the future of optometric education in this country, too, as perhaps Dr MacKenzie's most tireless efforts have been in the long term pursuit of establishing a third Canadian School of Optometry to support the existing facilities at the University of Waterloo and l'Université de Montréal.

That torch has passed to others now but it burns just as brightly because of the extensive building done over the years by Dr MacKenzie and others with whom he worked towards this goal.

Dr Brisbin concluded his tribute with a personal note: it was Hugh MacKenzie, he said, who taught him the value of participation in Optometry beyond the walls of the office. Dr MacKenzie served, said Dr Brisbin, as the role model for his own involvement in the politics of Optometry. (**Editor's note:** Given Dr Brisbin's experience through the Presidencies of both the Alberta and Canadian Associations of Optometrists, it is a path he seems to have followed exceedingly well.)

It was a tribute that touched everyone in the audience, not the least of whom were the many colleagues of Dr MacKenzie, the Saskatchewan ODs who attended Rendezvous '89 with their families.

In accepting the Award, Dr MacKenzie offered a few thoughts of his own on the kinship to be found among optometrists. His remarks follow:

Thank you, Scott, for your very kind and generous remarks. I'll let the rest of you in on a secret. When Scott asked me for some information for his introduction, I told him if he made it good enough it would leave me with very little more to say. You did a good job, Scott.

I am sure you will all agree that this is not the time or place for a marathon after-dinner speech. But there are some things I would like to share with you and I promise to be brief.

First of all, let me say I feel greatly honoured to have been selected to receive this very prestigious award and to be in the company of such distinguished past recipients as Drs. Mulrooney, Bélanger, Attridge, Fisher, Bobier, Coape-Arnold, Lyle, Spearman, Woodruff, Brown and Baker, all of whom have made, in their own way, a significant contribution to the advancement of the art and science of Optometry for the good and visual welfare of mankind.

I would like to thank the selection committee for choosing me to be a recipient and also the CAO Council for their confirmation and for the kind hospitality extended to Lois and myself this past week.

It is always nice to know that you haven't been forgotten and have been appreciated for whatever contribution you have made.

In presenting an award of this nature to a particular person, I believe, it is not only paying tribute to that person but it serves as a symbolic tribute to all who have worked and dedicated themselves to the advancement of Optometry.

Sometimes we are apt to take for granted our position in life and especially as it refers to our careers. One, however, should be periodically reminded from whence we came and of the work and dedication by those who preceded us. A lot has been accomplished in a relatively short span of time.

I think back to those who initially had the foresight to recognize the need for proper education and training in order to provide a necessary service.

And, from that beginning, came the work done by those who were instrumental in drafting legislation to regulate the conduct of our members:

The continuing work going on in the area of updating our regulations and our professional acts to provide for quality and for accountability.

Then there is the Canadian Journal of Optometry. That's an institution by itself, just completed fifty years in operation. And what about Maurice Bélanger, thirty-six years as the Editor? Now that's dedication.

The work that was done in gaining recognition for our professional services in the armed forces in the last world war.

The time and effort spent on our behalf to ensure our inclusion into provincial Medicare programs.

Then there are our associations, provincial and national. And just think of all the people in the past who have acted on the Councils and Committees serving to protect our professional interests.

The Western School Committee worked on for some nineteen years. Although to date we have not accomplished our mission, all has not been lost. Our efforts at that time provided for Optometry one of CAO's most effective public awareness educational campaigns ever conducted.

All of these endeavours were accomplished through a lot of hard work by those involved at the time. These past events, brought about by dedicated workers, have had a significant impact on solidifying Optometry's position in the delivery of services in the health care system as we know it today.

So what lies ahead? What will be the challenges of the future? They may be many and come in various forms. But I believe they will revolve about the need for providing certain services and who exactly will provide those services? There is a trend among health care practitioners toward a changing role. If the trend persists, this could lead to a void in services or if not a complete void, a relinquishing of the provision of certain necessary services. What we now have to ask ourselves is; exactly what are we, where do we want to go and how do we get there? What are you doing with our profession? We in our profession will have to remain alert, to foresee changes and prepare ourselves to fill voids. Let's not lose our identification. Hang on to what we have and expand our horizons as demand and need arise.

I believe these questions will be answered as the public demand and need for our services arises. To meet those challenges, it will require good communication, good teamwork and dedicated support from all segments of our profession.

I have great confidence in our future because I believe our profession possesses a high percentage of what I would term "achievers": Members like yourselves, who are sincerely dedicated to maintaining the dignity and honour of our profession and who are striving to work for the visual betterment of mankind.

So let me say here tonight, in accepting this award, I dedicate it to all of you, the workers in our profession, and I urge each and every one of you to consider the kind of contribution you can make to meet future challenges, as a tribute to our heritage.

Speaking of heritage, in closing, I would like to acknowledge the one person in my life who is primarily responsible for my presence here this evening. That person is my father. I will always be grateful for his guidance, encouragement and support during his lifetime. I know that, if he were alive, he would be proud of the accomplishment made by Optometry.

There is another special person I'd like to recognize and that is my wife, Lois. Without her understanding, tolerance and support, it would not have been possible for me to participate at the same level. I know, Lois, you understand my appreciation of your support and I believe you deserve to share this honour with me.

And to you all, once again, let me say I deeply appreciate the honour and tribute paid to me on this occasion in presenting me with the President's Award. I can assure you I will always remember and cherish this evening.

God Bless and thank you all.

Help BREAK THE PATTERN OF POVERTY

Please contribute to:

USC Canada

56 Sparks
Ottawa
K1P 5B1

(613) 234-6827

FOR SALE

ALBERTA

ESTABLISHED PRACTICE

RETIRING AFTER 40 YEARS
POPULATION 16,000

DR. D.A. CLEAL
5301 46th Street
LLOYDMINSTER, Alberta
T9V 0C2
(403) 875-2755

ROI — Serving Optometrists Across Canada

APPRAISALS • GOODWILL & ASSETS
Market Values & Replacement Costs

BROKERAGE • MARKET REPRESENTATION
Confidential Showings, Negotiations, Documentation, Transitions

CONSULTING • PROGRAMS
Associate Buy-in, Cost Sharing, Phase Retirement

Please call to discuss further benefits. All enquiries are confidential.

A.L.R. Brown, C.A.M., R.E.B.B.
Professional Appraiser
Lanee Brown Rourke, A.I.C.B.
Associate Appraiser

Mississauga (416) 820-4145
Ottawa (613) 837-7107
Calgary (403) 243-4188
Vancouver (604) 521-7025

ROI CORPORATION
BUSINESS BROKER
Suite One, 2624 Dunwin Drive
Mississauga, Ontario, L5L 3T5

CONFIDENTIAL PROFESSIONAL SERVICES
EXPERIENCED, QUALIFIED PERSONNEL

Established 1974

1989 Biennial Photo Contest Results

On this issue's cover, and on the cover of the previous issue, we've run a category prize winner from the CAO 1989 Biennial Photo contest, held in conjunction with Rendez-vous Ottawa '89. Our Winter 1989/90 issue will feature the final category winner.

On this page, we are pleased to present the other prize winners from each of the three categories, selected from perhaps the best overall field of entries ever received in the Biennial competition. (For the total package, grab a magnifying glass and look closely at the Contest display as was pictured in our last issue. See the last issue as well for the complete list of prize winners.)

CAO, along with the Local Arrangements Committee for Rendez-vous Ottawa '89, extends its sincere thanks and appreciation to the following for donating the prizes in this year's contest:

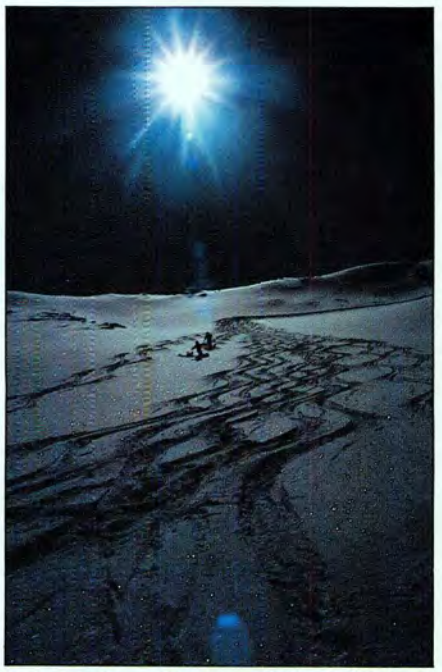
PC (People of Canada):
First ($250): Argus Optical
Second ($150): Wesley-Jessen Inc
Third ($100): CooperVision Inc

LIB (Life In Bloom):
First ($250): Nordic International Inc
Second ($150): Wesley-Jessen Inc
Third ($100): Sola Optical

NDP (Novel, Dramatic Pictures):
First ($250): Opti-Contact Ltd
Second ($150): Wesley-Jessen Inc
Third ($100): Sola Optical

Dr Joe Hickey, Sherwood, PEI (3rd, LIB)

Dr Mario Pozza, Kamloops, BC (3rd, NDP)



Dr Mario Pozza, Kamloops, BC (2nd, NDP)

Dr Pat Marcantonio, Riverview, NB (3rd, PC)

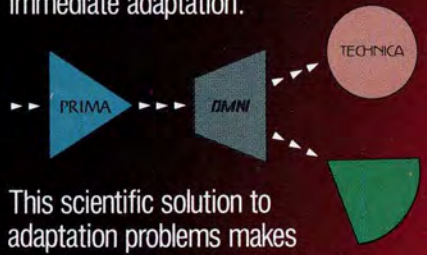
Dr Ralph Rosere, Dartmouth, NS (2nd, LIB)

Dr Ralph Rosere, Dartmouth, NS (2nd, PC)

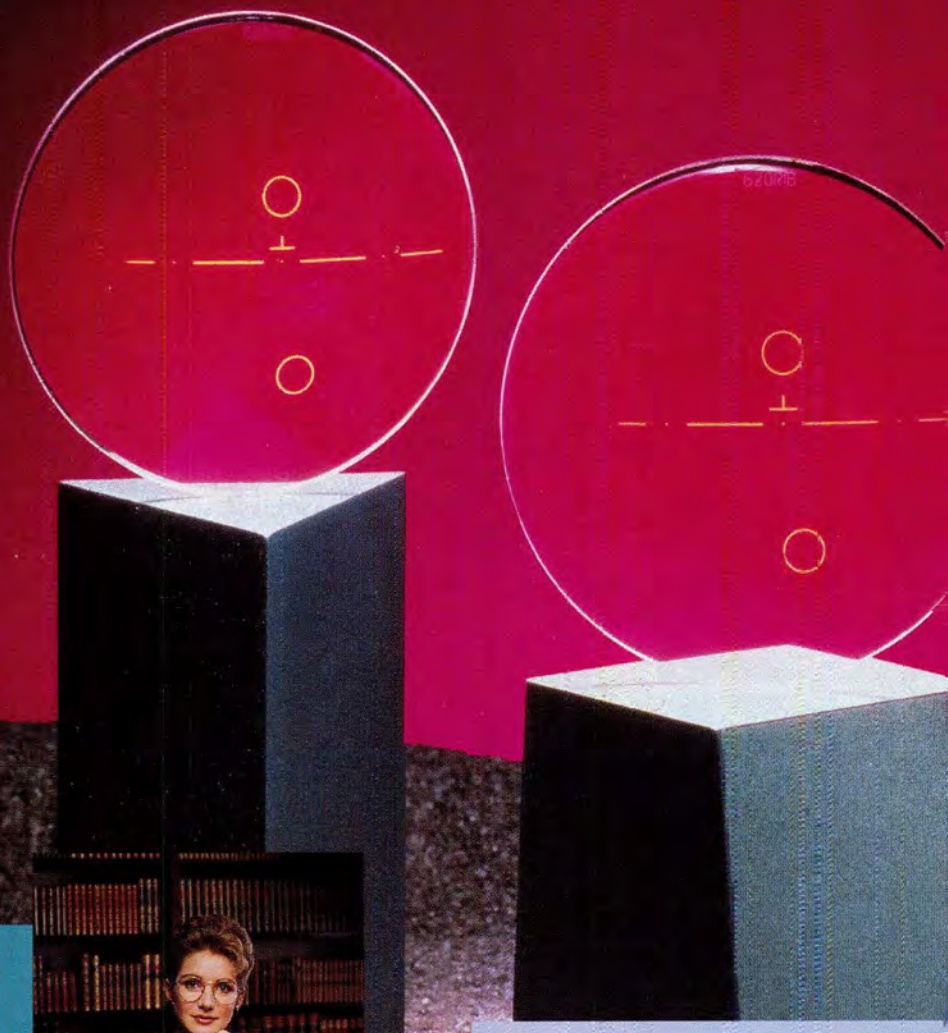
ANNOUNCING THE TRUVISION®

Systematic vs.

Starting today, your patients may never have adaptation problems again! Not only can you prescribe the internationally acclaimed TruVision Omni® progressive lens, now you can offer a whole system of lenses also based on bipolar design. The TruVision® Lifetime System of Lenses™ allows most patients to move smoothly from one TruVision System lens to another with immediate adaptation.



This scientific solution to adaptation problems makes everything else...just problematic.



PRIMA

As a compatible alternative to single vision lenses and as an over-correction for contact lens wearers, the Prima introduces emerging presbyopes with prolonged near viewing demands to the comfort of bipolar lens design. Prima may also be the lens of choice for the management of accommodative disorder or environmental myopia in children and young adults. Unlike other progressives, Prima requires only binocular fitting heights and pupillary distances. When Prima patients require a higher add power, they'll adapt immediately to the Omni lens.

OMNI

The clinically proven Omni lens is preferred by patients to other progressives for its easy adaptation and superior all purpose viewing performance. Omni wearers requiring a specialized lens for near and intermediate viewing should be presented with the Technica lens, easily fitted as a second pair.

LIFETIME SYSTEM OF LENSES™

Problematic

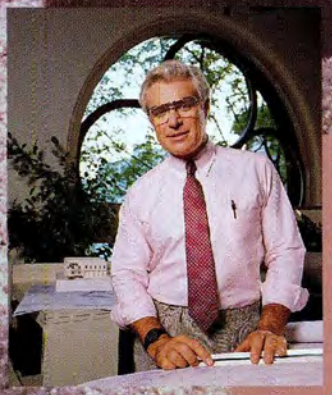
We've got science down to a system.
The TruVision Lifetime System of Lenses utilizes Dirichlet's Principles, a natural law of smoothing, to achieve optimum distribution of dioptric power. That's the secret to bipolar lens design and to Omni, the ultimate, all purpose progressive lens. Using bipolar technology, we've also optimized lenses for task specific purposes. The results are lenses that satisfy patients' specific work and leisure needs with minimal amounts of unwanted astigmatism, smooth power distribution, large visual zones, and "soft" transitions.

As your patients' vision needs change with time, you can prescribe another TruVision Lifetime System lens with assurance of effortless transition and total satisfaction.

Designed for practice growth.
The TruVision Lifetime System of Lenses meets your long-term professional needs. For the first time, multiple pair dispensing has been facilitated through product engineering. You can rely on simple fitting procedures, lifetime and lifestyle dispensing options for your patients, and local lens consultants. We've even color coordinated our reference materials for your convenience. And American Optical offers the best lens guarantee in the business through our wholesale laboratories.

Find out more about the sure, *systematic* way to keep patients... and keep them for a lifetime.

TRUVISION®
LIFETIME SYSTEM™
OF LENSES



TECHNICA

With its expanded near and intermediate viewing areas, Technica provides the perfect second pair of spectacles for patients in occupations involving extensive desk and/or computer work, such as accountants, architects, and lawyers. Other dynamic near and intermediate work situations such as dentistry, electronics and surgery, are also suited for Technica. Because all System lenses are based on the same design, adaptation between them should be considered immediate.

I want details on having the practice of a lifetime!

☐ Please send me information on the TruVision Lifetime System of Lenses.

☐ Please have a lens consultant call me.

Please print clearly:

Professional's name

Company's name

Telephone

Street address

City Province Postal Code

Primary R_x Lab City

Return to: American Optical, TruVision Lifetime System of Lenses
80 Centurion Drive, Markham, Ontario L3R 545

AO AOCO LIMITED/LIMITÉE
A Subsidiary of American Optical Corporation
80 Centurion Drive, Markham, Ontario L3R 545

® Registered trademarks of American Optical Corporation
™ Trademark of American Optical Corporation

Patterned Visually Evoked Potential Variability: A Nine-Hour Study

SL Lu *
MM Spafford * *

Abstract

Patterned steady state and transient Visually Evoked Potentials (VEPs) were recorded in ten visually normal observers on an hourly basis for 9 consecutive hours. The amplitudes and the implicit times of the VEPs showed no significant change or trend over the nine hour period and, hence, the VEP appeared to be independent of significant diurnal or fatigue effects for the conditions studied. Inter-subject variation in the VEP was also examined. The findings also emphasize the importance of considering pupil size when recording the VEP.

Résumé

Les chercheurs ont analysé chaque heure, pendant 9 heures consécutives, les potentiels évoqués visuels transitoires et stables structurés chez dix observateurs visuellement normaux. Ils n'ont pas observé de changement important dans les amplitudes et temps implicites des PEV, non plus que de tendance inhabituelle sur la période de neuf heures et, en conséquence, les PEV semblent indépendants d'effet diurnes ou de fatigue appréciables pour les conditions étudiées. Les chercheurs ont également examiné les écarts de PEV entre sujets. Les constatations font également ressortir l'importance de la taille de la pupille pour la mesure du PEV.

