

LIGHT AND SHADE AND THEIR APPLICATION

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Light and shade and their application by M. Luckiesh

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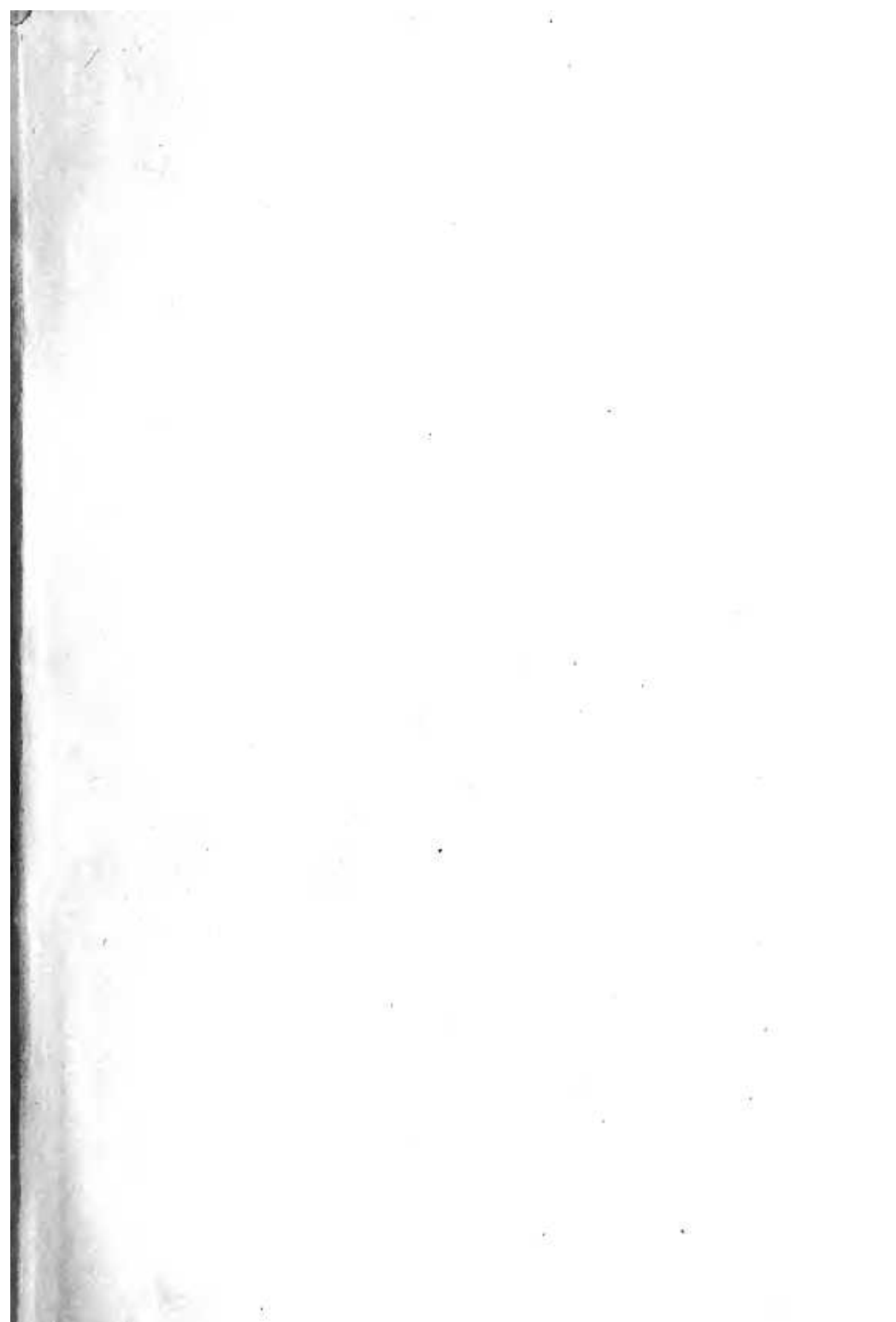
M. LUCKIESH

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AND THEIR
APPLICATION**

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Rembrandt
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Rembrandt
(*Frontispiece*)

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LIGHT AND SHADE

AND THEIR APPLICATIONS

BY

M. LUCKIESH

PHYSICIST, NELA RESEARCH LABORATORY
NATIONAL LAMP WORKS OF GENERAL ELECTRIC COMPANY

135 Illustrations—10 Tables

"O first created beam and thou great Word
'Let there be light, and light was over all.'
Why am I thus bereaved thy prime decree?"

MILTON

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PREFACE

Inspired by a conviction that there is much more to the art and science of lighting than is commonly practised, I began, several years ago, a study of the appearances of objects. Attention was naturally directed toward those factors which influence light, shade, and color, because vision is accomplished through the distinction of differences in brightness and color. In other words, the aim throughout the study has been to unearth the fundamentals of lighting. It early became evident that the problem of lighting, as affecting the appearances of objects, could be divided into two parts, namely, the considerations of the quality and of the distribution of light. The former chiefly affects color and the latter, light and shade. Color has been treated in a separate volume and, insofar as lighting, vision, and the appearances of objects are concerned, this book is a companion to the preceding one. It has been difficult to transmit to others much of the data that have been garnered from observations and experiments. One of the greatest difficulties is encountered in illustrating the discussions, owing to the extreme limitations of the photographic process as compared with the eye—the recording apparatus of prime importance in the study of light and shade as attempted here. I am unaware of the existence of any treatise in which a general analytical discussion of light and shade has been presented, therefore I believe this book will be helpful in many arts. The esthetic side of the subject is touched upon usually for the pur-

pose of illustrating the usefulness of a knowledge of the science of light and shade. The esthetic problem is, as a whole, indeterminate, because it involves individual taste. However, every art must have a scientific foundation, consisting of indisputable facts unrelated to individual taste, and it has been the aim in the preparation of this book to supply at least the skeleton of this foundation for the applications of Light and Shade.

It is a pleasant duty to acknowledge my indebtedness to the management of the National Lamp Works of the General Electric Company, to whom the Nela Research Laboratory and its attendant opportunities owe their existence, to Dr. E. P. Hyde, director of the laboratory, for facilities so generously provided for prosecuting this and other work, and to others who have aided in various ways.

M. LUCKIESH

February 21, 1916