

PHYSIOLOGY OF THE SPECIAL SENSES

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Physiology of the special senses by M. Greenwood

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BY

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PREFACE

I HOPE that this volume may be of service to two classes of readers. Students of Psychology may desire to obtain more information regarding the physiological side of the senses than is usually found in works professedly dealing with psychology. I think such students will find this book of use if they read it in conjunction with Professor Myers' admirable treatise on Experimental Psychology.¹

Another class of readers which I have had in mind are those who are either taking up physiology as a branch of liberal education, or with a view of presenting themselves for certain higher professional examinations. In either case a somewhat more detailed knowledge of physiology is required than can be obtained from the general text-books of the subject, while time hardly permits of much use being made of original sources of information. The necessity in such cases arises for books intermediate between the text-book and the original memoir. In most branches of physiology this want is abundantly supplied, but I am not acquainted with any such aids to study in the case of the senses. This book may help to fill the gap.

The object I have had in view has compelled me to

¹ *A Text-book of Experimental Psychology*, by Dr. C. S. Myers, 8s. 6d. net (London: Edward Arnold).

restrict the work within definite limits. I have abstained from describing the anatomy and histology of the sense organs, since information on these matters is to be found in any general text-book, and I assume the reader to be acquainted with the rudiments of physiological optics and acoustics.

Bibliographical references have been confined for the most part to easily accessible works. If the reader is tempted to follow up the clues given, the ends of this book will have been completely attained.

M. GREENWOOD, JUNR.

LOUGHTON, *January* 1910.

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PHYSIOLOGY OF THE SPECIAL SENSES

CHAPTER I

INTRODUCTION—THE "LAWS" OF MÜLLER, WEBER, AND FECHNER

THAT province of Physiology to which has been assigned the investigation of our special sense mechanisms is of wide extent. We have to deal with the representation in consciousness of effects produced upon the bodily structures by different physical agents under conditions of the most varied nature. In some cases, the results are manifest; in others, their existence may be inferred with more or less plausibility; in yet others, although the conscious reaction, the sensation, is distinct enough, the physiological change which is associated with it eludes our imperfect means of investigation.

From very early times sense physiology and psychology have proved themselves of absorbing interest alike to philosophers and men of science, and a history of the subject if adequately treated would make an interesting record of the progress of scientific thought. In this book I can do no more than indicate very imperfectly how the workers of long ago and of to-day have endeavoured to mould their theories and observations into that organised body of knowledge which is a science.

The main problem, then, is this: Given a series of physical processes of assumed constancy, and a number of conscious states also assumed to have a real existence—from the standpoint of science as distinct from metaphysics—we have to trace out the intervening physiological processes.

It is scarcely necessary to remark that Sense Physiology has nothing to say regarding a causal link between physio-