

Book reviews

Visual Perception. By T. N. CORNSWEET. 1970. Pp. 475, figs. Academic Press, New York and London. (£7.00)

This book has the advantage of having been written by a research worker in vision who has taught at Yale and at Berkeley, California. It is a very good book indeed with a sound theoretical basis, and one in which the explanations are exceedingly lucid. The style is lively, and in places humorous, and this makes it easy reading. It is aimed at bright undergraduates and graduate students and, although it leans heavily on physical and physiological concepts, it is written for a general readership and not necessarily for those who have previously studied these two disciplines. It would be of great interest to physicists, psychologists, engineers, and biologists who need to know more about the present state of visual knowledge and some research problems.

The reader is advised to read the book through as one would a novel (many novels are far less exciting) and to skim rather than skip if one must.

No subject is more fascinating or important than visual perception. Most of one's information input is visually processed, but it is an absorbingly interesting subject for two main reasons. First, the information from the eyes goes straight to the brain where it is "perceived" and little is yet known about the act of perception. Secondly, even the anatomy and physiology of the eye and the visual pathways are not by any means properly understood and, although knowledge is accumulating very rapidly, there is still a great deal we do not know. This makes it even more intriguing.

After an introduction, the book begins with an account of the work of Hecht, Schlaer, and Pirenne on flash stimuli, explaining that the human visual system has the ultimate sensitivity, in other words it can detect a single light quantum. Chapters then follow on the physics of light, quantal fluctuations, and the rod and cone pigments and their excitation by light. Then there are chapters on colour vision which occupy about a quarter of the book.

After this the book becomes more specialized, and specific problems of particular interest to the author are dealt with in some depth. These include the psychophysiology of brightness, brightness and colour constancy, spatial interactions, temporal aspects, and visual modulation transfer functions, which are discussed both spatially and temporally. The two final chapters are on stimulus generalization and on speculation on "higher processes", which is mainly a discussion on why inhibition has evolved. These parts are excellent, stimulating, and very well written, but they do limit somewhat the usefulness of the book as a general text since many visual phenomena are not mentioned at all. This is not meant to understate the value of the way in which the subjects included are introduced and described, and particularly noteworthy are the sections on the visual modulation transfer functions, which is the best account the reviewer has seen in any book.

One or two points of criticism can be mentioned, although none is very serious. The transmission of a nerve impulse by an action potential is not well explained and a diagram would have been helpful. Also it is surely less misleading to speak of "colour defectiveness" than of "colour blindness", since very few people indeed are completely devoid of any colour sense. Furthermore, to state that "the normal human visual system is extremely colour blind" is even more misleading, when simply describing the fact that one cannot distinguish a red plus green mixture from a monochromatic yellow.

The pedagogic advantage is questionable of presenting colour mixture data in a novel way, on a vector diagram in terms of quanta of light absorbed by the three visual colour processes. A few C.I.E. eyebrows will, no doubt, be raised to find that their favourite brainchild appears only in a swollen footnote.

Almost all the topics discussed in this book can be explained on a physiological basis, and the author thinks that, in time, every phenomenon will be found to have such a basis. He tends to play down the role of perception and, in doing so, conveniently omits any mention of such common phenomena as size constancy, or the moon illusion, in which "*perception*" obviously plays a vital part. This is a pity, especially since the title of the book is "*Visual Perception*".

The book is designed in a modern idiom with very wide margins. At the most only 43 per cent. of the page area contains print, and at the least only about 14 per cent. The book therefore seems more expensive than necessary, since one is paying a lot for the wide-open spaces. It is profusely illustrated with many very clear diagrams with long explanatory captions, and with many black-and-white and some colour photographs. One has, of course, to put up with American spelling, although it is a little difficult to accept "aberration" spelt consistently with two "b's" and one "r" as other than a mistake.

Colour Blindness. An Evolutionary Approach. By R. CRUZ-COKE. 1970. Pp. 156, 40 figs, bibl. Thomas, Springfield, Ill. (\$8.75)

The author has approached his subject from the point of view of "biological" evolution. To a large extent the work consists in a survey of the literature.

Obituary

Howard Vincent Coverdale, 1897–1971

Howard Coverdale, who was one of the most pleasant, companionable and likeable and, at the same time, most efficient of the ophthalmologists to be trained in Britain, subsequently became one of the foremost ophthalmic surgeons in New Zealand where his influence was immense.

Coverdale was born in Christchurch in the South Island of New Zealand. After leaving school where he became head-prefect, he learned to fly at Auckland and joined the R.A.F. in England in 1918. On his demobilization at the end of the war he went to Cambridge University and his versatility was immediately apparent in his becoming president of the Medical Society, president of the Heitiki Club (of New Zealand men at Cambridge), and a member of the Shakespeare Club of Caius College, and representing his college at tennis, golf, and hockey. His medical education was completed at St. Thomas's Hospital, London, where his athletic ability made him captain of the tennis and golf teams. His main interest, however, was ophthalmology, and for this reason he went through the residency at Moorfields Eye Hospital. Here he excited the greatest regard and affection; indeed, because of his surgical skill and personal qualities, he was one of the most popular residents the hospital has had. Despite the fact that he was pressed to remain in London, he decided to return to New Zealand, largely for reasons of health, and set up ophthalmic practice in Auckland.

Here, as would be expected, he prospered; but on the outbreak of the second world war he immediately enlisted in the army and, going overseas with the Third General Hospital, he was responsible for most of the ophthalmology in the New Zealand Division – and for many others – in the North African and Italian campaigns. Returning home in 1945, he maintained his interest in the Services by becoming chairman of the Medical Committee of New Zealand St. Dunstons with which he worked for many years.

His contributions to our specialty were considerable and, in addition to numerous papers on a wide variety of subjects in various medical journals, he was editor of the *Transactions of the Ophthalmological Society of New Zealand* for 10 years, an associate editor of *Ophthalmic Literature*, and a member of the International Editorial Board of the *American Quarterly Review of Ophthalmology*. In the profession in his own country the esteem in which he was held was shown by his occupying the posts of president of the Ophthalmological Society of New Zealand and of the Auckland Clinical Society. Outside his profession his interests in the arts, architecture, and the cultivation of trees and shrubs occupied much of his attention, as well as racing and golf. His death brings sorrow to his many friends in Britain and in his own country where an immense blank is created. To his widow, Margaret, our sincere sympathy is extended.