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Defective Colour Vision: Fundamentals, Diagnosis and Management

Defective Colour Vision: *Fundamentals, Diagnosis and Management by R. Fletcher, J. Voke. Published 1985 by Adam Hilger Ltd., Boston and Bristol. 610 pp., $67.50 (US$)*

If any one aspect of physiological optics tends to be neglected by practitioners or, indeed, to arouse even a minimal interest, that topic is colour vision. *Defective Colour Vision*, by two world renowned authorities in the field, will go a long way, however, towards changing attitudes about the importance of an awareness of the complex aspects of colour vision in the optometric practice.

This text, in fact, should become a standard undergraduate text if optometrists are to live up to their reputation as experts in primary vision and eye are. The book contains a wealth of information on retinal anatomy (both structural and functional), on the anomalies of colour vision and their specific characteristics and on the diverse clinical interpretations and applications of colour, all of which should lead to the formation of more astute optometric clinicians and counsellors. The book, too, in a more general sense, will increase a practitioner's appreciation of colour vision and its role in society.

As one reads the work, one realizes that it must have been a labour of love and a very demanding challenge for the authors to wade through more than 1,000 references in order to be able to synthesize the information before producing such a concise presentation of the material.

The book is well-written and well-illustrated. The reader will find, initially, that some chapters do not seem to flow as well as others, because of the nature of the subject matter discussed. The information in these chapters is so condensed that a complete reading is a bit laborious. Other chapters, however, flow like those of a novel. This is not a defect, but rather results from the very nature of the subjects. Retinal physiology, for example, is a far more complex topic than colour coding in industry.

Readers will also agree with the authors that the book can be looked at not only as a whole, but also as a collection of independent studies (chapters), each of which can be treated individually if just one particular aspect of colour vision needs to be reviewed.

There are fourteen chapters covering some 516 pages, to which is added an appendix of 14 pages, a reference list of over 1,000 names, filling some 61 pages and an index of authors and topics, each of eight pages. At first glance, a reader might ask why not references after each chapter, as is common in some other academic works? As it turns out, this would be a significantly repetitive exercise, as some references recur in several different chapters. The single alphabetical list at the end, in fact, provides a bonus, a ready bibliography of almost everything of importance which has been written on colour vision.

Although it would be interesting to offer summaries of each chapter, this is not the goal of this review. Suffice to say that the titles of each chapter have been selected with care. Moreover, the Table of Contents is detailed and one can quickly find the location of any one aspect desired. The Chapter titles' however, follows so that the readers of this review may note the thoroughness with which the authors have addressed the topic.

How Colours Are Seen — Retinal Anatomy and Physiology
Colour Measurements and Specifications
Inherited Colour Deficiencies
Acquired Defects
An Approach to Testing
Illumination for Colour Vision Tests
Detection and Diagnosis
Interpretation of Records
Assistance for Colour Vision Defects (Filters, etc.)
Daltonic Child
Vocational and Industrial Aspects
Safety Aspects
Official Colour Vision Standards in the UK
Recommendations

An optometric vision care practitioner is expected to understand any vision problem with which a patient may present. But he or she must also have the methods or knowledge to analyse and diagnose the condition, as well as to treat it and to counsel the patient. This book enables the practitioner to do exactly this, as indicated in its sub-title, "Fundamentals, Diagnosis and Management".

With the increasing importance of colour in our modern world, practitioners cannot ignore the topic, neither can they continue to get by on only a minimal awareness of its myriad complexities. Reading this book is a most effective method for the practitioner to upgrade one's knowledge of colour vision. Need more be said?

Cataract Surgery, *A.D. Steele, R.C. Drews, Editors. From the Ophthalmology 2 Series, published 1984 by Butterworth International Medical Reviews.*

Cataract Surgery is exactly as the preface states, "Not a didactic text", but rather a work which, through different contributors, presents views on all aspects of cataract surgery. This gives the book both its charms and its principal drawbacks. There is, inevitably, duplication, contradiction and poor continuity in terms of style. A chapter on prostoglandins in cataract surgery, for example, sends one scurrying back to the biochemistry books, whereas the chapter on E.C.C.E. appears to be a collection of lecture handouts, and is best read recipe fashion with a prepared eye at the ready... ("Insert Tab A into Slot B. Please avoid digging into the anterior cortical face.")

