

# BOOK REVIEWS

**Ocular Immunology** by Gilbert Smolin and G. Richard O'Connor, Lea & Febiger, Philadelphia, 1981, 322 pp, illus., Cloth \$33.00 (Canadian).

During the last decade, few areas of medical science have progressed as rapidly as immunology, particularly in the application of basic concepts to solving the problems of unresponsive disease processes. Smolin and O'Connor have endeavoured to summarize the recent advances, introduce the terminology associated with them and relate them to practical clinical problems. They have succeeded on all counts and the result is a readable, yet comprehensive, book which will enable the practitioner whose background is rudimentary in this field, or who has been unable to keep abreast with this topical subject, to update and enhance his knowledge.

A long and comprehensive introductory chapter, with little assumption of previous knowledge, guides the reader through the fascinating development of general immunological principles. Included are the nature of the immune reaction, inflammation and the five types of hypersensitivity reaction. Well-conceived, lucid schematic figures and flow diagrams enhance this section. The chapter concludes with the application of these basic concepts to the eye using the conjunctival and corneal responses as specific examples.

An overview of immunological testing procedures is provided with the caution that testing usually only confirms the category of an immunologic disease and rarely its cause. The authors emphasize that . . . "Blanket testing of individuals suffering from ocular inflammatory disease is both expensive and wasteful . . ." The subsequent five chapters of the book are devoted to the eye. Perusal of the section on atopic diseases affecting the eye will reward the reader with an insight into the developments that have occurred since Coca introduced the term "atopy" (1923) to mean "strange reactivity" in those with allergic hereditary disease. However, despite all advances, avoidance of specific allergens remains the key recommended prophylactic measure. It is suggested that the giant papillary hypertrophy in the tarsal conjunctivae of some contact lens wearers is associated with either a personal or a family history of atopic disease.

Numerous immunologic reactions occurring either in the internal or external ocular tissues are discussed with the inclusion of pathogenesis, clinical manifestations and current opinions concerning treatment and therapeutic efficacy. Consideration of the role of infectious disease (bacterial, chlamydial, viral and mycotic) in immune-complex-mediated reactions supplements the more basic approach taken in general texts on eye disease.

Transplantation of living human tissue creates two major difficulties, one technical and the other related to the reactions of the host to the donor tissue. In their chapter on corneal graft reaction the authors describe the mechanisms of graft rejection and offer strategies for the corneal surgeon to prevent and treat rejection.

Each chapter is profusely referenced for the reader who wishes to delve even deeper into a particular aspect of the subject.

The most disappointing feature of this otherwise well-produced book is the less than excellent quality of many of the numerous black and white photographs. The poor resolution is particularly frustrating in the photographs of pathological preparations and those of the anterior segment. Two colour plates are also included but, unfortunately, much detail is lost due to insufficient magnification.

Notwithstanding these comments, this book provides an excellent update in this expanding field and would make a welcome addition to any optometrist's library.

A. Cullen

**The Optometrist's and Ophthalmologist's Guide to Pilot's Vision.** Warren V. DeHaan, O.D., The American Trend Publishing Company, Boulder, Colorado.

As an optometrist specializing in Aviation Vision, I have long recognized the need for a clinical manual in this field.

The examination of the pilot patient requires knowledge of the field of Aviation. The optometrist cannot use the same techniques in prescribing for the pilot that he uses for his earthbound patients.

The interested optometrist must have access to the regulations covering Aviation and Dr. DeHaan devotes 5 chapters to this. Although he deals exclusively with American regulations, Canadian regulations are quite similar.

The Canadian Optometrist can get our regulations by writing to Transport Canada, Air, Ottawa, Ontario, and requesting the Personnel Licensing Handbook.

Dr. DeHaan has chapters on visual acuity, empty field myopia, contact lenses and depth perception. All of these aspects of vision he relates to the flying environment.

His chapter on orthokeratology and Vision Improvement Methods are well thought out and presented in a logical way.