Introduction

It is generally accepted that patterned VEPs exhibit considerable inter- and intra-subject variability.[1-3] Most of this variability has been attributed to a combination of background electrophysiologic activity, as well as differences in electrode configuration, contact and electrode-skin impedance. Stimulus artifacts may also affect the VEP recordings.[4] A study of patterned VEP stability should also include consideration of subject fatigue, accommodation, pupil size, age, and diurnal effects.

Attention span and concentration on the stimulus pattern have been found to affect the VEP recording.[5,6] Diurnal fluctuations affect various physiologic states, such as blood pressure and intraocular pressure,[7] but it has not been clearly established as to whether electrophysiologic responses such as the VEP are subject to such diurnal variations. These factors are of importance to studies that involve recording the VEP over many hours.

Lovasik et al[8] found in a group of 11 young healthy adults that transient patterned VEP (tVEP) amplitudes decreased linearly as the accommodative load was increased up to 10D with minus lenses (-0.13uV/D). It was recognized that the net decrease in the VEP might be the result of the interaction among accommodation, associated miosis and retinal image minification. Consequently, these three factors were independently altered and the effects studied. The main cause for the reduction in tVEP amplitude was found to be the increased retinal defocus resulting from increased accommodative load. The tVEP implicit time was significantly prolonged in an exponential manner only for higher levels of accommodative load (ie. over 7D) . The transmission delay was attributed to a combination of retinal defocus and decreased retinal illuminance secondary to accommodative miosis. The study illustrated the importance of controlling both accommodation and pupil size when studying the patterned VEP.

Steady state VEPs (ssVEPs) have been noted to be more reproducible than tVEPs.[5] van Brocklin et al[5] indicated that a 20% change in the ssVEP and a 30% change in the tVEP were necessary to identify a significant change in the recordings. The implicit time (IT) of the tVEP has been shown to be considerably less variable than the amplitude.[1,5,9,10] The inherent variability of the VEP must be considered in a long-term VEP study.

In this investigation, ssVEPs and tVEPs were recorded hourly from 10 healthy volunteers for a period of 9 hours. The intent of the study was two-fold: 1) to examine the inter- and intra-subject variability over time and 2) to identify diurnal trends in the pattern VEP. This investigation would serve as a control for another long-term study[11] being conducted in the lab.

Methods

Patterned VEPs were recorded hourly from ten visually trained adults between the ages of 20 and 30 years. All subjects were fully corrected and exhibited a visual acuity of at least 6/6 in each eye, normal binocularity and unremarkable ocular health. All subjects understood they had the right to withdraw from the study and that if had been approved by the Human Research Committee at the University of Waterloo.

Prior to VEP data acquisition, baseline push-up amplitudes of accommodation were measured for each subject. Subsequently, two drops of 1% Cyclogyl (cyclopentolate HC1) were instilled in each eye of the subject. Three millimeter artificial pupils were

*Optometrist
**Optometrist, MSc, Member of Faculty
School of Optometry
University of Waterloo

positioned on the back of the phoropter. The Cyclogyl and artificial pupils were incorporated to minimize intra-subject variations in accommodation and retinal illuminance. For all recordings, the subject viewed the VEP stimulus with the current distance spectacle correction in the phoropter. Amplitude of accommodation was monitored hourly and one drop of 1% Cyclogyl was instilled if the accommodative amplitude had recovered to 50% or more of the baseline measurement (during the 9 hour study most subjects required one drop of Cyclogyl subsequent to the initial instillation).

Patterned ssVEPs and tVEPs were recorded from each subject using a 10-20 bipolar electrode configuration. The distance along the midsaggital plane from the inion to the nasion (I-N) was determined for each subject. The active electrode was positioned along the midsaggital plane 10% of the I-N above the inion. The reference electrode was located along the midsaggital plane 20% of the I-N above the active electrode. A clip placed on the right ear lobe served as the electrical ground.

The electrical impedance of all the electrodes was less than 3.0 Kohms. All electrodes remained in position throughout the length of the study.

The low and high bandpass input filters were set at 1 and 30Hz, respectively. The luminances of the black and white checks as measured by a Pritchard photometer were 9.2 and 114 cd/m^2, respectively, giving a contrast of 85%. The screen had an overall luminance of 80 cd/m^2. Ambient room lighting was about 320 lux (1m/m^2).

Steady state VEPs were elicited using a black and white checkerboard pattern which reversed at a frequency of 7.5 Hz. The reversal rate for the tVEPs was 1.9 Hz. At a 2m viewing distance, the baseline ssVEPs and tVEPs were recorded to a field subtending 6 degrees with checks subtending 14 minutes of arc at the corneal plane. A small circular red dot was provided in the center of the checkerboard to facilitate central fixation. Four trials were recorded for each viewing condition: right eye, left eye, and both eyes (RE, LE, and BE). A single trial constituted 50, 500ms epochs for ssVEPs or 50, 200ms epochs for tVEPs. The VEPs were recorded hourly for nine hours. Between hourly recordings subjects were able to pursue their normal work habits and visual demands with the aid of a plus add when necessary.

The recorded electrical potentials were fed through a 10^4 amplifier and processed by a computer of average transients (Nicolet CA-1000). The records were saved on flopy diskettes for later data analysis. The data was digitally transferred to another computer with software designed to analyze and plot the VEP waveforms. Sample VEP records indicating the measurements taken are shown in Figure 1.

Results

For each viewing condition (RE, LE, BE), hourly group-averaged ssVEP amplitudes (Fig 2) and tVEP amplitudes and implicit times (Fig 3 and 4) were calculated and plotted for the nine hour study. The average slope for each plot was calculated and statistically analyzed. The results are summarized in Table 1. None of the slopes varied significantly from a zero slope at the 5% probability level (T-test: $|T| \leq 2.14$ $p \geq 0.0615$).

Analysis of variance of the mean values of the ssVEP amplitudes revealed that the RE, LE, and BE conditions differed significantly (ANOVA $F_{1,18}=3.7$, $p=0.0451$). Inspection of these calculated group means, found in Table 2, show the binocular responses to be significantly larger in amplitude than either monocular response. The monocular responses were not statistically different. Analyzing the tVEP in a similar manner, the three viewing conditions produced significantly different amplitudes (ANOVA $F_{1,18}=8.41$, $p=0.0026$). Specifically, the mean value for the right and the left eyes were similar, but the value for the binocular response was significantly larger. Statistical analysis of the implicit times of the tVEPs indicated a significant inter-ocular difference in the transmission times (ANOVA $F_{1,18}=33.64$, $p=0.0001$). The RE and

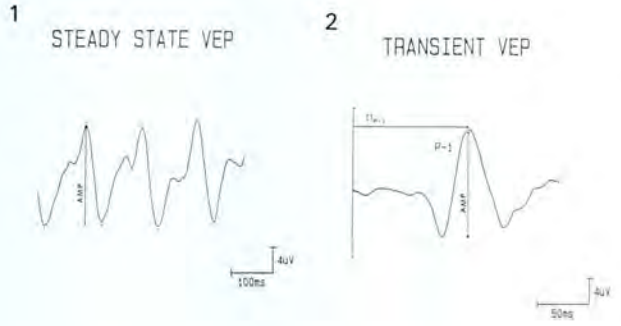


Figure 1

Sample patterned ssVEP and tVEP waveforms indicate the measurements taken. For a single ssVEP (1) epoch, amplitudes (AMP) were measured from the peak to the preceding trough on the three complete waveforms. A single tVEP (2) epoch amplitude (AMP) was assessed from the peak of the P-1 wave to the preceding trough. The implicit time (IT_{P-1}) was measured from the beginning of the waveform to the peak of the P-1 wave.

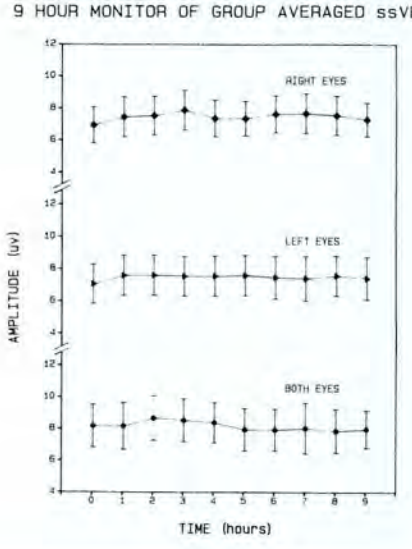


Figure 2

Group-averaged data (n=10) showing changes in the ssVEP amplitude as a function of time for the right eye (RE), left eye (LE), and both eyes (BE). Vertical bars through the data points indicate ± 1 SEM values. The slopes of the regression lines (not shown) through the data points for each viewing condition indicate there was no significant change from the baseline measurements over the 9 hour period.

BE conditions were similar in timing, but the LE transmission was significantly delayed.

The intra-subject variance of the ssVEP and the tVEP was analyzed. For the nine hours, the average value and the standard error of the mean (SEM) were calculated for each individual and each viewing condition. The average values of the ten subjects were combined to yield a group mean. The SEM was converted to a percentage of the average value for each individual. The percent SEMs were averaged across the ten subjects. These results are summarized in Table 3. Comparing the group-averaged SEMs, the tVEP amplitudes were found to vary twice as much as the ssVEP amplitudes. The tVEP implicit time SEMs were very consistent showing little variability.

TABLE 1
Determination of Slopes Differing from Zero

Recording	Average Slope	T	PR> | T |
ssVEP - AMP			
RE	.02	.50	.6283
LE	.01	.23	.8252
BE	−.06	−2.14	.0615
tVEP - AMP			
RE	.05	1.57	.1501
LE	.02	1.09	.3051
BE	.01	.73	.4857
tVEP - IT			
RE	.01	.08	.9370
LE	.12	1.17	.2716
BE	.03	.25	.8077

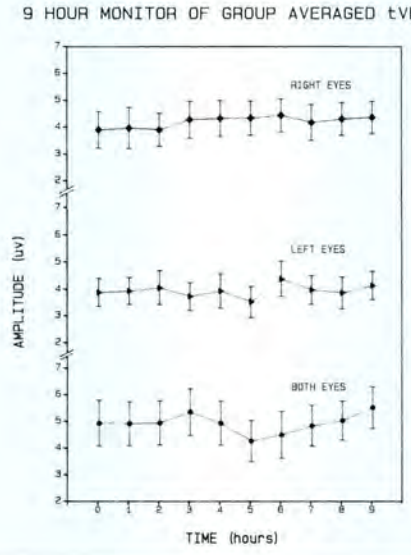


Figure 3

Group-averaged (n=10) tVEP amplitudes are shown as a function of time RE, LE, and BE. Vertical bars through data points indicate ± 1 SEM values. The slopes of the regression lines (not shown) through the data points for each viewing condition indicate there was no significant change from the baseline measurements over the 9 hour period.

TABLE 2
Viewing Condition Variance

Recording	Mean	F	p	DF
*ssVEP - AMP		3.70	.0451	1,18
RE	7.41			
LE	7.41			
BE	8.10			
*tVEP - AMP		8.41	.0026	1,18
RE	4.14			
LE	3.89			
BE	4.87			
*tVEP - IT		33.64	.0001	1,18
RE	115.8			
LE	120.5			
BE	115.5			

NOTE: *indicates a statistically significant difference ($P \leq 0.05$)

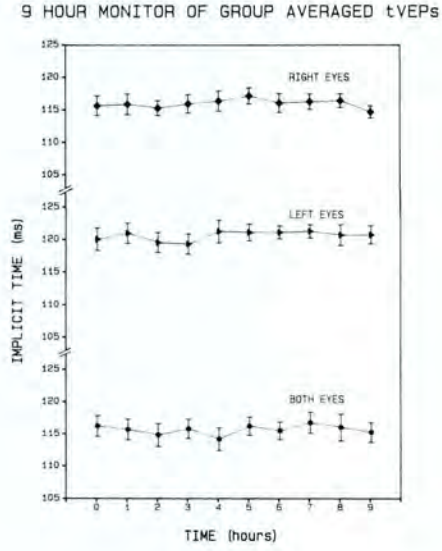


Figure 4

Group-averaged data (n=10) for tVEP implicit times are shown as a function of time for RE, LE, and BE. Vertical bars through the data points indicate ± 1 SEM values. The slopes of the regression lines (not shown) through the data points for each viewing condition indicate no significant change from baseline measurements over the 9 hour period.

Discussion

In the present study, the variability of the ssVEP and the tVEP over the course of a nine hour day was investigated to see if diurnal rhythms or fatigue affect either the amplitude or the timing of the patterned VEP. The results of this investigation suggest that for the stimulus conditions studied, there was no significant change or trend in the pattern VEP over a nine hour period. The VEP appeared to be independent of diurnal effects and, hence, the time of day VEPs are recorded may not be of importance. All subjects reported

TABLE 3
Variance of ssVEP and tVEP

Recording	Group Mean	Variation (+/– SEM%)
ssVEP - AMP		
RE	7.41	3.31
LE	7.41	2.67
BE	8.10	3.29
tVEP - AMP		
RE	4.14	6.35
LE	3.89	6.52
BE	4.87	6.48
tVEP - IT		
RE	115.8	.55
LE	120.5	.65
BE	115.5	.65

visual fatigue at the end of the 9 hour data collection, however, no evidence of its effects was apparent in the VEP.

The small, but significant, difference in the mean values of the ssVEP amplitudes obtained binocularly versus monocularly supported the well-documented tendency of partial binocular summation (ie, the binocular response was greater than the mean monocular response, but less than twice the mean monocular response).[12] The significant difference in the tVEP amplitudes recorded binocularly and monocularly also reflected partial binocular summation, but to a greater extent than the ssVEP amplitudes.

Although the implicit time of the tVEPs did not change significantly over the nine hour time course, the timing of the LE was significantly delayed with respect to the RE and BE conditons. The cause of this consistent delay in the implicit time for the left eye was that the artificial pupil placed before the left eye was inadvertently approximately 1 mm smaller than the desired 3 mm pupil size used before the right eye. As mentioned previously, Lovasik et al[8] found that a decreased pupil size delays the tVEP implicit time. Extrapolation from one of Lovasik et al's graphs indicated that a 1.5-2.0 mm pupil would delay the implicit time from 2 to 5 ms relative to a 3mm pupil; an inter-ocular difference which corresponded to that found in this study. It was clear that the interocular timing difference was due to the induced anisocoria caused by the unequal artificial pupil sizes. In addition, the induced inter-ocular timing and retinal illuminance differences likely contributed to the smaller than expected binocular summation obtained for the group.

The results from this study agree with van Brocklin et al's[5] findings that the tVEP amplitude was more variable than the ssVEP amplitude. The variabilities quoted in their paper were 20% and 30% for the ssVEP and the tVEP, respectively. In the present study, the variability of the ssVEP and the tVEP were 3.27% and 6.45%, respectively. The difference in the variability percentages reported in the two studies arise from differences in data collection as well as analysis. Of most importance was the inter-study differences in data analysis. In this study, the SEM was chosen to represent the variability in the averaged VEP whereas van Brocklin et al considered the absolute range of VEP amplitudes. In addition, van Brocklin et al used 3 trials of 25 epochs whereas the present study used 4 trials of 50 epochs. The increased number of recorded potentials in this study would decrease the variability and thereby increase the reliability. Finally, in this study, accommodation and pupil size were controlled, but there was no mention of controlling these factors in the van Brocklin study.

The analysis of the tVEP implicit time indicated very little variability which agreed with other studies previously mentioned.[1,5,9]

Conclusions

Variability in the VEP arises from a combination of fluctuation in electrophysiologic background activity, observer attention to the fixated stimulus, electrode placement, and electrode-skin impedance. For the conditions investigated in this study, neither fatigue nor diurnal effects significantly altered the recorded VEP.

The observation that ssVEP amplitudes are less variable than tVEP amplitudes was further supported by the study. Although ssVEP amplitudes are more reliable than tVEP amplitudes, both recordings provide valuable information to the clinician. The tVEP implicit time is very reliable and changes in the timing should alert the clinician to possible problems in the transmission of information from the macula to the visual cortex, such as occur in optic neuritis or optic atrophy.

The clinical implications of this study are that the time of day that the VEP is recorded is not likely an important factor. Both inter- and intra-subject variability in the pattern VEP is a concern yet in this study the use of repeated trials in combination with a cycloplegic minimized the likelihood of accommodative fluctuations affecting the VEP. The importance of pupil size was illustrated in this study and should be considered when recording VEPs from patients with anisocoria.

Acknowledgements

This study was funded by a COETF grant to M.M. Spafford. We thank our subjects for their participation in the study and Erin Harvey of the University of Waterloo Statistics Consulting Services for providing the statistical analysis.

References

1. Sokol S. Visually evoked potentials: theory, technique and clinical applications. *Surv Ophthalmol* 21(1): 18–44, 1976.
2. Ellingson R, Lathrop G, Dahany T, Nelson B. Variability of visually evoked potentials in human infants and adults. *Electroencephalogr Clin Neurophysiol* 34: 113–24, 1973.
3. Ciganek L. Variability of the human visually evoked potential: normative data. *Electroencephalogr Clin Neurophysiol* 27: 35–47, 1969.
4. Lovasik JV, Ahmedbhai N. Stimulus contaminants in visual electrophysiology. *Am J Optom Physiol Opt* 62(5): 334–43, 1985.
5. van Brocklin MD, Hirons RR, Langfield WH, Yolton RL. The visually evoked response: reliability revisited. *J Am Optom Assoc* 50(12): 1372–9, 1979.
6. Kergoat H. Video display units and visual fatigue. 1987. MSc Thesis. University of Waterloo, School of Optometry.
7. Ericson LA. 24 hourly variation of aqueous flow. *Acta Ophthalmol Suppl* 50: 1–95, 1958.
8. Lovasik JV, Spafford M, Szymkiw M. Modification of pattern reversal VERs by ocular accommodation. *Vision Res* 25(4): 599–608, 1985.
9. Wooten BR. Photopic and scotopic contributions to the human visually evoked cortical potential. *Vision Res* 12: 1647–60, 1972.
10. DeVoe RG, Ripps H, Vaughan Jr HG. Cortical responses to stimulation of the human fovea. *Vision Res* 8: 135–47, 1968.
11. Spafford MM, Trotter AJ. Neural indices of short-term visual deprivation in humans: effects upon the patterned VEP. *Can J Optom* 51(2): 67–73, 1989.
12. Apkarian PA, Nakayama K, Tyler C. Binocularity in the human visually evoked potential: facilitation, summation, and suppression. *Electroencephalogr Clin Neurophysiol* 51: 32–48, 1981.

