account. It is upon it that Thomas Young founded the Trichromatic Theory, which was accepted and elaborated—perhaps over-elaborated—by Helmholtz. To it we owe the three “sensation” curves (better termed distribution co-efficient curves), first calculated and graphed by Clerk-Maxwell, and subsequently re-estimated by more accurate methods by König, Abney, Wright, and others.

In the earlier researches “there were a number of obscure features and imagined limitations that required clarification. There was, for example, confusion between the specification of a colour in terms of the three fundamental physiological responses of the Young-Helmholtz theory and its measurement in terms of a mixture of three physically defined radiations; the possible arithmetical manipulations of the data were not appreciated, in particular the freedom with which values recorded in terms of one set of radiations could be transformed to a different set, the consequent liberty to choose reference stimuli for a colour specification different from the radiations used experimentally in colour matching and so on. Two papers by Ives provided the first detailed solution of colour mixture problems on the trichromatic system, followed by two papers by Guild, who reduced the problems of colour mixture to two dimensions by separating the amount of light from its quality, and applied the ordinary rules of plane geometry to their solution.”

The above quotation is from W. D. Wright’s “The Measurement of Colour,”* which, after giving the most lucid theoretical and mathematical exposition of the subject, deals exhaustively with the methods and applications of colorimetry.

Ophthalmologists are more concerned with physiological and pathological aspects of colour vision, but it may be safely said that no one is fully competent to attack these until he has grasped the facts of colour mixture. These are facts, and the trichromatic theory is based upon them; but the trichromatic theory by no means explains *all* the facts. Many of the difficulties are removed by a knowledge of the peculiarities of the receptive apparatus—the rods and cones, adaptation, induction, electrical responses, and so on. None the less we owe an enormous debt to the physicists and their illustrious protagonist, Newton.

ABSTRACTS

MISCELLANEOUS

- (1) **Lancaster, W. B. (Boston).**—What is orthoptics? *Jl. Amer. Med. Assoc.*, February 16, 1946.

(1) This admirable exposition of orthoptics and of orthoptic treatment deserves study by all those who deal with defective

*The Measurement of Colour. By W. D. Wright, A.R.C.S., D.Sc. Adam Hilger Ltd., 96 St. Pancras Way, Camden Rd., London, N.W.1. Price 30 shillings net. 1944.

habits of seeing, defects of binocular vision and defects of ocular motility. The article has been adopted by the American Council on Physical Medicine and has been prepared with the co-operation of numerous consultants on optical devices.

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- (2) **Memorial Ophthalmic Laboratory, Egypt. Report for the years 1939-1944.** Schindler's Press, Cairo. 1945. Price, 25 piastres.

(2) This is the final report of **R. P. Wilson** who has relinquished the post of Director of the Ophthalmic Laboratory after eighteen years of service. During this time important researches on the aetiology of trachoma and of the various forms of bacterial conjunctivitis which afflict Egypt have been published in the previous thirteen Reports.

The Report contains papers by Wilson, the late J. O. W. Bland, pathologist of the Laboratory, and others. Those which have not yet been published will be abstracted in due course.

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BOOK NOTICES

La Sensation—Guide de Vie. By HENRI PIERON, Professor of Physiology of the Senses at the Collège de France. Paris: L'Avenir de la Science. Gallimard. Price, 320 francs. 1945.

During the past few years considerable advance has been made in our knowledge of the physiology of the senses. The war has contributed to these investigations, especially with regard to sight and hearing. It is difficult to keep *au fait* with these researches, which have been published in widely scattered physical, physiological, neurological and psychological journals. In this book Professor Piéron has provided a thorough and critical survey of the whole domain. He has specialized in the subject and has himself added much to our knowledge, especially with regard to the time relations of sensory responses.

The book is divided into four parts. The first deals with the stimulus—its fundamental regulative function; evolutionary differentiation and specificity; classification of sensations and general characteristics (intensity, extensity, and time relations). In the second part the mechanisms of excitation are considered—mechanical (tactile, vibratory, auditory, proprioceptive), thermal, luminous, chemical (undifferentiated, olfactory, gustatory). The third part deals with qualitative appreciations—chromatic, auditory, olfactory, gustatory. In the fourth part quantitative appreciations are discussed: in it the difficult problem of the idea of quantity in relation to sensations—as opposed to stimuli—is stated, and