Chapters on frame selection and types of lenses most successfully used are excellent. This book allows the non-flying eye professional to understand some of the problems encountered by professional and private pilots and details how to deal with their specialized needs.

As more and more optometrists find themselves examining not only the private pilot, but also the Senior Commercial Captain, some knowledge of the field must be had. I heartily recommend that this book be a part of every optometrist's library.

Lorne G. Hart

**Neuro-ophthalmology: clinical signs and symptoms,** by Thomas J. Walsh, Lea & Febiger, Philadelphia, 1978, 285 pages + index.

The book is arranged in terms of signs and symptoms. Moreover, each short chapter

provides a free-standing discussion of a topic, so the reader need not refer back and forth to many other chapters.

In order of size, the chapter headings are: retinal disease (related to neurological diseases), radiology, diplopia, field defects, headache, blurred vision, papilledema, exophthalmos, pupillary abnormalities, facial nerve paralysis, nystagmus, ptosis, and gaze.

There is a relative paucity of figures and diagrams, and few tables. One figure (a retinal photograph, Fig. 1-4) is turned 90 degrees. The lack of photographs is particularly troublesome in the chapter on diplopia.

The general tenor of the book is that of a highly specialized practitioner giving advice to a general practitioner. It is a very personal book, and the information is often anecdotal (I had five cases . . .); this is, of course, an entirely acceptable approach to a book, so long as the author's and the reader's biases agree. I found myself unhappy with the author's disinterest in any color vision tests aside from the HRR plates, some of his disparaging remarks about the Amsler grid, and his description of the duration of transient losses of vision.

In Walsh's experience, transient obscurations of vision which last from 5 to 15 seconds are due to increased intracranial pressure, while visual losses lasting 5 to 25 minutes (which he terms 'amaurosis fugax') are due to carotid artery disease. This does not agree with other authors, and Walsh does not provide any references to support his position. Personally, I would like to abolish the term 'amaurosis fugax' altogether, and use more descriptive terms like transient monocular blindness or transient binocular blindness.

A close reading of any chapter will uncover little nuggets of clinical wisdom such as the advice to test even a person who appears blind with some 20/20 letters: the person may have a very constricted field, which may not admit larger letters (such as 20/200 letters).

The chapter on retinal disease is mainly concerned with the phakomatoses (a group of congenital anomalies characterized by tumors based on astrocytes or by abnormal vascular overgrowths at the retinal, cranial, or facial level).

The chapter on headache is particularly well-written, and provides a brief but thorough review of all aspects of this vexing diagnostic problem.

As might be expected, the chapter on fields is excellent. One of the author's methods for studying disturbances of color perception in the visual field is to use a uniform orange poster board for testing, with a fixation point on the nasal side of the poster board. The patient then traces out with a pointer any areas where the orange color is missing or desaturated.

The chapter on blurred vision mentions several useful tests and many potential causes to be considered. Among the tests recommended in this chapter is the use of a neutral density 2 filter over an eye with reduced acuity: an eye with organic optic nerve disease will



show a drastic reduction in acuity, while an amblyopic eye should show only 2 Snellen lines' decrease in acuity. Walsh also suggests use of the swinging flashlight test in any case of blurred vision (and in cases of suspected optic nerve disease or anisocoria).

In conclusion, this is a useful book, both as a review of problems primarily neurological and as an opportunity to profit from the clinical experience of a prominent neuro-ophthalmologist.

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**Contact Lens Design Tables, by Anthony Musset and Janet Stone, Butterworth and Co. Ltd. 1981, 154 pp.**

This manual is directed toward a very specific problem — the problem of the clinician in specifying the peripheral curves of hard lenses. The entire written text occupies less than seven pages. The remainder consists of computer-generated tables for use in the selection of peripheral curve radii and widths for simple or sophisticated hard lens designs. The text deals with the use of the tables and provides the rationale for their development. Briefly the rationale follows.