BARGAIN LENSES ARE STRICTLY FOR THE SHORTSIGHTED.

A bargain lens isn't necessarily a smart buy.

After all, if your patient has a problem, it's going to cost you – both in time *and* goodwill.

Solve the problems before they start. Use the CIBASOFT® family of spherical lenses.

No other soft lenses offer such ease of fit, comfort or visual acuity. And no manufacturer provides better warranty programs for so many types of lenses.

CIBASOFT® lenses cost a few dollars more. But we think you'll agree they're worth it. Because at this stage, you don't need to learn that hindsight is 20/20.

CIBASOFT® · CIBASOFT STD® · CIBATHIN® · CIBASOFT E®

CIBAVision™

Vision Screening with a Microcomputer: Validation of Two Computerized Acuity Tests

BD Johnson *
MJ Samek **

Abstract

The purpose of this study was to evaluate two computerized acuity tests which represent part of a battery of computerized assessment procedures that may be used for vision screening. Habitual monocular acuities of 20 subjects were evaluated using eye charts generated by a microcomputer. In one procedure (AC), subjects were asked to identify alphabetical characters ranging in size from 6/24 (20/80) to 6/6 (20/20). In the other procedure (TE), subjects were asked to identify illiterate E characters, which were shown over the same acuity range. The results of the computerized procedures were compared to acuity measurements obtained using non-serifed Snellen charts. Both computerized tests were validated. A regression analysis revealed that the computerized estimates of visual acuity differed from the clinical measurement by one optotype, given five, at the threshold level. Since both the alphabetical and illiterate E characters produced similar and valid results, it is suggested that the present tests may be of value for screening visual acuity in reading and non-reading groups.

Résumé

L'objet des études était d'évaluer deux tests informatisés d'acuité représentant une partie d'une batterie de techniques informatisées d'évaluation utilisables pour les test de vision. Les chercheurs ont évalué l'acuité monoculaire habituelle de 20 sujets, à l'aide d'échelles optométriques générées par ordinateur. Dans un cas (AC), on a demandé aux sujets d'identifier des caractères alphabétiques variant en taille de 6/24 (20/80) à 6/6 (20/20). Dans un autre (TE), on a demandé aux sujets d'identifier des caractères E non littéraux, sur les mêmes paramètres d'acuité. Les chercheurs ont comparé les résultats des essais sur ordinateur aux mesures d'acuité obtenues à l'aide de tableaux de Snellen de linéales (caractères sans empattement). Les deux tests informatisés ont été validés. Par l'analyse de régression, les chercheurs ont constaté que les évaluations par ordinateur de l'acuité visuelle s'écartaient des mesures cliniques d'un optotype, compte tenu de cinq, au niveau liminaire. Puisque les caractères alphabétiques et non littéraux ont donné des résultats analogues et valables, il semblerait que les tests actuels soient adéquats pour évaluer l'acuité visuelle chez les groupes de lisants et non-lisants.

Introduction

Over the past few years, evidence that microcomputers may be used to assess visual function has appeared in the literature. Visual acuity,[1,2] accommodative rock,[3] and fixation disparity,[4] for example, have been evaluated using computer-displayed tests. A battery of computerized visual assessment procedures has been evaluated by Edworthy,[5] who showed that a common microcomputer can fulfil the requirements of a vision screening program.

In this paper we report the results of the validation of two computerized acuity tests. The tests represent part of a battery of computerized visual assessment procedures being developed by the authors. The present tests were distinguished on the basis of the optotypes they used. In one case the optotypes consisted of "Tumbling E" (illiterate E) symbols. In the other case, the optotypes were selected from a pool of 16 uppercase alphabetical characters.

To date, only acuity tests that have used video-displayed illiterate symbols have been validated. Payor[6] evaluated video-displayed letter charts but found that the visual acuities obtained were, on average, one line lower than acuities measured with an externally illuminated Bailey-Lovey chart.

Although illiterate symbols should satisfy the stimulus requirements in most testing situations, there are certain instances where the use of alphabetical symbols may be preferred. For example, the use of alphabetical characters would reduce the potential for directional errors, which occur when tumbling E symbols are identified by means of a directional response. Additionally, literate children may show more resistance to acuity testing when illiterate symbols are used. According to some of the Public

*MSc
**OD, MSc
The Vision Institute of Canada
Toronto, ON

Health nurses who perform vision screening in the metro Toronto area, literate children are more difficult to test when illiterate symbols are used.[7] In view of these potential difficulties, it would be beneficial to have both alphabetical and illiterate symbols available for the acuity test.

Methods

Participants

Participants in the study consisted of patients reporting to the Vision Institute for scheduled eye examinations. Patients between the ages of 16 and 65 were eligible to participate providing they had not had an acuity examination within six months.

Eligible patients were randomly assigned to one of two test groups. The "TE" group was assessed using "Tumbling E" (illiterate E) characters. The "AC" group identified optotypes selected from a pool of 16 uppercase alphabetical characters. Participants in both groups had their acuities assessed by the computerized procedure prior to their eye examination. The results of the computerized tests were unknown to the optometrist who performed the eye examination.

Apparatus

The computer tests were displayed using a desktop computer that was compatible with the IBM XT series. The video display was an AMDEK Model 410W TTL monitor. In tandem, the equipment generated high contrast black letters on a white background. The optotypes, which were randomly selected on each presentation, ranged in size from 6/24 (20/80) to 6/6 (20/20) from a testing distance of 2.75 M (about 9 ft.).

Procedures

Computer testing was conducted by assistants in a quiet room. Room lighting was subdued, and measured between 5 and 10 foot-candles at various positions within the testing area. Habitual monocular acuities were obtained in all cases. Testing began with 6/24 (20/80) optotypes and proceeded until more than one error was made on a line of five optotypes, or until the patient passed the 6/6 (20/20) line.

Visual acuity scores obtained using the computerized tests were compared to visual acuities determined by optometrists during the patient's eye examination. In order to permit direct comparisons of the two sets of results, the optometrists asked their patients to identify exactly five optotypes on each line. Acuity scores from the computer and eye tests were transformed into logMAR form [log (base 10) Minimum Angle of Resolution]. The transformed scores took into account the number of errors made by the patient at the threshold acuity level by adding the proportionate error to the denominator of the acuity fraction.[6] For example, a score of 6/9-2 (20/30-2) was transformed as follows: Two fifths (0.4) was added to the denominator since two errors were made on a line containing five optotypes. The resulting log MAR score was then computed as:

$$\log(\text{Numerator}) - \log(\text{Denominator} + \text{Proportion of Error}) = \log(6) - \log(9.4) = -0.195$$

Using the visual acuity from the patient's eye examination as the standard, regression analyses were performed to assess the accuracy of the two computerized acuity tests.

Results and Discussion

We were interested in answering several questions at the outset of this research. First, would both computerized tests provide an accurate measurement of visual acuity? It was our goal to develop two sets of optotypes that could be used with reading and non-reading populations. The results of the regression analyses indicate that both tests produced accurate measurements of visual acuity (see Figures 1 and 2). The regression coefficients for the TE and AC tests were 0.97 and 0.92, respectively. The corresponding correlation coefficients were 0.95 for the TE test and 0.98 for the AC test. Intercept values in the regression equations indicate that both tests have an error margin at the threshold line of about one letter when five letters are presented. We conclude that both sets of optotypes produced valid estimates of the patient's visual acuity.

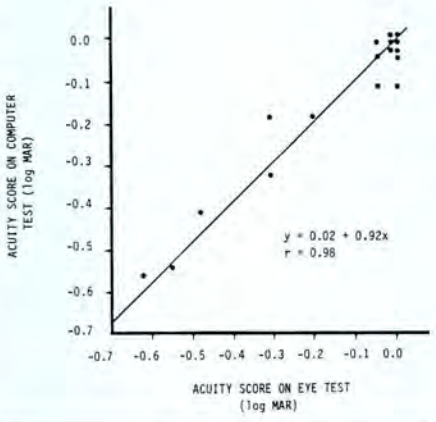


Figure 1

Acuity scores from the TE test regressed on acuity scores from the patient's eye examination. Higher values represent better threshold acuities. For example, logMAR = 0 represents 6/6 (20/20).

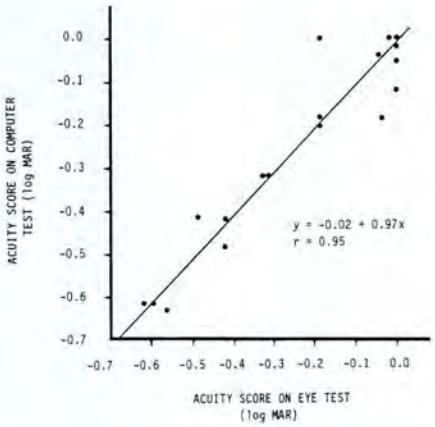


Figure 2

Acuity scores from the AC test regressed on acuity scores from the patient's eye examination. Higher values represent better threshold acuities. For example, logMAR = 0 represents 6/6 (20/20).

A second consideration was whether the computer tests could be rapidly and accurately administered by persons who have no special training in either the vision or computer sciences. Our assistants received approximately 15 minutes of instruction concerning the operation of the computerized tests. They performed a complete test, on average, in 3.5 minutes.

Since the tests were developed for application in vision screening we felt it was worthwhile to determine how accurately they would identify patients whose acuity fell above or below a cut-off level. In advance of testing we selected 6/12 (20/40) as the cut-off acuity since it is the level most often used in Ontario to determine referral status. By this criterion, one eye was classed as a false positive (6/12-2 on computer test vs. 6/9-2 on eye test). No eyes were classed as false negative.

Our data indicate that computerized testing of visual acuity represents a viable means of testing visual acuity for vision screening purposes. We have demonstrated that accurate estimates of visual acuity can be obtained with adults using computerized tests, and that these tests can be administered within a few minutes by non-technical personnel. Importantly, the present study demonstrates that suitably designed

alphabetical characters can be used in conjunction with Tumbling E symbols, permitting the use of an alternative set of optotypes in cases where illiterate symbols are not the preferred stimulus.

Acknowledgement

The authors would like to thank Lori Rawlings and Fay Twa for their assistance in collecting the data for this study. Additional thanks are made to the Optometric staff at the Vision Institute of Canada for their participation.

References

1. Timberlake, George, Mainster, Martin A, and Schepens, Charles L. Automated Clinical Visual Acuity Testing. *American Journal of Ophthalmology*. Vol 90: 369-373. 1980.
2. Friendly, David S and Wiess, Ira P. An Automated Visual Acuity Testing Computer Program Using the Apple II System. *American Journal of Ophthalmology*. Vol 99: 188-192. 1985.
3. Allen, Merrill J. Accommodative Rock via Computer. *Journal of the American Optometric Association*. Vol 59(8): 610-613. 1988.
4. Yeager, Dwayne and Boltz, Roger L. Computerized Fixation Disparity Measurement. *American Journal of Optometry and Physiological Optics*. Vol 63(8): 654-661. 1986.
5. Edworthy, GA. An Evaluation of the Microcomputer as a Vision Screening Medium. *Canadian Journal of Optometry*. Vol 47(4): 157-161. 1985.
6. Payor, Rick. Performance of Video-Displayed Letter Charts. *Clinical and Experimental Optometry*. Vol 69(2): 73-76. 1986.
7. Personal communication, meeting with representatives from Peel Region Public Health Dept., City of Toronto Public Health, and Etobicoke Public Health Dept, August, 1988.

NEW HORIZONS FOR PRESBYOPIC PATIENTS

ECHELON™

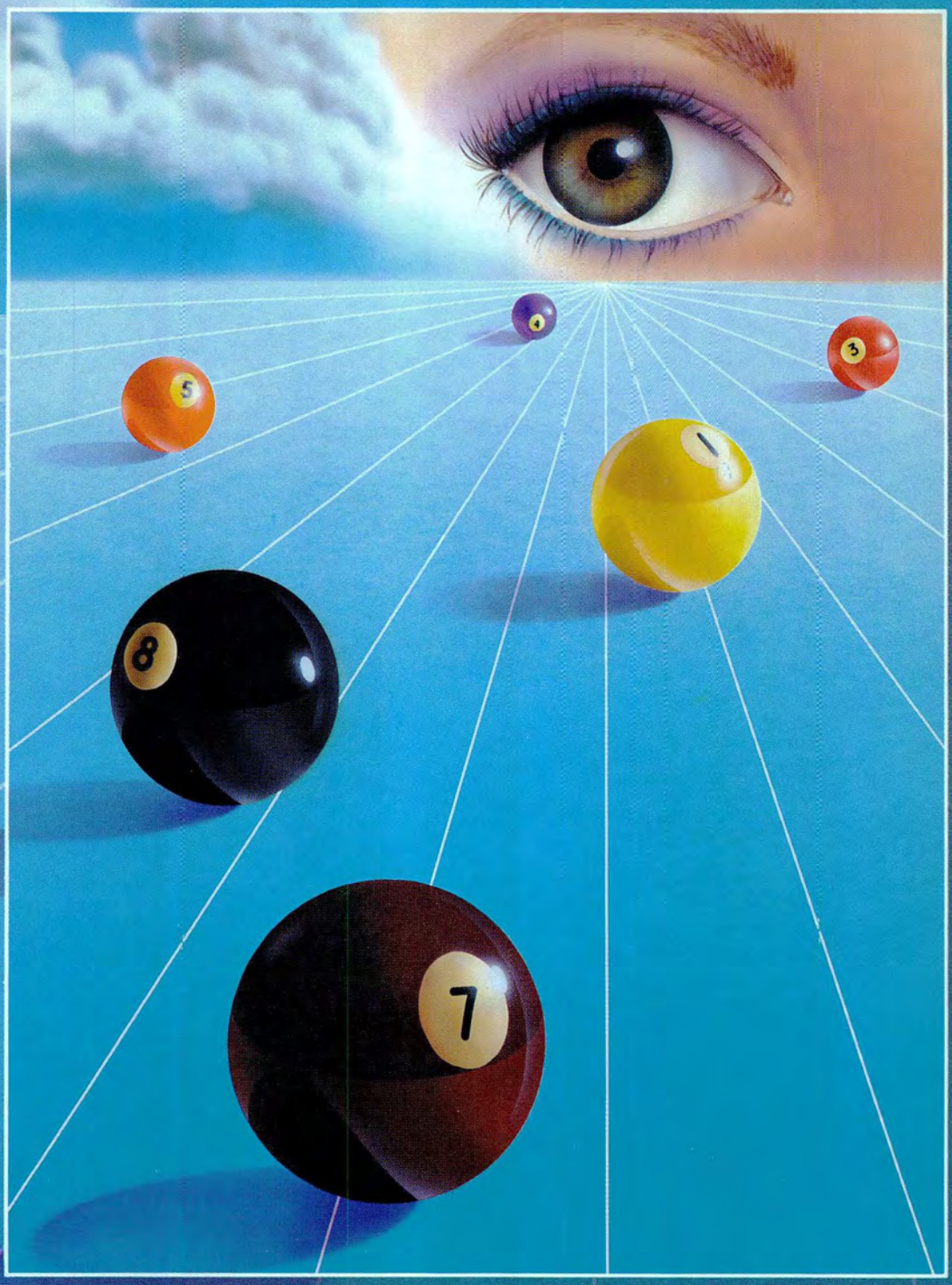
(polymacon)
diffractive soft bifocal contact lenses

Innovative design, better vision!

Echelon's unique diffractive design provides clearer vision, near and far. Unlike conventional bifocal corrections, Echelon is gaze and pupil independent. Compared to monovision, Echelon provides superior binocular visual performance. And Echelon is just as easy to fit as single-vision soft contact lenses!

Echelon lenses can open up a bright new world for your presbyopic patients. Introduce them to Echelon and increase your contact lens business!

ALLERGAN OPTICAL



ECHELON™

SEEING IS BELIEVING!

Comparaison des verres progressifs Varilux 2 † et bifocaux Telex † chez les non-presbytes: Préférence et efficacité visuelle

J-C Allary *
H Toubiana *
P Auger * *

Resume

Douze (12) sujets non-presbytes et pouvant bénéficier d'une addition en vision de près ont été équipes avec des verres progressifs Varilux 2 et des double-foyers Telex*. Chaque sujet a porté un équipement pendant quatre semaines, puis l'autre équipement pendant quatre semaines également. Il portait ensuite de nouveau sa première paire de verres pendant une dernière semaine à la fin de laquelle son choix final et ses impressions subjectives étaient notées. Chaque sujet a été soumis à une série de tests d'efficacité visuelle et de mesures optométriques avant le début des essais puis lors de chaque changement de verres.*

Les sujets ont en général très bien accepté les deux types de correction. Six d'entre eux ont néanmoins exprimé une préférence pour le Varilux 2,, six ont préféré le Telex. Une analyse plus approfondie des résultats a cependant montré une légère préférence globale pour le Varilux 2. Les tests de lecture ont révélé la possibilité d'un rendement légèrement meilleur avec les double-foyers.