"Optical Management of Aphakia" centres on both AC and PC intraocular lenses and is fairly exhaustive. A chapter on newer refractive keratoplastic techniques is also of special interest. The chapter on contact lens correction is naturally oversimplified. There is no mention whatsoever of spectacle correction or of the frequently encountered distorted pupils

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or optical problems associated with unilateral astigmatic corrections.

This is, of course, a text aimed at the surgical community and I'm sure it will prompt many a lunchtime debate over techniques and strategies. As a pure reference text, however, it remains too vague and disorganized.

Keeping in mind the trend towards cataract surgery's becoming an "in-office" procedure, this text may soon become mandatory. However, for this practitioner, it is merely a useful adjunct and not an essential part of the optometric library.

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Reading Disabilities

Reading Disabilities: *The Interaction of Reading, Language and Neuropsychological Deficits. D.G. Doehring, R.L. Trites, R.G. Patel and C.M. Fiedorowicz. Academic Press, New York, 1981. 280pp.*

Ce travail a été publié alors que D. Doehring et C. Fiedorowicz étaient professeurs à l'Université McGill. Les auteurs expliquent d'abord les concepts récents ayant trait aux troubles d'apprentissage de la lecture. Ils décrivent ensuite une méthode objective qui permet de classifier les individus ayant des troubles d'apprentissage de la lecture en sous-types. La classification a été faite au moyen d'une analyse factorielle (technique Q) qui est décrite dans les chapitres 5 et 6. Le programme SPSS contient des informations utiles pour le lecteur désireux d'utiliser cette technique. La technique Q permet de déterminer si les individus d'un groupe sont différents à partir d'un ensemble de résultats obtenus dans une série de tests.

Trois types d'individus ayant des troubles d'apprentissage ont été observés. Le type A présente un trouble d'association entre différentes modalités sensorielles, le type O manifeste surtout des lacunes en lecture orale, alors que le type S est caractérisé par des anomalies de séquence. Selon les auteurs, ces trois sous-types décrivent 72 (82%) des 88 sujets de l'échantillon qui présentent des troubles de lecture. Cette classification a été obtenue à partir de 39 tests différents.

Les résultats d'une analyse factorielle peuvent être interprétés de plusieurs façons. D'abord on obtient des résultats en fonction des tests qui ont été inclus dans la batterie de tests, ce qui est arbitraire au départ. De plus la saturation en facteurs qui constitue le point de démarcation qui permet de classifier l'échantillon est aussi arbitraire. Les auteurs ont choisi la valeur de 0.40 qui leur a permis de classifier 82% de leur échantillon. Ils auraient pu classifier 69% de l'échantillon s'ils avaient choisi 0.50 et 41% de l'échantillon s'ils avaient choisi 0.60. Une valeur de 0.60 équivaut à un coefficient de détermination de 36 (d = 36) c'est-à-dire que le facteur explique 36% de la variance totale; les sous-types purs n'apparaissent pas en dessous de cette valeur. Le choix des tests et le critère étant arbitraires, la classification des sous-types l'est aussi.

Le type S serait susceptible d'intéresser plus particulièrement un spécialiste de la vision étant donné que le sujet peut percevoir très bien des lettres séparées mais ne peut analyser un ensemble de lettres (visual matching, visual scanning, auditory-visual matching). Il semble toutefois que les auteurs aient présenté les tests dans lesquels la performance des types S est la meilleure au début de la séquence de tests et les tests dans lesquels leur performance est la moins bonne à la fin de la séquence. Le type S a pu apparaître à cause de la fatigue accumulée pendant la séance de tests; le phénomène est d'autant plus possible que les enfants qui présentent des troubles de lecture sont plus faciles à distraire.

S'il était possible d'obtenir une telle classification à partir d'un échantillon plus nombreux et plus diversifié, des méthodes de traitement différentes pourraient être utilisées en fonction des types d'anomalies. Ainsi le type S, s'il existe, pourrait éventuellement subir un entraînement de mouvements oculaires de saccades, de poursuite et de vergence qui serait moins efficace pour les types O et A. Ce volume est susceptible d'intéresser les spécialistes de la vision qui tentent de traiter les problèmes d'apprentissage de la lecture en autant qu'ils possèdent des notions de base sur l'analyse factorielle.

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