Peripheral curves on hard lenses provide for a slight clearance of the peripheral zone of the lens from the corneal surface. It is generally agreed that this edge clearance serves several purposes:

- (1) To provide a reservoir of tears at the edge of the lens available to flow beneath the lens during eye movement.
- (2) To prevent epithelial damage from the edge of the moving lens.
- (3) To support a tear meniscus at the edge of the lens which provides forces that tend to centre the lens.
- (4) To permit easy removal of the lens.

This edge clearance is a function of the corneal topography and of a lens design parameter, edge lift. Although the exact topography of the cornea is seldom known, the edge lift of the contact lens can be varied to affect edge clearance from the cornea.

Recommended values for axial edge lift are given by the authors based upon the parameters of clinically successful lens designs. Furthermore it is implied that unless specific contraindications for an individual patient exist, axial edge lift should be constant for lenses of the same design. The tables provided allow the lens designer to easily calculate different series of intermediate and peripheral curve radii and widths which will result in equivalent axial edge lift. Suggestions are offered as to which characteristics of peripheral curve design may be most desirable.

These tables will be of use to the clinician interested in the detailed specification of his hard lenses, but lacking in the computer facilities or expertise necessary for their computation. Of course the use of either these tables or computer programmes is better than choosing arbitrary parameters and infinitely superior to accepting unknown standard laboratory parameters.

**Brian Garnett, O.D.**

## Management of Low Vision.

by: **Gerald F. Fonda.**

**Published by Thieme-Stratton Inc. New York  
George Thieme Verlag Stuttgart. New York,  
1981, 248 pp. with illustrations.**

This book offers the reader a comprehensive and well-organized approach to the management of the Low Vision patient. The author was formerly an Associate Clinical Professor of Ophthalmology at New York University School of Medicine and now is the Director of Low Vision Service at St. Barnabas Medical Centre. He deals with this topic in a very frank and direct way, injecting many clinical cases into a well classified system. He always ends each section by citing advantages and disadvantages of the visual aid categories. Throughout the text he rates different examination findings and disease entities which will determine the prognosis.

He begins with the examination and testing equipment which can easily be present in every optometric office. The author is very direct in discarding procedures and low vision aids which are not useful and a detailed emphasis is placed on those which are important. Some patient aids which are found least useful are Pinhole spectacles, telescopic units employing a contact lens as the ocular, hemianoptic spectacles, and field expanders. Emphasis instead is placed on a good refraction and then on "approach" magnification, paper weight and stand magnifiers, hand held magnifiers, high add bifocals and trifocals, half-eye spectacle magnifiers, and telescopic devices. Attention is paid to binocularly and the psychological well being of the patient.

A major goal of this text is to simplify the visual aids by initially trying the most successful and least expensive methods and then follow up by the more sophisticated techniques. For instance he discusses closed circuit television and its advantages but notes "it should not be recommended before a less expensive and portable device has been tried and evaluated, as they are indicated in less than one percent of patients." He also has some criticism for telescopic spectacles and their limited use. These aids reduce the visual field substantially and can create more of a handicap in some cases. In fact he feels driving with such devices is not practical. However good solid information about all the categories of aids, optical and non optical, along with the theoretical optics and preferred usage, is clearly outlined.

Sections on contact lenses, visual field defects, illumination, braille, reading type, colour vision defects and genetics, round out this text. Optometric references are used and it is interesting to note the predictable ophthalmological overview on some of the topics.

This is a good text for both students and clinicians, as a reference, a review and a guide.

**Bruce N. Rosner, O.D.**

**Glaucoma, 2nd ed., by P.A. Chandler and W.M. Grant, Lea & Febiger, Philadelphia, 1979, 370 pages + index.**

First published under the title, *Lectures on Glaucoma*, this book comprises 43 chapters, the bulk of which are by the senior authors; the balance of the chapters are contributed by 6 additional authors. The book consists of 4

parts: an introduction (20% of the book), diagnosis and treatment of glaucoma in adults (56%), surgical procedures and treatment of complications of surgery (10%), and diagnosis and treatment of glaucoma in childhood (14%).