** : Marque déposée de la société Essilor International*

Abstract

Twelve (12) non-presbyopic patients who could benefit from added plus at near were fitted with Varilux 2 progressive addition lenses and Telex* bifocal lenses. Each patient wore one type of lens during 4 weeks, and the other type during the next 4 weeks. Subjects then wore the first pair again for one last week before they were asked to make a final choice and to give their opinion on both types of lenses. A series of visual efficiency tests and optometric tests was administered to each subject before entering the study and upon each lens change.*

Six (6) subjects preferred to keep the Varilux 2 lenses and six others preferred the Telex lenses. A more detailed analysis of the results revealed a slight global preference for the Varilux 2 lenses. It indicates merely a preference, the acceptance of both type of lenses being generally very good. Reading efficiency tests indicated the possibility of a slightly better efficiency with bifocal lenses.

** : Registered Trademark of Multi-Optics Corporation*

Introduction

Plusieurs études ont déjà cherché à comparer la préférence de sujets presbytes entre des multifocaux progressifs et des bifocaux[1,2,3]. Borish et al[1] ont comparé en 1980 deux types de verres progressifs, les Varilux 2 et les Ultravue, avec 54 sujets presbytes. A la fin de l'étude, chaque sujet pouvait choisir de garder un des deux types de progressifs, ou bien il pouvait rejeter les deux et prendre des bifocaux de son choix. Sur les 31 sujets habitués à porter des bifocaux, 28, soit 90 %, sont volontairement restés avec les progressifs.

* *OD*
** *ingénieur*
Institut et centre d'optométrie
Bures sur Yvette, France
† *Marque déposée de la société Essilor International*

Spaulding[2] étudia en 1981 la préference de sujets presbytes corrigés pour la première fois en multifocaux. Sur 48 sujets, 25, soit 52 %, ont préferé les Varilux 2 aux bifocaux classiques à segment droit de 25 mm. Spaulding a bien précisé qu'il s'agissait là d'un taux de préférence et non d'un taux d'acceptation. La plupart des sujets étaient satisfaits des deux types de verres, mais il leur était demandé leur préférence sous forme d'un choix forcé.

Borish et Hitzeman[3] ont comparé en 1983 la préférence des presbytes entre deux types de multifocaux invisibles: les progressifs et les bifocaux ''gommés''. Dans la deuxième expérience de cette étude, sur 47 sujets presbytes équipés pour la première fois en multifocaux, 39 ont préferé les progressifs (soit 83 %), trois ont préferé les bifocaux invisibles et cinq ont préferé revenir à une correction de près simple foyer.

Ces trois études ont donc montré une très bonne acceptation des verres progressifs Varilux 2 chez les presbytes, 92.5 % selon

Borish, et une préférence pour les progressifs par rapport aux bifocaux de 52 % à 90,3 % selon les études. Pour toutes ces études, l'ancienne correction portée et/ou la première correction essayée n'ont pas eu d'influence significative sur le choix final[1,2,3].

Le but de la presente étude était de comparer les verres progressifs aux bifocaux chez les non-presbytes. Nous avons tenté de répondre à trois questions : (1) Y a-t-il chez les sujets non-presbytes équipés avec une addition de près une préférence entre les progressifs et les bifocaux ? (2) Un type de verre donne-t-il une meilleure efficacité que l'autre en vision de près ? (3) Existe-t-il un moyen simple de prédire quel type de multifocal sera le mieux accepté par le sujet ?

Valentino[4] a réalisé en 1982 une étude sur l'utilisation clinique des additions progressives chez les sujets non-presbytes. Soixante-trois sujets ont été équipés de Varilux 2, avec un taux d'acceptation global de 95 %. Seize sujets étaient déjà des porteurs de bifocaux classiques, et parmi eux quinze ont préféré les Varilux 2, soit un taux de préférence de 93 %.

Pourquoi une addition en vision de près chez un non-presbyte ? Certains troubles visuels fonctionnels peuvent provoquer un manque d'efficacité visuelle et des manifestations asthénopiques chez le non-presbyte. Trois grandes catégories de troubles fonctionnels peuvent être améliorés à l'aide d'une addition au près[4] : (1) Excès de convergence (fort rapport AC/A, EXO au près), (2) Excès de divergence (fort rapport AC/A, EXO de loin), (3) Inefficacité accommodative (Lag important, mauvaise flexibilité accommodative). Une addition de près est parfois prescrite aux jeunes myopes en vue de prévenir la progression de leur myopie[5]. Ces derniers constitueraient donc une quatrième catégorie de non-presbytes susceptibles de porter une addition.

Methodes

1. Sélection des sujets

L'étude a eu lieu à l'Institut et Centre d'Optométrie de Bures-sur-Yvette, France. La plupart des sujets sélectionnés étaient des étudiants en optométrie. D'une manière générale, ont été sélectionnés les sujets qui montraient un besoin pour une correction plus convexe de près. Ceux-ci se regroupaient principalement dans les trois groupes cités plus haut (excès de convergence, excès de divergence, problèmes accommodatifs) bien que cette liste ne soit pas forcément exhaustive. Tous les sujets présélectionnés par un dépistage ont du subir un examen visuel complet avant la sélection définitive.

La présence d'une plainte subjective liée aux tâches visuelles de près était un critére de sélection impératif. Dans les cas où l'asthénopie se révélait due à une amétropie non corrigée, ou mal corrigée, le sujet devait porter pendant deux mois sa correction adéquate avant d'être reconsidéré. Il n'était alors retenu qu'après un nouvel examen visuel et seulement si la plainte subjective n'avait pas disparu.

La fonction binoculaire était étudiée par le dépistage des hétérophories associées, la mesure des hétérophories par la méthode de dissociation par prisme, et par la mesure des vergences fusionnelles en vision de loin et de près.

La fonction accommodative était étudiée en vision de près par la skiascopie dynamique avec lecture, le test des cylindres croisés fixes fusionnés, les accommodations relatives positive et négative. La flexibilité accommodative a été évaluée par la procédure du rock accommodatif binoculaire avec des faces de +/−2.00 dioptries sur un test de lecture Parinaud 2 (équivalent à M.40) placé à 40 cm. Nous avons retenu comme norme 8 (+/−5) cycles par minute[6].

La selection définitive des sujets etait basée sur la concordance des résultats aux différents tests. Si, s'ajoutant à une plainte visuelle subjective, les tests montraient un dysfonctionnement accommodatif, un excès de convergence, ou un excès de divergence, une addition était déterminée en fonction du lag accommodatif, ou bien en fonction du rapport AC/A et des vergences fusionnelles de facon à satisfaire le critère de Sheard. Dans tous les cas l'addition était essayée sur une lunette d'essai et les sujets ne percevant pas une amélioration du confort de lecture n'étaient pas retenus.

2. Protocole expérimental

Chaque sujet sélectionné a été équipé des deux types de corrections multifocales : une paire de verres progressifs Varilux 2 et une paire de bifocaux Telex (avec séparation horizontale sur toute la largeur du verre, type exécutive). Pour les deux types de multifocaux, la formule, le matériau et la teinte des verres étaient identiques, seul le type d'addition était différent. Les deux paires de verres ont été taillées en meme temps et pour la mème monture, celle que le sujet avait choisie. Lors de la livraison et de l'ajustage, le bon positonnement des verres était vérifié à nouveau avec une vérification au miroir pour la vision de pres des Varilux 2, et les sujets étaient informés du mode d'utilisation de leurs nouveaux verres.

La procédure chronologique était similaire à celle utilisée par Borish et al[1]. Chaque sujet sélectionné a porté une paire de verres pendant quatre semaines, puis l'autre équipement pendant les quatre semaines suivantes. Le sujet reportait ensuite sa première paire pendant une dernière semaine pour se remémorer sa première expérience avant le choix final. Les sujets sélectionnés ont été divisés en deux groupes : un groupe commençant par les progressifs Varilux 2 et un groupe commençant par les bifocaux Télex.

Critères de choix de l'équipement optimum

L'équipement optimum pour chaque sujet a été déterminé par des critères subjectifs, et des criteres objectifs. La liste des tests pratiqués pour l'évaluation subjective et objective des équipements est résumée dans la figure 1.

L'appréciation subjective devait bien sur déterminer la préférence de chaque sujet pour l'un ou l'autre type de multifocal, mais également essayer de déterminer les raisons du choix et le degré de préférence. Après les quatre semaines de port de chaque type d'addition, les impressions subjectives de chaque sujet étaient recueillies lors d'un entretien. Lors de la dernière visite, chaque sujet devait faire un choix final entre les Varilux 2 et les Telex et il était interrogé sur les raisons de son choix. Enfin, pour préciser le degré de préférence, il était demandé lors de la dernière visite de donner une note globale sur 20 à chaque équipement.

L'évaluation objective comportait trois tests d'efficacité visuelle au près et une série de mesures optométriques. Ces tests ont été administrés aux sujets sélectionnés avant le début des essais comme information de référence, puis après les quatre semaines de port de la première correction, et enfin après les quatre semaines de port de la deuxième correction.

Les tests d'efficacité visuelle au près devaient déterminer si une des deux compensations apportait de meilleures performances aux taches visuelles de près, en particulier la lecture. Ils comprenaient un test de rendement lexique, un test de concentration visuelle en un test de tachytoscopie, tous en con-

dition binoculaire. Ils étaient effectués avec la dernière correction portée, c'est à dire avec la correction de loin seulement lors de la première visite et avec le type d'addition qui venait d'être porté quatre semaines lors des visites suivantes.

Pour mesurer le rendement lexique, un texte calibré était donné à lire au sujet et sa vitesse de lecture était calculée en mots par minute. Dix questions à choix multiple étaient ensuite posées au sujet, ce qui permettait d'établir son taux de compréhension-mémoire (Ex : 3 erreurs. taux de compréhension = 0,7). Pour un niveau d'études supérieur ou égal au Baccalauréat français, la vitesse de lecture correspondant à un lecteur efficace est de 350 mots par minute et le taux de compréhension de 70 %. Le produit des deux résultats est égal au rendement lexique[7]. Le rendement R s'exprime alors par:

$$R = \frac{\text{vitesse de lecture}}{350} \times \frac{\text{tx de compréhension}}{0,7}$$

Figure 1

Fiche d'évaluation de l'équipement optimum

I. Evaluation subjective

1. Impressions subjectives
2. Note globale sur 20 (lors de la derniere visite seulement)
3. Choix final (lors de la derniere visite seulement)

II. Evaluation objective

1. Tests d'efficacite visuelle au pres

   a. Rendement lexique
   b. Concentration visuelle
   c. Tachytoscopie

2. Mesures optométriques

   a. Distance de lecture
   b. Phories associées VL.VP
   c. Phories dissociées VL.VP
   d. Vergences relatives VL.VP
   e. Punctum proximum de convergence
   f. Punctum proximum d'accommodation
   g. Faces +/– 2.00 dioptries à 40 cm.

Un lecteur efficace doit donc avoir un rendement lexique étal à l'unité. Afin de pouvoir comparer les résultats, les textes de lecture ont été donnés dans la même séquence pour tous les sujets. Chaque texte était ainsi lu par le groupe portant des Varilux 2 et par celui portant des Telex. Une éventuelle différence de difficulté entre les textes ne devrait donc pas trop fausser les résultats. Ces textes étaient extraits d'un ouvrage de lecture rapide[8].

Le test de concentration visuelle consistait à rechercher rapidement les différences entre deux listes de symboles graphiques. Son évaluation était similaire à celle du test de rendement lexique. Le test tachytoscopique portait sur des nombres de plus en plus longs et était effectué en vision de près.

Une série de mesures optométriques susceptibles d'être influencées par le port d'une addition au près était ensuite administrée à chaque sujet. La distance de lecture était mesurée alors que le sujet lisait le Parinaud 2 (équivalent à M.40) avec la dernière correction portée. Les hétérophories associées, dissociées et les vergences fusionnelles étaient mesurées avec la correction de loin en place dans le réfracteur. Le punctum proximum de convergence, d'accommodation et la flexibilité accommodative étaient mesurés avec la correction de loin en place dans une lunette d'essai.

Resultats

Sur les 15 sujets qui s'étaient engagés dans l'étude, 12 ont terminé les essais. Deux sujets ont déclaré ne s'être habitués ni aux Varilux 2, ni aux Telex. Il semble que ces deux sujets aient été sélectionnés par erreur et que pour eux, leurs plaintes visuelles initiales étant légères, l'addition de près n'apportait pas suffisamment de confort visuel par rapport aux inconvénients induits par le port de verres multifocaux. On peut penser qu'aucun type de multifocal n'aurait été accepté et ces échecs n'ont donc pas été considérés comme des échecs en Varilux 2 ou en Telex, mais comme des échecs en multifocaux, quel que soit le type.

Sur les 12 sujets ayant terminé les essais, 6 ont choisi de garder les Varilux 2, et 6 ont choisi de garder les Telex en fin d'étude, c'est à dire qu'il n'y a pas eu de préférence nette pour l'un ou l'autre type de verres. Ce taux de préférence de 50 % pour les Varilux 2 par rapport aux Telex est très similaire à celui trouvé par Spaulding (52 % de préférence pour les Varilux 2) qui avait fait comparer des Varilux 2 et des doubles foyer type segment droit 25 mm à des presbytes corrigés pour la première fois[2]. Il est important de remarquer qu'il s'agit là d'un taux de préférence qui ne préjuge pas d'un taux d'acceptation. Tous les sujets s'étant bien adaptés aux progressifs se sont bien adaptés aux bifocaux et inversement. Chacun d'eux aurait donc bien accepté l'une ou l'autre des corrections s'il n'aviat pas eu l'occasion d'essayer les deux. Les sujets étant en situation de choix forcé, ils exprimaient une préférence et non un rejet de l'autre type de verres. D'après cette étude, l'acceptation est pratiquement certaine si les sujets sont bien sélectionnés.

Comme cela avait déjà été remarqué dans d'autres études[2,3], nous n'avons pas noté d'influence de la première correction portée sur les résultats et sur le choix final. Nous avons donc choisi de regrouper la présentation des résultats aux tests.

Au niveau des impressions subjectives, on retrouve beaucoup des remarques classiques données par les presbytes avec ce genre de verres. Pour résumer les remarques des sujets, les bifocaux Telex sont très appréciés pour les situations avec beaucoup de travail de près (en cours, au bureau), mais la ligne de séparation entre les plages de vision de près et de loin est gènante pour beaucoup de sujets, aussi bien esthétiquement que visuellement. La plage de vision de près peut de plus s'avérer gènante pour certaines tâches effectuées debout et en vision intermédiaire vers le bas (vaisselle, jardinage, etc.) ainsi que pour la marche à pied. Avec les progressifs Varilux 2, l'absence de séparation visible est très appréciée, surtout pour des raisons esthétiques. Pour une personne debout, le champ vers le bas et en vision intermédiaire apparaît de meilleure qualité qu'avec les bifocaux Telex car la plage de vision de près gêne moins

dans ces situations. Par contre, plusieurs sujets se sont plaints de flou en vision latérale plus éventuellement de distorsions en vision de près. Deux sujets se sont plaints d'une difficulté à bien se positionner dans le Varilux 2, de ne "pas savoir où regarder". Il a de même été remarqué que quelques sujets n'utilisaient pas forcément la plage de vision de près pour des tâches en vision rapprochée. Ce problème de positionnement est probablement plus fréquent qu'avec les presbytes chez qui l'addition est nécessaire pour obtenir une vision nette de près, alors que l'addition chez le non presbyte n'apporte pas vraiment une vision plus nette, mais un confort de fonctionnement. Le feedback est donc moins franc et moins rapide chez le non-presbyte.

La préférence entre les progressifs et les bifocaux peut être appreciée avec plus de nuances si l'on examine les notes sur 20 attribuées a chaque type de verre par les douze sujets à la fin des essais. Les notes, représentées dans les figures 2 et 3 font apparaître une légère préférence globale pour les Varilux 2 par rapport aux Telex. Les progressifs obtiennent une moyenne de 14,4 et les doubles foyers obtiennent une moyenne de 12,9. Les scores des Varilux 2 sont assez étalés: de 08 à 20 avec un écart type de 3,77 alors que les scores des Telex sont plus regroupés : de 10 à 16 avec un écart type de 1,75.

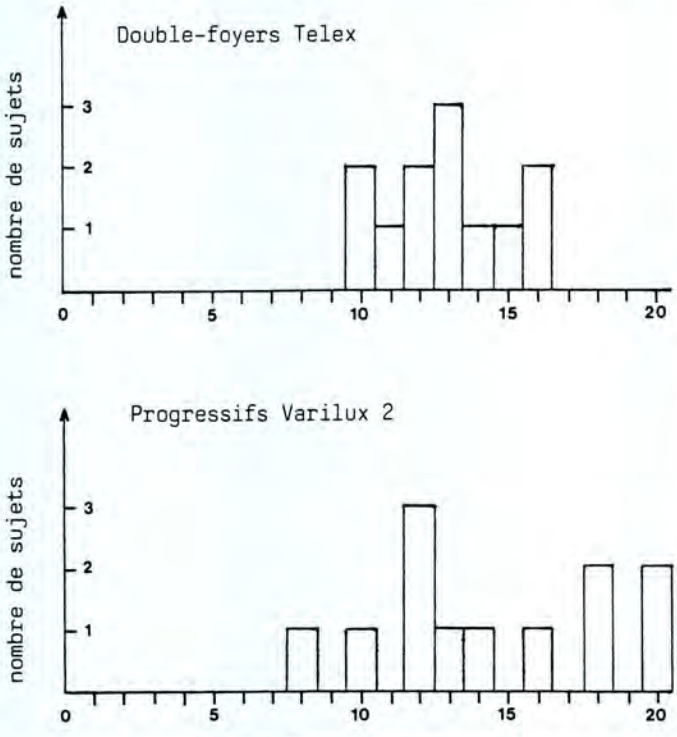


Figure 2
Notes globales sur 20 attribuées à chaque équipement.

Notons qu'une seule note est inférieure à 10/20, ce qui confirme que les choix sont le plus souvent faits par préférence pour un type de verre et non par rejet de l'un ou l'autre. Le sujet qui a mis 08/20 aux Varilux 2 était satisfait de ceux-ci pour le travail en vision de près, c'est à dire qu'il ressentait une amélioration par rapport à son ancienne correction sans addition, mais il était en revanche un peu gêné pour ses déplacements et ne les portait donc pas toute la journée (seulement pour ses activitées de près et pour la conduite automobile).

La notion de préférence peut également être précisée par la différence entre les deux notes que chaque sujet a attribué aux deux équipements. On observe sur la figure 3 que les points des six sujets ayant choisi les progressifs ont tendance à être plus éloignés de la première bissectrice que ceux des six sujets ayant choisi les bifocaux. Les sujets ayant choisi les Varilux 2 ont donc en moyenne exprimé un préférence plus forte, allant même parfois jusqu'à l'enthousiasme, que ceux qui ont choisi les Telex.

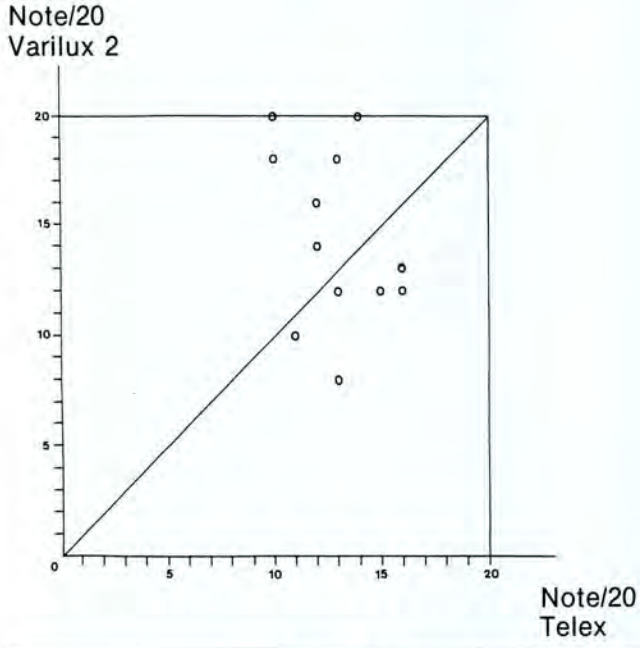


Figure 3

Les notes attribuées aux Telex sont rapportées en abscisses et celles des Varilux 2 en ordonnées. Chaque point représente un sujet et est déterminé par les deux notes qu'il a attribuées. La première bissectrice représente la ligne de non-préférence, un point situé sur cette ligne représentant un sujet qui aurait donné la même note aux deux équipements. Plus un point est éloigné de la bissectrice plus la préférence du sujet pour un type de verre est marquée. Les sujets dont les points sont situés en-dessous de la bissectrice ont préféré les Telex. Ceux dont les points sont situés au-dessus de la bissectrice ont choisi les Varilux 2. Pour ces derniers, on remarquera les deux notes de 20/20 que nous interprétons comme expression d'un certain enthousiame.

L'adaptation aux deux types de verres est apparue variable. Trois sujets se sont accoutumés plus vite aux Telex et trois sujets se sont accoutumés plus vite aux Varilux 2. Les sujets ont tous ressenti une amélioration de leur confort visuel et une disparition ou une diminution de leur plainte subjective avec l'un et l'autre équipement. On peut estimer que, d'une maniere générale, l'acceptation est très bonne pour les deux types de verres.

Un tableau récapitulatif des sujets et de leur choix final est présenté en Figure 4.

L'appreciation objective de l'équipement donnant les performances optimales a donné des résultats décevants. Au niveau des tests d'efficacité visuelle, les tests de concentration visuelle n'ont fait apparaître aucune différence entre les deux types de

Figure 4

Tableau récapitulatif des sujets et de leur choix final

Sujet	Age	Sexe	Occupation principale	Rx	Add.	Choix final
1	19	F	Etudiant	+ 0.50 (−0.25) 165 + 0.50 (−0.25) 005	+ 0.75	V2
2	18	F	Etudiant	− 0.25 sph − 0.25 sph	+ 0.75	V2
3	22	F	Etudiant	+ 1.50 sph + 1.50 (−0.25) 170	+ 0.75	V2
4	21	M	Etudiant	+ 0.50 (−0.25) 180 + 0.50 (−0.25) 170	+ 1.00	T
5	20	M	Etudiant	+ 1.00 (−0.75) 90 + 0.75 (−0.50) 90	+ 1.00	V2
6	26	M	Enseignant	+ 1.25 sph plan	+ 1.00	T
7	26	F	Infirmière	− 5.25 sph − 4.50 (−0.25) 055	+ 1.00	T
8*	38	M	Chercheur	− 3.25 sph − 3.50 sph 1.5$^{\Delta}$ B.Bas	+ 1.25	T
9	21	M	Etudiant	+ 0.50 sph 1$^{\Delta}$ B.Ex + 0.50 sph 1$^{\Delta}$ B. Ex	+ 1.25	V2
10$^{\$}$	31	F	Etudiant	− 6.00 (−0.50) 175 − 4.75 (−0.25) 010	+ 1.25	T
11	19	M	Etudiant	− 7.25 (−0.25) 180 − 6.50 (−1.25) 180	+1.25	V2
12	27	M	Chercheur	+ 1.50 sph + 1.00 sph	+1.50	T

** Portait déjà une addition avant l'étude (Sc 28)*
\$ Portait déjà une addition avant l'étude (Telex)

verres. La tachytoscopie binoculaire de près n'a rien révélé non plus.

Le rendement lexique est cependant apparu en moyenne légèrement meilleur avec les bifocaux Telex qu'avec les progressifs Varilux 2 (voir figure 5). Le test de Student par paires appliqué aux rendements lexiques avec Varilux 2 et Telex a montré que, sous réserve de la normalité de la population, ces différences étaient tout juste significatives au seuil de 5%. L'échantillon étant tout de même réduit et la signification des différences tout juste établie, il serait bon de confirmer ou d'infirmer cette tendance sur un plus grand échantillon. On peut néanmoins proposer trois hypothèses pour tenter d'expliquer cette différence de rendement lexique: (1) La différence de champ d'acuité maximum en vision de près. (2) Des mouvements de la tête plus fréquents et plus importants avec les Varilux 2, (3) Des hésitations et erreurs de placement dans le verre progressif.

Figure 5

Rendements lexiques obtenus sans addition, avec les progressifs Varilux 2, et avec les double-foyers Telex.

Sujet	Sans addition	Avec Varilux 2	Avec Telex
1	0,72	0,40	0,62
2	0,68	0,81	0,91
3	0,66	0,66	0,88
4	0,75	0,54	0,69
5	0,83	0,81	1,03
6	0,73	0,62	0,68
7	0,74	0,41	0,81
8	0,55	0,66	0,62
9	1,11	0,89	1,32
10	0,75	0,57	0,86
11	0,23	0,44	0,48
12	0,89	0,95	0,54
Moyenne	0,72	0,65	0,79
Ecart-type	0,21	0,19	0,23

L'hypothese de champ d'acuite maximum reduit en vision de près ne s'accorde pas avec les mesures de Borish[1] qui a mesuré le champ de vision de près au travers de Varilux 2 pour des acuités allant de 10/10 à 4/10 et pour différentes valeurs d'addition. Ces champs allaient de 30° à 42° selon les additions pour une acuité de 10/10 et de 45° à 60° selon les additions pour une acuité de 4/10. Or les textes de lecture utilisés dans notre étude avaient des largeurs de ligne allant de 12 à 16 cm, soit pour une distance de lecture de 40 cm, un angle de 17° à 22°. Leur largeur angulaire était donc inférieure aux champs d'acuité en vision de près mesurés par Borish. Mais cela n'exclut pas que les sujets soient gênés aux bords de ce champ par diverses distorsions. Il est en effet très possible de reconnaitre des optotypes de 10/10 avec une certain quantité de flou ou de distorsions: et cela est encore plus vrai avec des optotypes de 4/10 (les textes de lecture que nous avons utilisés correspondaient à des acuités de 3/10 à 4/10 pour une distance de lecture de 40 cm.). Même si le sujet peut correctement identifier les mots avec une acuité aussi faible que 4/10, et donc d'après Borish un champ de 45 à 60°, ne préférera-t-il pas effectuer une rotation de la tête si cela lui procure une netteté et un confort supérieurs? "Je pouvais identifier toute une ligne de texte en bougeant seulement les yeux (addition +1,50), mais je percevais alors une baisse de qualité sur les côtés" dira par exemple un sujet. L'hypothèse de différénce de champ d'acuité maximum en vision de près ne peut donc être écartée et elle aménne la deuxième hypothèse sur les mouvements de la tête.

La différénce de rendement lexique observée avec les deux types d'additions pourrait être expliquée au moins en partie si les verres progressifs entraînaient des mouvements de la tête plus frèquents et/ou plus importants lors de la lecture. Plusieurs auteurs ont déjà étudié cette hypothèse. Katz et al[9] ont comparé le rendement lexique de sujets âgés de 15 à 60 ans équipés avec des Varilux 2 ou des double-foyers à segment droit de 25 mm. Ils n'ont pas trouvé de différence de rendement entre les deux corrections. Cependant, il s'agissait de textes de 9,6 cm de large lus à 40 cm, soit au niveau de l'oeil un angle légèrement inférieur à 14°. Or 14° semble être, d'après un étude d'Afanador et Aitsebaomo[10] la limite angulaire au-delà de laquelle apparaissent des mouvements de la tête. Jones et al[11] ont enregistré les rotations horizontales spontanées de la tête avec quatre sujets lors de lecture au travers de Varilux 2, ou au travers de bifocaux type segment droit 25 mm et ils ont montré qu'avec des textes d'une largeur supérieure ou égale à 11.4 cm et lus à 40 cm (soit 15.9°), des mouvements de la tête apparaissaient avec les verres progressifs, mais pas avec les bifocaux. Les textes de lecture utilisés dans notre étude avaient des largeurs de 12 à 16 cm, soit 17 à 22 degrés à 40 cm. Il est donc possible que la largeur de nos textes de lecture ait engendré des mouvements horizontaux de la tête avec les Varilux 2 et que ceci ait légèrement pénalisé le rendement lexique.

Des difficultes de positionnement dans le verre progressif peuvent également expliquer, du moins partiellement, la différence de rendement lexique entre les deux types d'additions. Deux sujets se sont en effet plaints d'avoir "du mal à trouver le bon endroit du verre" et à garder celui-ci lors de la lecture avec verres progressifs. Cela crée des hésitations et de fréquents ajustements qui peuvent faire perdre du temps et déconcentrer le sujet, cet effort conscient et permanent de vérification de la netteté venant s'ajouter à l'effort cognitif induit par la lecture. Il arrive également que des sujets ne solent pas parfaitement positionnés dans le verre, sans en être conscients: il a été

plusieurs fois remarqué que certains sujets avaient tendance à utiliser un autre endroit que la plage de vision de près pour la lecture, en l'occurence la vision intermédiaire. Cette erreur de placement peut réduire considérablement la largeur de netteté, et les deux premières hypothèses s'appliquent.

Les mesures optométriques ont le plus souvent montré des évaluations variables ne permettant pas de tirer de conclusions. Aucune différence significative entre les deux groupes de correction n'est apparue avec les distances de lecture. Nous avons cependant remarqué que le port d'une addition n'a, dans l'ensemble, pas provoqué une tendance à se rapprocher du texte, ni à s'en éloigner.

Trois sujets présentaient des phories associées au départ et, quel que soit le type d'addition porté, la correction de près n'a pas modifié les valeurs de départ. Aucune différence significative entre les deux types d'addition n'a pu être mise en évidence avec les phories dissociées et les vergences fusionnelles relatives. Cependant, le fait d'avoir porté une addition de près semble avoir amené une ou plusieurs des modifications suivantes (modifications variables et parfois opposées d'un sujet à l'autre) : (1) Hausse du rapport AC/A chez 4 sujets, (2) Baisse du rapport AC/A chez 5 sujets, (3) Décalage vers les Bases Externes des vergences relatives sans addition chez 6 sujets, (4) Réduction des amplitudes de vergence fusionnelle en vision de près chez 4 sujets. Il serait difficile et risqué d'expliquer ces modifications par un raisonnement théorique rationnel. Il ne faut pas oublier les nombreux facteurs qui peuvent influencer les mesures d'une séance sur l'autre (attention du sujet, fatigue, etc.), bien que les mesures aient été prises de façon très contrôlée (par le même opérateur, avec le même matériel et à des heures de la journée similaires).

Les vergences fusionnelles en vision de près ont été mesurées de nouveau avec l'addition en place chez sept sujets et ces résultats apparaissent plus intéressants que les mesures sans addition. Les vergences relatives en vision de près se sont presque systématiquement normalisées avec l'addition en place (seul un sujet sur sept n'obéit pas à cette règle). Pour trois sujets les valeurs correspondent même tout à fait aux normes habituelles alors qu'elles s'en écartaient nettement avant le port de l'addition. Pour quatre sujets, nous avons mesuré une exophorie supérieure à 6 dioptries (jusqu'à 10 dioptries) prismatiques avec addition, alors que les vergences se normalisaient. Cette augmentation d'exophorie n'a pas semblé les gêner.

La mesure du punctum proximum binoculaire d'accommodation n'a mis en evidence aucune différence entre les deux équipements : le fait de porter une addition n'a apporté aucun recul significatif du punctum proximum. La mesure du punctum proximum de convergence n'a rien apporté non plus. Aucun des deux équipements n'a influencé de manière significative les résultats du rock accommodatif et le port d'une addition n'a pas semblé diminuer la flexibilité accommodative. Ces observations infirment la croyance de certains selon laquelle le port d'une addition chez le non-presbyte diminuerait prématurément ses capacités accommodatives, aussi bien au niveau de l'amplitude que de la souplesse de fonctionnement.

Conclusion:

On peut organiser la conclusion de cet article autour des trois questions auxquelles cette étude a tenté de répondre.

(1) Y a-t-il chez les non-presbytes équipés avec une addition au près une préférence entre les verres progressifs et les bifocaux ?

Il semblerait que non si l'on fait essayer les deux types d'addition aux sujets et qu'on les force à faire un choix, la moité des sujets ayant préféré garder les progressifs Varilux 2 et l'autre moitié ayant préféré garder les double-foyers Telex. Le taux de préférence pour les Varilux 2 est comparable avec le taux de 52% trouvé par Spaulding chez des presbytes corrigés pour la première fois[2], mais est en revanche inférieur à celui de 93% trouvé par Valentino chez des non-presbytes[4].

Bien que le choix final se porte une fois sur deux sur chaque type d'addition, il semblerait tout de même que les Varilux 2 jouissent d'un légère préférence globale par rapport aux Telex. Les Varilux 2 obtiennent en moyenne une appréciation globale de 14,4/20 contre 12,9/20 pour les Telex et les choix Varilux ont tendance à être plus enthousiastes que les choix Telex.

Il faut insister à nouveau sur le fait qu'il s'agit là d'une préférence après essai des deux équipements, l'acceptation de chaque type d'addition étant très bonne. Les études réalisées à ce jour donnent un taux d'acceptation des Varilux 2 de l'ordre de 93%. Rappelons que les sujets ont tous ressenti une amélioration de leur confort visuel et une disparition ou diminution de leur plainte visuelle de départ avec l'un ou l'autre équipement. La très bonne acceptation des deux types de verres devrait rassurer l'optométriste qui pense prescrire une addition chez un non-presbyte. Le succès est pratiquement assuré si le sujet a été bien sélectionné et bien adapté.

Toute cette étude a été réalisée avec des sujets jeunes et adultes agés de 18 à 38 ans. Les résultats ne peuvent pas être extrapolés aux enfants car les conditions pour lesquelles les additions sont prescrites et les caractéristiques morphologiques et d'utilisation ne sont pas les mêmes. Les enfants sont en général équipés non pas pour des asthénopies dues à de légers troubles visuels exarcerbés par une forte quantité de travail au près, mais le plus souvent pour des défauts importants de la vision binoculaire (excès de convergence, ésotropie accommodative...) ou pour tenter de ralentir un myopie en évolution. On veut donc dans ces cas être sûr que l'enfant utilise bien l'addition en vision rapprochée. Deux études tendent à prouver que les Varilux 2 sont bien acceptés chez les enfants[12,13]. Jacob et al [12] ont adapté des Varilux 2 à 25 enfants ésotropes accommodatifs âgés de 3 à 11 ans. Tous les enfants se sont bien adaptés aux progressifs et l'ésodéviation de près a été neutralisée de façon satisfaisante dans la plupart des cas. Gaterbaum et al[13] ont équipé 7 enfants âgés 9 à 13 ans pour des dysfonctionnements accommodatifs. Ils rapportent que les enfants se sont très bien adaptés aux Varilux 2 et que ceux-ci utilisaient bien la progression. Ces deux études semblent indiquer que les verres progressifs seraient également une alternative valable pour les enfants.

(2) Un type de verres donne-t-il une meilleure efficacité que l'autre en vision de près?

On ne peut ni l'affirmer ni l'infirmer. Il est possible qu'un rendement lexique légèrement meilleur soit atteint avec les double-foyers quand la largeur angulaire du texte lu dépasse 14 degrés (soit 10 cm à 40 cm). Si ces résultats n'autorisent pas de certitude à cause du nombre limité de sujets, la tendance qu'ils indiquent ne peut être rejetée et mériterait une investigation plus profonde. Il serait intéressant de faire une étude plus poussée des rendements lexiques, similaire à celle de Katz et al[9], mais avec des textes d'une largeur angulaire supérieure à 14 degrés.