The authors originally presented much of this material as lectures: I assume they must have used more diagrams and photographs in the lectures than in this book, because it contains only 16 black and white figures. In many instances, photographs illustrating some cases would make the book more useful clinically. On the other hand, one of the best features of the book stems from the nearly sixty years' combined clinical experience of the senior authors: they are able to illustrate their points with a total of 192 cases drawn from their experience (and that of the contributing authors). The bulk of the cases presented (86%) relate to glaucoma in adults.

Since the chapters are short (some as short as 1 page, but most around 10 pages), the practitioner has the opportunity to obtain a quick refresher on very specific topics, usually with a case report or two which will permit a comparison with a current case.

The authors demonstrate a refreshing pragmatism: they do not hesitate to point out cases which do *not* support old established notions (e.g. that myopes do not withstand open angle glaucoma very well, or that large cup/disc ratios carry a bad prognosis for glaucomatous patients). The authors offer valuable clinical insight into problems of glaucoma management: for example, when should treatment be started, how long can a healthy eye withstand elevated intraocular pressure, effects of topical steroids, and when to substitute surgical for medical treatment.

The introduction includes an excellent section on gonioscopy (30 pages), which includes many useful tables of normal and abnormal variations of angle structures.

Glaucomas in adults are covered under 24 different headings; thus, the reader may examine a very wide range of problems leading to glaucoma. These include, for example, exfoliation of the lens capsule, amyloidosis, and corticosteroids.

An interesting concept mentioned in the section on glaucoma surgery is that patients with filtering blebs should be instructed to apply digital pressure to their eye(s) several times daily, in order to ensure the continued patency of the new filtering channel: the amount of pressure is determined by the surgeon at the slit lamp. The correct amount of pressure is that which will cause a noticeable inflation of the bleb. This pressure is then taught to the patient.

The portion on diagnosis and treatment of glaucoma in childhood is all by David S. Walton: eleven chapters include much useful information concerning (for example) maximum acceptable corneal diameter (under 1 year, a diameter of 12 - 12.5 mm suggests abnormal corneal enlargement), examination under general anaesthesia, abnormal development of angle structures, (such as occurs in Marfan's or Rieger's syndrome), and the relation of lid hemangioma and glaucoma.

Reading this book is like having the opportunity of comparing clinical notes with a team of surgeons who deal exclusively with glaucoma: any practitioner (especially one



with a problem patient on their hands) would welcome such an opportunity.

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**Glaucoma Guidebook: by Gerald L. Portney  
Lea & Febiger, Philadelphia, 1977. 158 pp.,  
illustrated.**

This text accomplished its intention to provide a general overview of glaucoma. It emphasizes the basics of the disease, that is, an understanding of etiology, classification, clinical manifestations, diagnosis and treatment. It avoids the drudgery of exhaustive documentation yet does provide direction for more in-depth study if the reader so desires.

The introductory section, "Diagnosis and Therapy" outlines the basic classification of glaucoma. The essentials of patient management are stressed rather than disease mechanisms. It is interesting to note the authors preference in tonometry being the MacKay-Marg unit as well as his comments on the tangent screen as the most "useable of all devices" for visual field testing. The text does place emphasis on the various projection perimeters.

Portney brings us up to date concerning interpretation of early glaucomatous field defects. He emphasizes paracentral scotomas in the Bjerrum area, nasal step and asymmetric concentric contraction of the field as the earliest changes. He avoids reliance on enlargement or baring of the blind spot as an early sign. He notes factors that can affect field testing results and simulate glaucomatous changes. These factors are extreme miosis, refractive errors and media clouding.