(3) Existe t'il un moyen simple de prédire quel type de multifocal sera le mieux accepté par le sujet?

Nous n'avons pas trouvé de test qui permette de prévoir à l'avance quel type d'addition serait le mieux accepté par le sujet.

Aucune caractéristique des sujets (âge, sexe, amétropie, phories, etc.) n'a permis de faire des prédictions. On pourrait dire, en schématisant, que puisque les choix des progressifs Varilux 2 sont généralement plus enthousiates que les choix des bifocaux Telex, les deux solutions étant bien acceptées, à choisir entre deux positions radicales, il semblerait qu'il vaille mieux équiper systématiquement en Varilux 2. Ainsi on optimiserait globalement la satisfaction. Appliquer brutalement une telle regle n'est évidemment pas réaliste et des critères tels que l'attitude psychologique du sujet vis à vis de chaque type de verre, ses occupations, ses besoins visuels, le problème visuel à compenser, son âge, sans oublier ses préoccupations esthétiques, devraient amener le prescripteur à ne pas adopter une position systematique. Finalement, l'optométriste devra, pour faire son choix, appliquer les mêmes régles de sagesse clinique qu'avec ses patients presbytes. Dans le doute, il sera rassurant de savoir que l'acceptation de l'un ou l'autre type de verres sera de toutes façons très bonne si l'additon a été prescrite à bon escient.

Remerciements

Cette étude a bénéficié de l'aide de la société Essilor International, Créteil, France et a été réalisée à l'Institut et Centre d'Optométrie, Bures-sur-Yvette, France. L'auteur souhaite remercier Mlle Véronique Ravel, MM. Dominique Meslin, Christian Miège et Gérard Obrecht du service d'optique physiologique de la société Essilor pour leurs conseils ainsi que Mlle Pascale Thépenier de l'Institut et Centre d'Optométrie pour sa collaboration à la prise des mesures.

References

1. Borish I et al. "Double masked study of progressive addition lenses." *Journal of the American Optometric Association*, 1980; 51: 933-43.
2. Spaulding D. "Patient preference for a progressive addition multifocal lens (Varilux 2) versus a standard multifocal lens design (ST 25)." *Journal of the American Optometric Association*, 1981; 52: 789-94.
3. Borish I, Hitzeman SA. "Comparison of the acceptance of progressive addition multifocals with blended bifocals." *Journal of the American Optometric Association*, 1983; 54: 415-22.
4. Valentino J. "Clinical use of progressive addition lenses on non presbyopic patients." *Optometric Monthly*, September 1982, pp. 513-15. (Traduction dans L'opticien Suisse, 1983; N° 6: 33-6.).
5. rosvenor TP. "Primary Care Optometry." Professional Press, New-York, 2ème édition, 1989; pp. 81-3.
6. Zellers J et al. "A review of the literature and normative study of accommodative facility." *Journal of the American Optometric Association.* 1984; 55: 31-7.
7. Institut de Visiologie de France. Optometrie Fonctionnelle, Tome III: "Identification." La Diffusion Optométrique, Vire, France 1987; pp. 118-24.
8. Richaudeau F et al. "Méthode de lecture rapide." Editions Retz, Paris, 1984.
9. Katz, Milton et al. "Reading performance and eye-movements through Varilux 2 and ST-25 lenses." *American Journal of Optometry & Physiological Optics.* 1984; 61: 196-200.
10. Afanador AJ, Aitsebaomo P. "The range of eye movements through progressive multifocals." *Optometric Monthly.* February 1982; pp. 104-106.
11. Jones, Ashby et al. "Head movement: A measure of multifocal reading performance." *Optometric Monthly*, February 1982; pp. 104-106.
12. Jacob JL et al. "Progressive-addition lenses in the management of esotropia with a high accommodation/convergence ratio." *Canadian Journal of Ophthalmology.* 1980; 15: 166-69.
13. Gaterbaum C et al. "The use of progressive addition lenses in treating accommodative disorders in children." American Academy of Optometry Annual Meeting, 1984. *American Journal of Optometry & Physiological Optics.* 1984; 61:22P.

They both do.
The eye on your left is wearing a common iris-enhancement lens.
Anyone can see that.

But the eye on your right has been fitted with a SOFTCOLORS® lens from CIBA Vision.
SOFTCOLORS come in eight natural shades, with three choices of intensity for every color.

PRACTICE FOR SALE

Full service practice established 7 years ago by a solo practitioner, has experienced excellent growth to its present patient base of over 6,000 clients.

Located in southeastern Alberta in Medicine Hat, this environment is an excellent place to raise a family.

Please address enquiries to:

CJO*RCO
Box 89-2
301-1785 Alta Vista Drive
Ottawa, Ont.
K1G 3Y6

OPTOMETRIST REQUIRED

To take part in the formation of a new health centre in North Toronto. Large patient flow guaranteed.

The new associate will be able to work part- or full-time in pleasant surroundings, custom built. He or she will bill separately and pay straight rent as remuneration.

For more details of this exciting opportunity, please phone:

Dr. J. Bart
(416) 223-9791

Associate Needed

Want to be your own boss and still be part of an established growing practice? No dispensing hassles — non-dispensing practice. Free from administration overload! Must be willing to travel at least 2 days a week.
Call or write to:

Dr. Michael A. Driscoll
5010 - 43rd Street
Red Deer, Alberta
T4N 6H2

(604) 342-4343

That means your light-eyed patients get the change they want–without letting the whole world know about it.
When your patients want to make the most of their looks, prescribe SOFTCOLORS. Among tinted lenses, they're a natural.

Softcolors® by CIBAVision™

The COETF Annual Awards Program for 1990
* Keeping the Ball Rolling *

The Canadian Optometric Education Trust Fund (COETF) was created by the members of the Canadian Association of Optometrists to assist programs in research, education and manpower development in the vision and eye care field in Canada.

Through its annual program of Awards, the COETF has supported (i) faculty development, (ii) research and/or specialized education programs carried out by graduate students, and (iii) investigative projects conducted by undergraduate students enrolled or on staff at Canada's Schools of Optometry.

The COETF has also extended grants to these institutions for the acquisition of new equipment, or the augmenting of existing teaching, library and archival facilities.

The COETF supports work carried out by optometrists in practice through grants to a number of professional development programs offered through a variety of institutions. The Fund has also supported optometrists involved in the coordination and implementation of projects established and carried out in clinical environments to assist the visually handicapped.

In the belief that Continuing Education for optometrists must continue to be offered at the leading edge of vision and eye care research in Canada, the COETF has supported a number of projects and programs designed to enable the professional optometrist, or the optometric student, to benefit from the latest tools and techniques available for the delivery of these services to the Canadian public.

We call it **A Vision of the Future** and the COETF is willing to offer financial assistance to those who seek to keep this vision bright and clear. If you are an optometric practitioner, a faculty member or student at a Canadian School of Optometry, an educational institution seeking assistance with a specific vision and eye care program involving optometrists in your community, a service organization, or even a member of the general public with a great idea to help meet the goals outlined above, then the COETF's assistance might be available to help you realize your goal.

Please fill out and return the attached application, before the deadline indicated at the top of the form. The members of the COETF Awards Committee promise that all applications received on time for projects meeting the purposes of the Fund will be given serious consideration as a part of this year's Awards Program.

Edition 1990 du programme annuel de prix du FFOCE
* Aidez-nous à faire le bond *

Le Fonds du fiducie des optométristes canadiens pour l'éducation (FFOCE) a été créé par les membres de l'Association canadienne des optométristes pour appuyer les programmes de recherche, d'éducation et de perfectionnement de la main-d'oeuvre dans le domaine des soins oculo-visuels au Canada.

Par son programme annuel de prix, le Fonds a favorisé (i) le perfectionnement du personnel enseignant, (ii) la recherche ou les programmes de formation spécialisée chez les étudiants de deuxième cycle et (iii) les projets de recherche d'étudiants de premier cycle inscrits ou travaillant aux écoles canadiennes d'optométrie.

Le FFOCE a également accordé des subventions à ces organismes pour l'acquisition de nouveaux matériels ou l'élargissement des installations d'enseignement, de la bibliothèque et des archives.

Le FFOCE appuie le travail des optométristes praticiens par des subventions à divers programmes de perfectionnement professionnel offerts par l'intermédiaire de toutes sortes d'organismes. Le FFOCE a également aidé financièrement les optométristes participant à la coordination et à la mise en application de projets créés et exécutés en milieux cliniques pour aider les personnes visuellement handicapées.

Croyant que l'éducation permanente des optométristes doit continuer d'être offerte et demeurer à la fine pointe des recherches sur la vision et les yeux au Canada, le FFOCE a subventionné un certain nombre de projets et de programmes conçus pour permettre à des optométristes professionnels ou à des étudiants en optométrie de tirer parti des outils et des techniques les plus modernes pour offrir leurs services à la population canadienne.

Nous appelons cela Vision de l'avenir et le Fonds est prêt à offrir une aide financière à ceux qui souhaitent que cette vision demeure claire et bonne. Si vous êtes optométriste praticien, membre du corps enseignant ou étudiant à l'une des écoles d'optométrie du Canada, ou encore un établissement d'enseignement cherchant de l'aide pour un programme particulier de soins de vision et des yeux faisant appel aux optométristes de votre collectivité, ou même un organisme de service ou encore un simple citoyen qui a une idée exceptionnelle pour permettre d'atteindre les objectifs susmentionnés, peut être pourrez-vous recevoir l'aide du FFOCE et atteindre votre but.

Veuillez remplir et nous retourner la formule de demande jointe avant la date limite qui y figure en haut à droite. Les membres du Comité des bourses du FFOCE s'engagent à étudier attentivement, dans le cadre du programme de bourses de cette année, toutes les demandes reçues à temps à l'égard de projets correspondant aux objectifs du Fonds.

Canadian Optometric Education Trust Fund
1990 Awards Program — Application for Funding

1990 Awards Program Application Deadline: 26 February 1990*
*date by which application must be RECEIVED at the address immediately below

Complete and forward this original plus seven (7) copies to:
COETF Awards Program
c/o The Canadian Association of Optometrists
Suite 301 — 1785 Alta Vista Drive
Ottawa, ON
K1G 3Y6

Note: Of paramount importance to the Awards Committee is the applicant's answer to the question (OVER): How will this program or project benefit or improve the delivery of vision and eye care services in Canada?

APPLICANT'S FULL NAME _____

MAILING ADDRESS _____

_____

_____

_____ TELEPHONE NO. _____

(1) TITLE or BRIEF DESCRIPTION OF PROJECT _____

_____

_____

(2) PROJECT SUPERVISOR* _____
*If applicant is a graduate or undergraduate student

(3) EXPECTED DATE OF COMPLETION _____

(4) ESTIMATED BUDGET (Please provide details on a separate attachment)

Personal Services	Salaries	Equipment	Supply Mtl.	Travel	Tuition	Other (specify)
				Total Grant Requested $		

Note: The COETF customarily does NOT provide funding support for travel to and from sites where the results of a project are intended to be presented, for example, a symposium or continuing education seminar.

Until otherwise advised, the following policy has been approved by the COETF's Board of Trustees with repect to written reports on projects funded by the Annual Awards Program: The applicant agrees to submit a written report* to the COETF Trustees within sixty (60) days of the completion of this project, whether wholly or partially funded by the COETF. The report will be submitted to the Editors of the *CJO * RCO* and considered by them for publication. *NOTE: The "report" may take the form of a clinical, scientific paper, or a complete summary if the grant recipient is required to submit the full paper elsewhere.

_____

(1) SIGNED (Director, School of Optometry/ If applicant is a faculty member, graduate or undergraduate student at the School of Optometry, University of Waterloo or l'Ecole d'Optométrie, Université de Montréal)

_____ _____

(2) SIGNED (Applicant) DATE

(5) How will this program or project benefit or improve the delivery of vision and eye care services in Canada?

In this Section, the applicant is asked to outline briefly the public, professional and/or personal benefits to be derived from this project.

(6) To the best of the applicant's knowledge, is this project eligible for, has the applicant applied for, has this project received, or will it be receiving funding support from any source other than the COETF?

In this Section, the applicant is asked to outline briefly whether the COETF is viewed as the sole source of funds for this project, or whether COETF support is being sought in addition to alternate funding support already (or yet to be) solicited and/or received from any other funding source(s).

Fonds de fiducie des optométrists canadiens pour l'éducation
Programme de bourses 1990 — Demande de fonds

Date limite de demande pour le programme de bourses 1990: le 26 février 1990*
*date à laquelle les demandes doivent PARVENIR à l'adresse qui figure ci-dessous.

Remplir et transmettre l'original et sept (7) copies à l'adresse suivante:
Programme de bourses du FFOCE
au soin de l'Association canadienne des optométristes
Pièce 301, 1785, promenade Alta Vista
Ottawa (Ontario)
K1G 3Y6

Remarque: Il est absolument essentiel au Comité des bourses que le candidat réponde à la question (PAGE SUIVANT): de quelle façon le programme ou projet avantagera-t-il ou améliorera-t-il la prestation des soins de la vision et de la vue au Canada?

_____

NOM COMPLET DU CANDIDAT _____

ADRESSE POSTALE _____

_____

_____

_____ NUMÉRO DE TÉLÉPHONE _____

(1) TITRE ou BRÈVE DESCRIPTION DU PROJET _____

_____

_____

(2) SURVEILLANT DU PROJET* _____
*Si le candidat est un diplomé ou un étudiant de premier cycle

(3) DATE PRÉVUE D'ACHÈVEMENT _____

(4) BUDGET ESTIMATIF (prière de fournier des détails sur une feuille distincte)

Services personnels	Salaires	Matériel	Fournitures	Voyages	Frais de scolarité	Autre (préciser)
				Bourse totale demandée:		

Remarque: Habituellement, le FFOCE n'accorde PAS d'aide financière à l'égard des déplacements pour se rendre sur place et en revenir, si les résultats d'un projet doivent être présentés, par exemple, à un colloque ou à un séminaire d'éducation permanente.

Sauf mention du contraire, voici la ligne de conduite approuvée par le Conseil des fiduciaires du FFOCE à l'égard des rapports écrits sur les projets subventionnés dans le cadre du Programme annuel de bourses: le candidat s'engage à remettre un rapport écrit* aux fiduciaires du FFOCE dans les soixante (60) jours suivant l'achèvement du projet, qu'il soit subventionné entièrement ou partiellement par le FFOCE. Le rapport sera remis aux rédacteurs de la RCO, qui jugeront s'il y a lieu de le publier. *REMARQUE: Le rapport peut être présenté sous forme d'exposé clinique ou scientifique ou de résumé complet, si le boursier est tenu de présenter ailleurs le document intégral.

_____

(1) SIGNATURE (Directeur de l'école d'optométrie/si le candidat est membre du corps enseignant, diplômé ou enseignant de premier cycle à l'école d'optométrie de l'Université de Waterloo ou de l'Université de Montréal)

_____ _____

(2) SIGNATURE (candidat) DATE

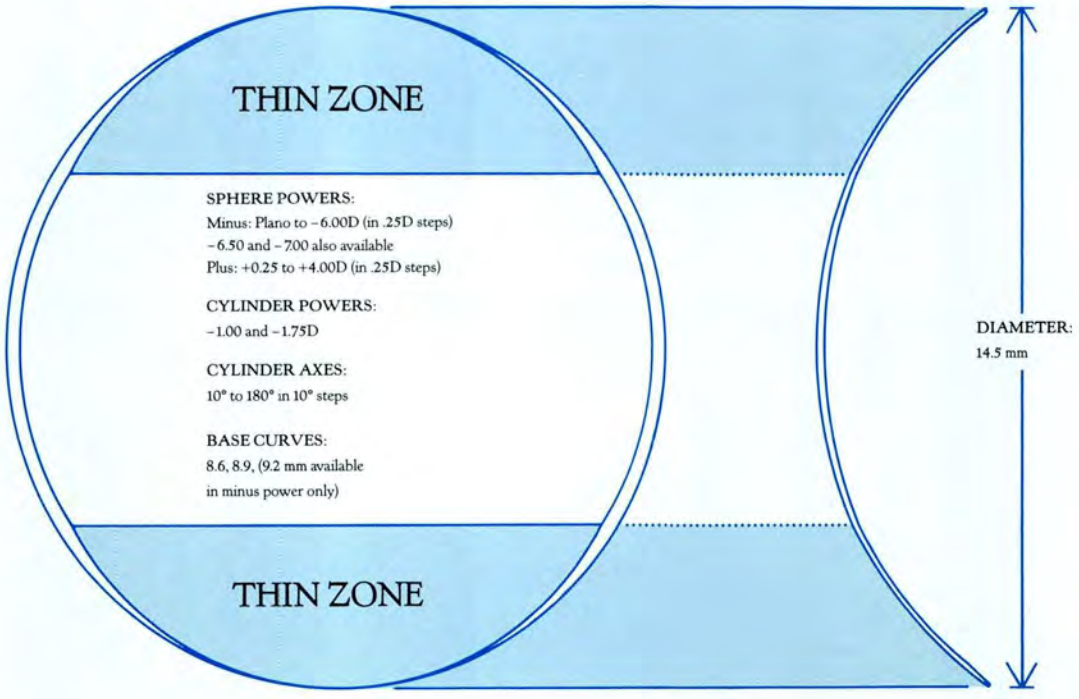
(5) De quelle façon le programme ou projet avantagera-t-il ou améliorera-t-il la prestation des soins de la vision et des yeux au Canada?

Le Candidat doit ainsi préciser brièvement les avantages publics, professionnels ou personnels à retirer du projet.

(6) Au meilleur de la connaissance du candidat, le projet est-il admissible à une aide financière d'une autre source que le FFOCE? Le candidat a-t-il demandé pareille aide, en a-t-il reçu à l'égard du projet ou doit-il en recevoir?

Le candidat doit ici préciser brièvement si le FFOCE est considéré comme l'unique source de fonds pour le projet ou si l'aide financière du FFOCE est demandée en plus de celle déjà demandée (ou à demander) ou reçue de toute autre source.

WHEN YOU THINK ABOUT COMFORT, OUR COMPETITORS ARE STILL PRETTY THICK.



There's a lot of choice in soft torics.

But you want your patients to be comfortable with your decision.

So use Torisoft.®

It's the only soft toric with CIBA Vision's exclusive double thin zones. Our patented design means your patients get unsurpassed comfort – through thick and thin.

When your patients need toric lenses, give the fitting response. Torisoft® by CIBA Vision. We think astigmats deserve to have it soft.

TORISOFT®

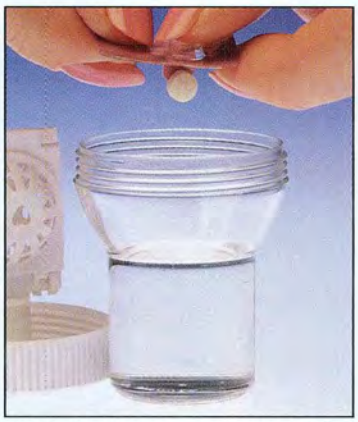
CIBA Vision.

NEW!

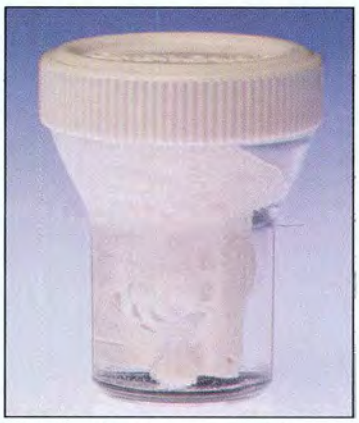
VISUAL COMFORT ASSURED!

OmniCare, the new preservative free soft-lens care system from Allergan Optical virtually eliminates eye irritation. Unlike other methods that can cause peroxide burns because patients forget to change solutions or replace a catalytic disk, OmniCare offers goof-proof neutralization your patients can actually see!

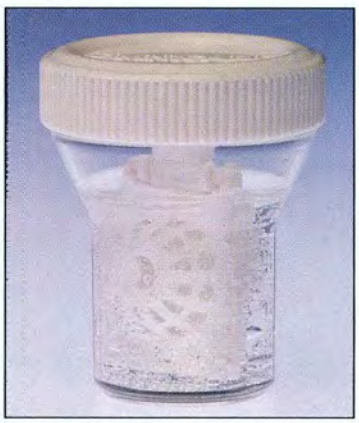
Preservative free OmniCare makes lens care simple, fast and safer with a peroxide disinfectant and a new effervescent neutralizing tablet that gives visible proof of complete neutralization. No confusion, no sensitivities, no eye discomfort.



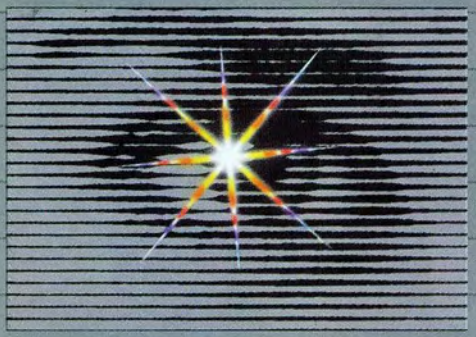
Disinfect (20 minutes or overnight). Drop OmniCare tablet into disinfectant solution.



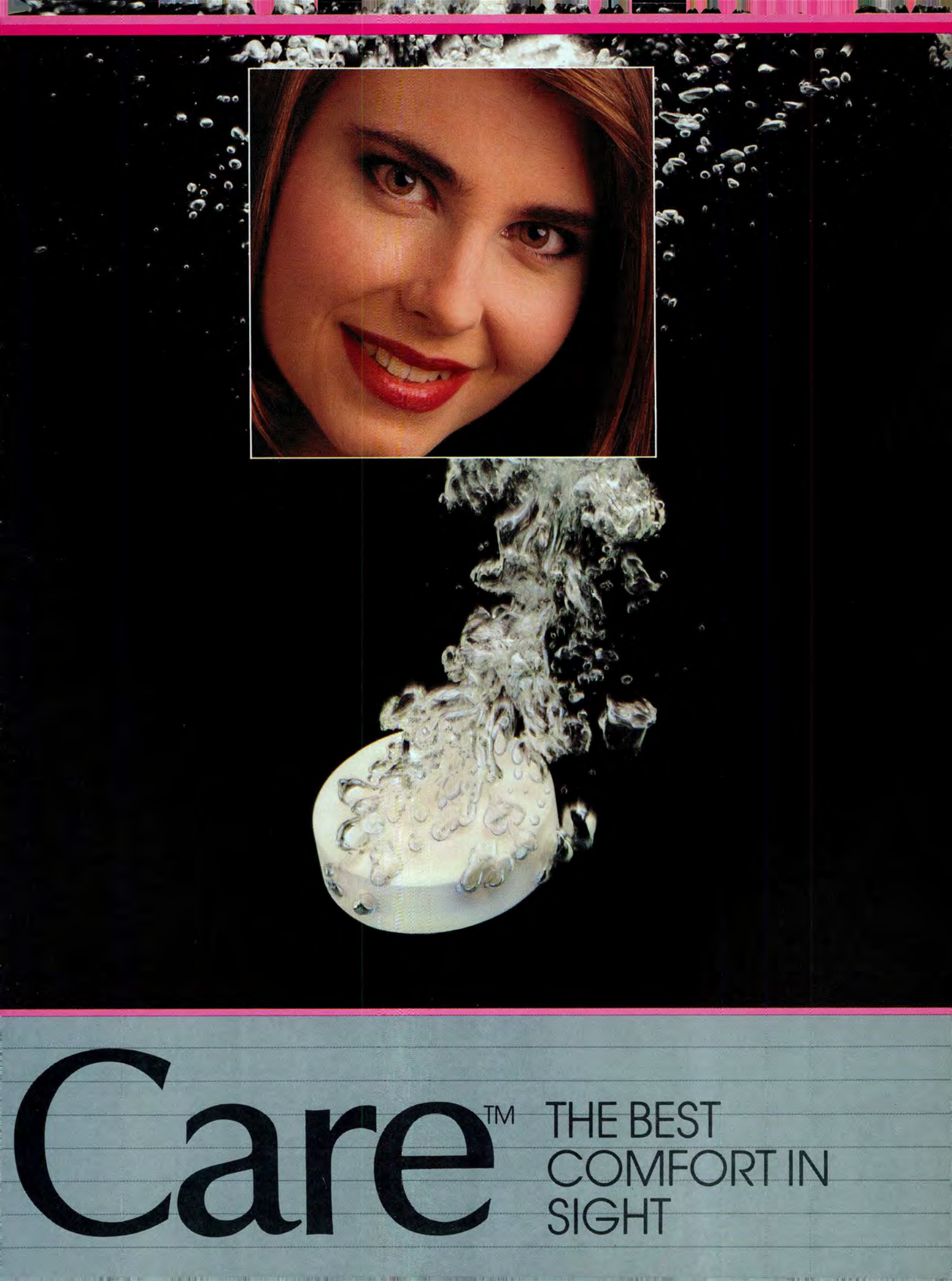
Leave for 10 minutes or overnight



Peroxide is 100% neutralized into a gentle buffered isotonic saline solution. Lenses are ready to wear!



Omni


Care™
THE BEST
COMFORT IN
SIGHT

VISION CARE NEWS/ACTUALITÉ OCULO-VISUELLE

CAO Future in Good Hands

Initiating a long range plan for Optometry in Canada was at the heart of the day long Optometric Leaders' Meeting held in Ottawa last August in conjunction with the 1989 CAO Biennial Congress.

A featured session offered the opportunity for long time and relatively new practitioners to address the question: "What Have You Done to My Profession?", a topic turned by both long-time practitioners into the self-examination exercise, "What Have You Done *For* My Profession?"

The session was moderated by CAO Past President Dr Scott Brisbin (centre, photo) and featured (photo, left to right) Dr Hugh MacKenzie, a past President of both the Saskatchewan and Canadian Associations of Optometrists and winner of the 1989 CAO President's award (reported elsewhere in this issue), Dr Josee Visokis, Verdun, Qué, Dr Brisbin, Dr Emerson Woodruff, retired as Director of the School of Optometry, University of Waterloo and Dr Mario Pozza, Kamloops, BC (who also took time out from the meeting to win two of the nine prizes offered in the 1989 CAO photo contest. See that report, and the winning photos, elsewhere in this issue.)

By the time the session had concluded, the entire meeting was unanimous in agreeing that the same energies which have been building this profession over the past decades are very much present in its younger practitioners, if Drs Visokis and Pozza are any indication.

(***Editor's Note:*** *Special thanks to Dr Claude Hutton, SAO Councillor to CAO, for the photo)*

Allergan Presentation to COETF

As mentioned in our last issue, one of the many highlights of the 1989 Biennial Congress was the Canadian Optometric Education Trust Fund (COETF)'s raffle and draw, along with a special presentation from Allergan Inc of an extremely generous donation of $5,000.00 in support of the research objectives of the COETF.

The on-site presentation was made to COETF Chairman Dr Margaret Hansen des Groseilliers by Mel Engle, President of Allergan Canada, who also made the following comments:

> Allergan's objective is to provide innovative and high quality products for use by eye care professionals to better serve the needs of their patients.
>
> To accomplish this objective, Allergan has committed over 10% of its net sales annually to research and development. As you know, R and D is useful only if it attempts to serve the needs of the patient and those of the practitioner. We in Canada listen to the people we serve in deciding where to allocate our research and development resources. Allergan does this through an advisory panel made up of leading international eye care practitioners. As a matter of interest, the first Canadian optometric advisory panel is planned for the fourth quarter of 1989 to serve the unique needs of the Canadian eye care market.
>
> Our clinical research programme has increased in recent years and we now have many studies underway into advanced contact lens and lens care products, as well as major clinical trials for pharmaceutical and surgical products across Canada.
>
> We also provide students at the Universities of Montreal and Waterloo with Allergan Humphrey equipment to use while attaining their degrees, as well as presenting clinical seminars at both Schools on an ongoing basis.
>
> In addition to direct funding for the Schools, Allergan funds the Canadian Institute for Contact Lens Research at the Waterloo School of Optometry and the Vision Institute of Canada in Toronto, for whom we also provide Allergan Humphrey equipment for their use. We have established the Contact Lens Deposit Identification Program at the Vision Institute, a program available to all eye care professionals across Canada.
>
> It is, therefore, with a great deal of pride that Allergan is contributing $5,000.00 to Phase 2, the ophthalmic industry appeal, of the COETF's fundraising campaign in 1989. Allergan was an initial corporate contributor to this phase of the campaign in 1987 at CAO's 20th Biennial Congress and we are pleased to be a part of today's program, recognizing the critical need for continued research into vision and eye care in Canada. We sincerely believe that supporting optometric research is one more way that Allergan can effect a better future for Optometry in Canada.
>
> Thank you for your kind attention and it has been a super convention!

In her response, COETF Chairman Dr Margaret Hansen des Groseilliers expressed particular appreciation for Allergan's ongoing support. Research in vision and eye care, she said, is not something that begins and ends with a calendar year and Allergan's continued support is a great help in keeping both present and future optometrists current in vision research.

VISION CARE NEWS/ACTUALITÉ OCULO-VISUELLE

*(**Editor's Note:** Elsewhere in this issue is an application form for grants offered under the COETF's 1990 Awards Program.)*

Mel Engle, President of Allergan Canada, waits for 144 airborne COETF "Keep the Ball Rolling" punch balls to settle (a situation also quite accurately represented by the poster behind him) before announcing Allergan's generous donation to the Trust Fund's 1989 campaign.

Gerald Dunn Continuing Education Course 1990

The first Gerald Dunn Continuing Education Course will be held in April 1990 at the Hilton Hotel, Port of Spain, Trinidad.

The course is hosted by the Trinidad and Tobago Optometrists' Association and will include lectures on pediatric optometry, drugs used in everyday practice, ultrasound, hypnosis, orthoptics, dynamic retinoscopy and management of binocular problems. Anyone interested in more specific information (exact dates were not mentioned in the information provided to the *CJO*RCO*) should contact:

Mrs NA Dunn
81 Parkside Way
Harrow, Middlesex
England, HA2 6DB

Vera Cook Retires

After eleven years at the School of Optometry, University of Waterloo, Mrs Vera Cook, receptionist and Secretary at the School's Clinic, retired in October.

According to an information release received from the School, Mrs Cook will best be remembered by many former students for "her nimble fingers at the typewriter keyboard and her wacky spectacle frames at various School events over the years".

A dinner was held in her honour at the School on 12 October.

New Director at l'Ecole d'optométrie Université de Montréal

On 1 August 1989, Dr John V Lovasik assumed duties as the new Director of the School of Optometry at the University of Montréal, succeeding Dr Daniel Forthomme.

A native of Montréal, John Lovasik received his BSc in Biology in 1969 from McGill University before moving to the University of Waterloo. He obtained his OD in 1974 and his MSc in Physiological Optics in 1977. He was awarded his PhD in Physiology from the University of Waterloo three years later. His thesis, *Neural Control Mechanisms of Ocular Accommodation in Cats*, earned him the Pearson Medal from the University for the best PhD thesis of the year in Optometry and Biology.

He was appointed to the faculty of the School of Optometry, University of Waterloo and was promoted to Professor in 1989.

Dr Lovasik is widely respected as both teacher and scholar. He has been the author or co-author of no less than 49 original research papers and 37 published abstracts. His laboratory work at the School of Optometry, University of Waterloo, has concentrated on the electrophysiology of vision and he has actively supervised research by both graduate and undergraduate students alike, as well as teaching courses in the neurophysiology of vision, ocular motility and pediatric optometry.

In addition to his teaching and research, Dr Lovasik has held a variety of administrative posts for the School of Optometry and for the University of Waterloo. He has also been a referee for several visual science journals and Canadian research fund granting agencies.

In a news release issued from the Waterloo School, Dr BR Chou said, "Truly, Waterloo's loss is Montréal and Canadian Optometry's gain."

For our part, the Editors of the *CJO*RCO* along with the Executive and Council of CAO, extend sincere congratulations and best wishes to Dr Lovasik in his new position.

Professional Practice Building (Not to Mention Mutual Backscratching)

We recently received a promotional package from a company called PPB (Professional Practice Builders), Inc in Edmonton, Alberta who offer a wide range of printed material and accessories to assist the practitioner in some of life's more mundane tasks (reminder cards, office design and layout, literature display, etc.)

PPB also sent along a photo of their $296.50 magazine display stand, whose acrylic panels hold the literature in place while allowing the full glory of the cover art to show through.

Needless to say, we were tickled to note the *CJO*RCO* nesting on the second shelf, right hand side. In our humble opinion, this adds immeasurably to the stand's value.

PPB's colourful catalogue is available from:

Professional Practice Builders Inc
17332 – 86 Avenue
Edmonton, AL
T5T 2B5

Tel. (Canada-wide toll-free):
1-800-661-9464
In Edmonton: 487-7030

VISION CARE NEWS/ACTUALITÉ OCULO-VISUELLE

National Newstand For the Blind Plans January Launch

Canada's first-ever national audio information service for the blind will begin program distribution in early 1990.

The National Broadcast Reading Service (NBRS) has set January for the launch of an English-language service through cable systems across the country. (A similar, Québec-based French language reading service, in operation for the past four years, will also be delivered nationally.)

The service's chief purpose, according to NBRS Chairman Dr Gerry Dirks, is to provide access, in a "timely fashion" to print materials not normally available to Canadians with visual disabilities. Programming will include reports from print media on major news, current affairs, opinions, editorials, health, science, sports, entertainment and business news. Discussion programming, with a particular emphasis on visual impairment and other disabilities, will form a significant part of each week's schedule.

Communications Canada has committed $600,000.00 to cover start-up and a portion of the operating costs for the first five years. Additional revenue will be sought from corporate and individual donations. CBC Newsworld has made available, at no cost, a spare satellite sub-carrier for transmitting the English service. Montréal based TV5 has donated a sub-carrier for French service transmission.

Further Information: Ian Sutton, The National Broadcast Reading Service, PO Box 1728, Station R, Toronto, ON, M4G 4A3. Tel. (416) 489-4222.