The chapter on visual field changes in open angle glaucoma made a good attempt to explain these changes in a simplified manner. In order to demonstrate changes in the optic nerve head he introduces concepts of cone, cylinder and hemispheres in various combinations. This concept does become cumbersome but one is able to visualize the changes in this way. However, Portney made an important point that "colour alone is not a good guide for evaluating the progress of glaucoma" but rather "loss of nerve tissue" is the key here.

The medical management of open angle glaucoma is presented in a concise form that would be a good review for most optometrists.

There is a good discussion on the factors in deciding whether or not surgery is advisable. The text provides an optometrist with background information on types of surgery that show up occasionally in daily practice.

The chapter on angle closure glaucoma involves a classic description and typical treatments for the disease. The final chapter covers the historical classification of glaucoma as a disease entity. It traces changes in the understanding of the principles of the disease over the last one hundred and fifty years. This makes one realize how much knowledge has been developed on glaucoma over such a short time.

There is concise glossary in the final section of the book. Portney's Glaucoma Guidebook would be a welcome addition to any optometrist's library. In 158 pages it presents glaucoma in a simplified manner worthwhile to any practitioner's understanding of the disease.

**Stewart F. McLeod, O.D.**

**Depth Perception through Motion, M.L.  
Braunstein, Academic Press, New York, San  
Francisco, New York, 1976, 200 pages, hard  
cover, illustrated.**

As the title indicates, this is a specialty book in visual perception. Its chief aim is to show how various modes of motion can result in the perception of depth. The book presents a great number of studies in this field in a well organized and logical fashion. Much material which would otherwise be buried in highly specialized journals is thus brought alive and presented in perspective to a broader audience.

The book deals with the early discoveries of the effect of motion with respect to depth perception. It presents geometrical analyses of the moving retinal image and goes on to explain the illusions in terms of three-dimensional transformations. In addition, it deals thoroughly with the various aspects of slant perception and the perceived direction of rotary motion.

Interestingly enough, there is little or no concern with depth perception generated by binocular disparities; the material deals almost exclusively with monocular vision. Thus, there is no account of the well known Pulfrich stereophenomenon. This is not necessarily a shortcoming, but it does illustrate the extreme specialization of the

book.

There are some minor flaws. The introductory chapter is very elementary and not always as precise as one might wish it to be. A case in point is the reference to Stratton and the statement that he was able to the inversion of the visual field. What Stratton actually experienced is, of course, highly controversial, and this should have been stated at least briefly. Whereas most of the diagrams are satisfactory, some of the drawings of subjects' heads are amateurish. Actually, this is a common flaw in books of this nature, and it is not clear why the talents of a professional artist could not be enlisted. Figure 4.13 is an example. Also, there is a problem with some of the lettering on the coordinate axes of the graphs; the letters are placed so close to each other that they run together when minified for publication purposes. However, mechanical flaws of this nature could have easily been corrected by the editor.

These very minor criticisms do not prevent the book from being a delightful piece of work, well worth owning for the optometrist who has an interest in vision beyond its immediate clinical aspects.

As a key hypothesis for explaining how depth perception is derived from motion, the author introduces the principle of heuristic processing. The term is widely applied in psychology, and psychologists would have no difficulty with this. However, if the book is directed to other scientific disciplines dealing with the visual process, the explanation of the concept is not entirely clear in spite of the illustrative examples. A reference to the Greek roots of the word heuristic would have been helpful, such as its original meaning: to find out, discover. Thus, depth perception due to motion, or any kind of perception for that matter, can be looked upon as a kind of problem solving process that usually, but not always, leads to the correct inference about the surroundings. When this process fails because of inadequate or distorted input, we experience illusions.

Finally, the book contains a chapter on computer animation and some suitable programmes for this purpose. This is obviously a useful tool for people engaged in vision research. However, with a bit of imagination, it appears possible that it could be used by an optometrist right in his office, as a visual training tool, for example.

**Arnulf Remole, O.D., Ph.D.**

*"When your work speaks for itself, don't interrupt."*

— Henry J. Kaiser

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