ANNOUNCEMENT/COMMUNICATION

THE SECOND CANADIAN UNIVERSITIES CONTACT LENS SEMINAR, CO-SPONSORED BY THE SCHOOLS OF OPTOMETRY OF WATERLOO AND MONTREAL

TOPICS WILL INCLUDE:
- Rigid Gas Permeable Lenses
- Etiology of Contact Lens Complications
- New Developments in Contact Lens Materials, Designs and Diagnostic Procedures
- Video Demonstrations and Panel Discussions

DEUXIÈME SÉMINAIRE DES UNIVERSITÉS CANADIENNES SUR LES LENTILLES CORNÉENNES, COPARRAINÉ PAR LES ÉCOLES D'OPTOMÉTRIE DE WATERLOO ET DE MONTRÉAL

AU NOMBRE DES SUJETS ABORDÉS :
- Lentilles rigides perméables aux gaz
- Etiologie des complications dues aux lentilles cornéenes
- Nouveautés dans les matériaux, la conception et les modalités de diagnostic touchant les lentilles cornéenes
- Démonstrations vidéos et tribunes de discussion

FRIDAY, JUNE 1/LE VENDREDI 1er JUIN

Evening Reception and Poster Display — Réception du soir et affiches

SATURDAY, JUNE 2/LE SAMEDI 2 JUIN
SUNDAY, JUNE 3/LE DIMANCHE 3 JUIN

Lectures and Exhibits — Conférences et Expositions

LOCATION/ENDROIT

The University of Waterloo/Université de Waterloo
Waterloo (Ontario)
Canada

GUEST SPEAKERS/CONFÉRENCIERS INVITÉS

Ian Cox, BOptom, PhD
Barry Farkas, OD
Desmond Fonn, Dip Optom, MOptom
Brien Holden, PhD
Ron Herskowitz, OD
Joshua Josephson, OD
Maurice Lapierre, MSc, OD
Rick Payor, BOptom
Cristina Schnider, OD
Joseph Shovlin, OD
Joseph Vehige, OD
Barry Weissman, OD, PhD

REGISTRATION PACKAGE, WITH HOTEL INFORMATION, SOON TO BE MAILED

To obtain more information, please contact
Centre for Contact Lens Research
School of Optometry
University of Waterloo
Columbia Street
Waterloo, ON
N2L 3G1
(519) 888-4742

LA TROUSSE D'INFORMATION, CONTENANT DES RENSEIGNEMENTS SUR L'HÔTEL, SERA ENVOYÉ SOUS PEU

Pour plus d'information :
Centre de recherche sur les lentilles cornéennes
École d'optométrie
Université de Waterloo
Rue Columbia
Waterloo (Ontario)
N2L 3G1
(519) 888-4742

BOOK REVIEWS

Vision and Aging, General and Clinical Perspectives. *AA Rosenbloom, M Morgan, eds. 1986, Professional Press Books, New York, NY. 390 pp, including index and biographical notes, 76 figures, 35 tables. ($US)60.*

This book is much more than an optometric text, covering, as it does, virtually every possible aspect of vision care for the aging (with the one possible exception of the home financial situation of the patient, a factor which has some bearing on the patient's ability to seek such care).

There are 24 chapters, by optometrists, psychologists, sociologists, gerontologists, physicians and one dispensing optician, all of whom are specialists in their fields. The short biographies of the contributing authors on pp. 373–376 provide a full appreciation of the authors' competence and, consequently, the great importance of this book in the context of a society where the elderly's increasing numbers require a radical change in attitudes regarding the delivery of health care services to this sector of the population.

For the past several decades, Optometry has been captivated by contact lenses and their physiological aspects, perhaps to the detriment of other areas of practice like Low Vision, Vision Therapy and care of the elderly. During this period, for example, some optometrists were prone to confuse Low Vision with the care of the elderly. This excellent test might well serve to help restore the balance in our optometric thinking, i.e. decrease the emphasis on contact lenses and temper our study of pathology as an asset in the care of the aging, rather than attempt to become amateur physicians.

The book covers three separate areas of vision care for the elderly (although not specifically divided into clearly delineated sections). Chapters 1, 2, 3, 6 and 24 relate to the general sociological, economic and demographic considerations of a society in which the elderly are becoming a larger and larger proportion of the population. These aspects are essential to understanding the need and importance of adequate health care to the aging. Although the discussion describes the situation in the USA, the principles apply universally.

Chapters 4, 5, 7–13 and 16 relate to the psychological and physiological aspects of aging, dietary considerations, general considerations of ocular and systemic disease and changes in the function due to aging, in other words, aspects essential to the proper management of caring for the elderly.

The remaining chapters are basic, clinical Optometry and relate to in-office and home examination procedures and tests, aphakia, dispensing spectacles, contact lenses, Low Vision and Vision Therapy.

The book is printed in a large format (letter sized to be exact) on semi-gloss paper, which reduces reflections and glare. The text is clear, concise and flows easily. It is by no means "heavy" reading and can be managed quite readily chapter by chapter, with whatever intervals the reader requires. (The longest chapter is 20 pages, although most are 10–13.) There is a good reference list provided with each chapter, some so extensive as to be labelled "voluminous".

The Bettmann Archive.

Time is of the essence

ULTRAZYME offers a timely solution – protein removal during the peroxide disinfection step. In just 15 minutes, ULTRAZYME, used once weekly, effectively removes protein and mucoprotein from all soft contact lenses. If left overnight, ULTRAZYME's unique non-binding action works without leaving irritating residual enzyme.

The result is a simple one-tablet system that can actually save time.

ULTRAZYME
One Step Convenience

ALLERGAN
Science with Vision

If the book has a weakness, it is in its spartan use of illustrations. They are limited to line drawings, or black and white photos of patients and illustrate frame dispensing, contact lenses and spectacle lenses. (As an example, colour fundus pictures, rather than black and white photos, would have enhanced the text's value.)

Tables are well presented and uncluttered. (Interestingly, tables, figures and illustrations are not numbered consecutively for the whole book, but are numbered for each chapter. For example, Fig. 21-3 is used to indicate the third figure in Chapter 21.) The index consumes 16 pages and is very detailed, permitting ready and easy reference.

Serving the elderly is absorbing more and more of the practitioner's time as the overall population ages, retirement plans multiply and avocational needs increase. If Optometry neglects this growing sector, it does so at its own risk.

Understanding the psychological, functional and vision problems confronting the aging is essential to rendering adequate care, but this care must be permeated with understanding, patience and sympathy. ***Vision and Aging*** addresses all of these problems. Any optometrist cannot but be a better practitioner from a careful reading of this book.

Need more be said?

Dr GM Bélanger
Ottawa, ON

History of Australian Optometry *Charles Wright, AM. Published 1988 by the Australian Optometric Association, Carlton, Victoria. 245 pages plus index, $55.00 (Australian $)*

The story of Optometry's development is similar across the world and varies little from that of most health care or other professional disciplines.

The first stage is the coming into existence of some specific body of knowledge which practitioners can apply to the solving of human problems and complaints. Then comes the realization by those engaged in such activities that they can improve themselves and serve the public better by working together.

A consequent need — for progress — demands greater competence and better structures which in turn leads to the founding of instructional courses and, ultimately, schools. Finally comes statutory recognition and legislation to confirm the training and the exclusive privilege of practice in this field. Optometry in Australia followed just this evolutionary path and, in ***History***, Wright takes the reader through all of these stages in turn.

His approach, however, differs somewhat from conventional historical reporting in the sense that individuals are seen to shape the history rather than history developing the individuals.

Like James Michener writing about Hawaii, Wright traces the rise of the profession from its ophthalmic roots in England and continental Europe to its separate evolution in each of Australia's states, beginning in New South Wales then, in succession, Queensland, Tasmania, Victoria, South Australia and Western Australia.

The readers are treated (and to this reader, it was a treat!) to a sequence of individual efforts geared to the creation of homogeneous bodies; to draft, present and battle for legislation; to overcome not only internal dissent and personal antagonisms but, more importantly, to overcome the ever-present medical opposition (more so in the formative years, but persisting to this day in the matter of Optometry's participation in Australia's national health plan and their right to use diagnostic drugs).

The Australian struggle to form a national optometric association is also described in detail from the basic shell of a constitution through the gradual elimination of regional differences with the realization that these differences were stumbling blocks to progress. Readers with a bent for association politics and amateur psychology will enjoy these pages as Wright relates ably the wrangling so normal in the development of any national organization.

The author permeates the book with anecdotes that give meaning to the history. One of the more revealing is in chapter 10, devoted to itinerant and group practice which, not surprisingly given the vast spaces of central Australia, grew out of the need to "service the outback and the small towns scattered over the country." There is a kinship with our own circumstance in Canada where the same dedication and initiative was required by pioneer optometrists in the 20's and 30's, prior to the advent of easy transportation across our own vast boundaries.

In Australia, this led directly to the formation of group and multiple practice and such is the story of the firm of Laubman and Pank, a tale which absorbs a good part of the chapter.

(Eventually, of course, it grew into a corporate firm from which sprang Sola, later Sola International, now Sola-Barnes Hind. Sola Scientific Optical Laboratories of Australia was initially an inside branch of Laubman and Pank, engaged in instrument and lens designs. These laboratories were responsible for the design of the Schultz-Crock binocular ophthalmoscope, forerunner of the binocular indirect, and for the ED trifocal, among many other products. Presently, despite its large size, the corporate practice remains under the control of optometrists in each location where they operate as private practitioners. The author pauses to ask if future owners of Laubman and Pank will persist in this philosophy or will it change into chain locations where practitioners are nameless, technical salesmen for an anonymous Board of Directors?)

Chapter 13 is devoted to the story of the several bulletins and journals which became testimony to the competence and zest for knowledge of Australian practitioners, tracing their publication roots as far back as the 1890's. The author quotes extracts from several articles and papers published over the many decades, some of which, from the 20s and 30s, would shame more modern writers by their technical competence.

Several chapters relate the struggle for recognition and participation in the country's National Health Plan. Not only did optometric leaders have to contend with medical opposition and the vexing problem of the ever changing bureaucrats and politicians as governments changed or cabinets were shuffled, they had to obtain unanimity of thought, action and purpose within their own ranks and, again, the kinship with Canadian optometrists is obvious.

Letter writing, preparing and presenting briefs, interviews, discussions, in essence, Australian Optometry went through the same

BOOK REVIEWS

situations we experienced in Canada during the long debates on national health and the several provincial studies of the same subject.

Contrary to our Canadian experience, however, Australian Optometry was invited (!) by the government to engage in discussions to determine benefits, fees and administration. (The chapter detailing this process is illuminating and particularly instructive for groups facing similar negotiations.)

The creation and evolution of Australia's schools from individual instructor-driven courses through association-sponsored lectures and courses to the founding of schools in technical institutes to the full integration within the university structure is fascinating reading. One is left with a feeling of pride for the profession and a great deal of admiration for those optometrists whose foresight and toil made such acccomplishments possible. Today, three Schools of Optometry are firmly entrenched in universities in New South Wales (in Sydney); at Victoria College in Melbourne, and a third in Brisbane. All have diamonds in their crowns, as well, with the Cornea and Contact Lens Research Unit in Sydney, the National Vision Research Institute in Melbourne and the Centre for Eye Research in Brisbane. ***History***'s last chapter, in fact, describes the founding and development of the three research institutes.

The chapter describing the development of higher degree courses and the recipients of higher degrees and research projects is much more than an eye opener. It demonstrates the very wide field of basic and clinical research on which Optometry can participate as a player. It should provide incentive to all students, regardless of their country of origin or study.

Chapter 26, "Research and Academic Biographies", lists 29 people whose names should be familiar to readers of many renowned journals in Optometry and visual science. Westheimer, Lederer, Cole, Collin Hewett, Schultz, Aigo, Holden, Garner, Carney, Bailey and Adams are amony these notables who made and continue to uphold the solid technical reputation of Australian Optometry.

The History of Australian Optometry is more than a mere collection of historical facts. It is a reference volume which should grace the library of every national, provincial or state optometric association.

The history of Optometry in any country can be a captivating study for optometric political leaders, educators, sociologists, not to mention history buffs. All can learn from the struggles of others, to develop and improve their approaches and solutions, so as to avoid repeating their mistakes. There is a wealth of information in this one volume which can be adapted or copied by many groups.

Pride in one's profession is linked to a knowledge of its history. How fortunate is Australian Optometry to possess such a document. Australian Optometry is indebted to Wright for what can only be described as a genuine labour of love.

Is there a Charles Wright, we wonder, to be found in our own Canadian outback?

Dr GM Bélanger
Senior Editor, retired
Ottawa, ON

LAUREL & HARDY Characters™ & © 1987 Larry Harmon Pictures Corporation, Los Angeles, California, U.S.A. All rights reserved

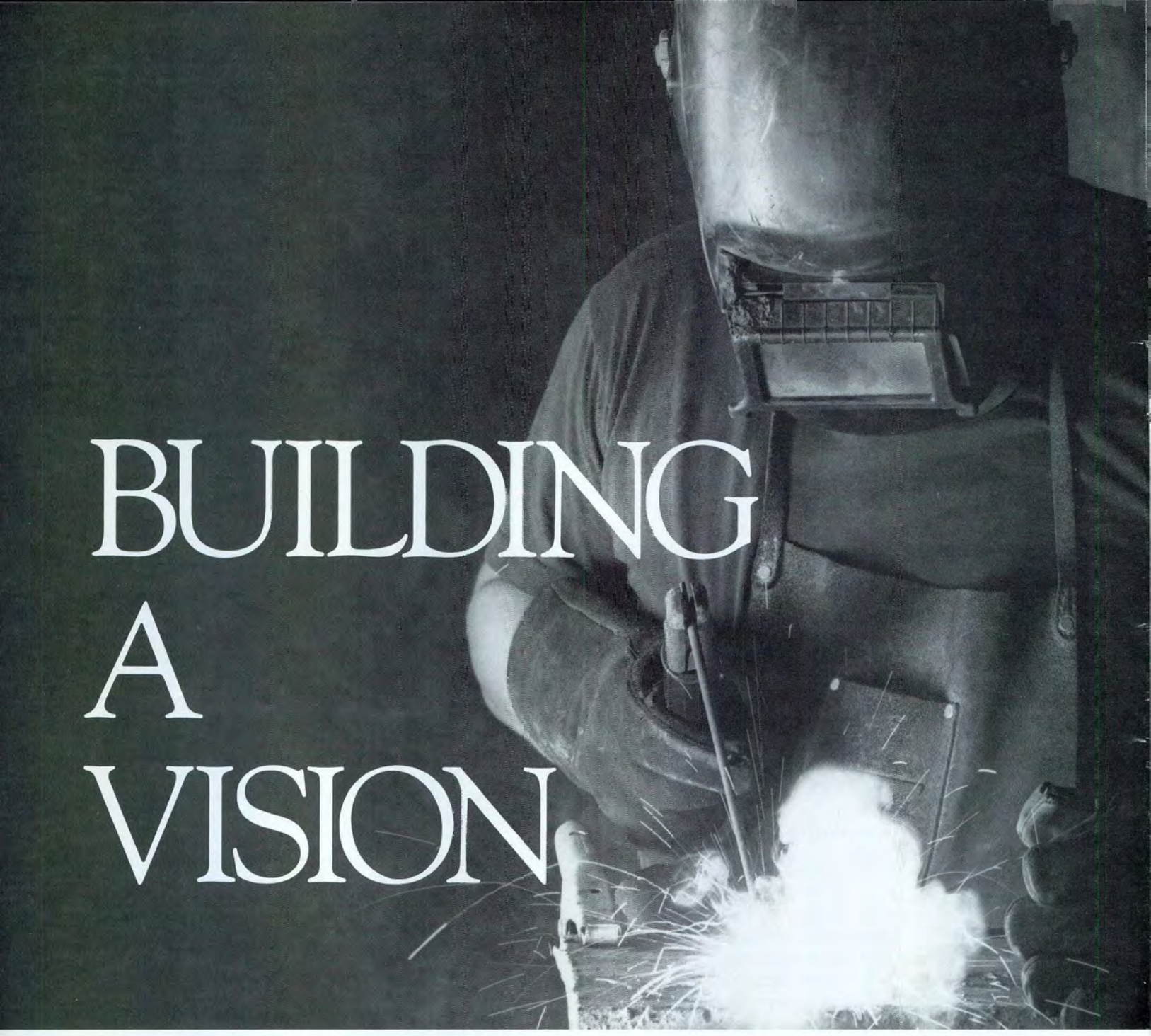
Irritation can be rather bothersome

ULTRAZYME has the solution to bothersome irritation – protein removal without residual enzyme. Used once weekly during the peroxide disinfection step, ULTRAZYME effectively removes protein and mucoprotein – in just 15 minutes. Left overnight, ULTRAZYME's unique non-binding action works without leaving irritating residual enzyme.

The result is a simple one step solution that works without irritation.

ULTRAZYME
One Step Convenience

ALLERGAN
Science with Vision



BUILDING A VISION

Building something that will last takes time, planning and expertise.

At Sola/Barnes-Hind Canada, we know that success is built on a solid foundation of exceptional service, superior product quality and technological innovation. We work hard each and every day to achieve these goals.

Sola/Barnes-Hind Canada: building for the future — today.

SOLA/BARNES-HIND
A PILKINGTON VISIONCARE COMPANY

50 YEARS OF VISION

© 1989 Sola/Barnes-Hind

Mississauga, Ontario, Canada

How many hours do you think she can spare for lens care?

All she needs is 25 minutes. Because with In A Wink,® that's all it takes to disinfect and neutralize soft contacts. When you're choosing a system for the active patient, there's no need to shop around. Recommend In A Wink. It fits the way people really live.

CIBAVision™
In A Wink. Fast & Flexible.

"NOW THAT'S A LUXOTTICA FIT!"

Luxottica's 21st century production techniques are designed to improve eyewear strength and appearance . . . and yield the 'Legendary Luxottica Fit.' These production techniques enable us to issue our no-time-limit warranties with confidence . . . and enable you to dispense our products with assurance.

"ENFIN CONFORT ET ALLURE LUXOTTICA!"

Les techniques de production du 21ème siècle Luxottica, sont conçues afin d'améliorer la résistance et l'apparence des montures . . . tout en livrant "Allure et Confort légendaires Luxottica". Ces techniques de production nous permettent d'offrir nos garanties illimitées avec confiance . . . tout en vous permettant la distribution de nos produits avec assurance.

 # 2112

LUXOTTICA®
CANADA INC.

947 Verbena Rd., Mississauga, Ont. L5T 1T5

© 1989 Luxottica Canada, Inc.