

THE ELECTRIC LIGHT IN ITS PRACTICAL APPLICATION

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The electric light in its practical application by Paget Higgs

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BY
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TO VINEY
ADMINISTRATIVE

PREFACE.

THE following pages are intended to give the reader an account of what has been effected in the numerous endeavours to obtain a practicable system of electric lighting. But the details have been confined to those necessary to form judgment of the advantages of each system. Abstruse discussion has been carefully avoided, and questions have not been raised to which answer could not be found in previous practice. The labours of Du Moncel and Fontaine, the reports of Tyndall, Houston, Thomson, Deacon, Haywood, and others, have been freely utilized, the object having been to give both *pro* and *contra*.

Much descriptive matter and numerous illustrations have been taken from my translation of Fontaine's "Éclairage Électrique," now out of print; and considerable indebtedness must be acknowledged to other sources, named in the text. Where my own experience has led me to a conclusion, I have ventured to express it, but I have always also stated the reason for the deduction.

There must necessarily be, in a technical work of this character, many imperfections. Recent and untried inventions, promising much, cannot be omitted from notice; nor, from want of knowledge of detail, can a probably correct opinion be held. Electric lighting is, indeed, so far within its period of infancy that, in many cases, suspense of judgment is compulsory. Nearly every week marks an important advance, proving the present incomplete state of this branch of engineering.

With regard to the future of electric lighting, little has been said in this book. Public opinion, if not always strictly accurate, generally approximates to the correct idea of the commercial value of a newly introduced method, and its perception of the advantages of the electric light, either future or immediate, has not been greatly misled, however exaggerated may have been the statements of interested speculators. It is beyond doubt that in the present we may look for practical, if not great, improvements, that will cause in no distant future the adoption of electric lighting for very many important, as well as ultimately for general, purposes.

Logical sequence has been followed as far as possible, so as to afford aid to the general reader. The first chapter deals with the principles of the voltaic arc, and distinguishes the method of lighting by incandescence. The various forms of lamps employing the voltaic arc are next described, with so-called "candles" and candle-lamps, followed by discussion of most of the proposed systems of lighting by the incandescence of carbon or platinum. The principal magneto- and dynamo-electric machines are then described, with the new multiple-circuit machines, followed by a full consideration of the mechanical efficiency of these machines, and sufficient simple mathematical data to enable the reader to form his own conclusion of the merits of a fresh project. Next the question of cost is entered into. The various well-defined schemes for division of the electric light are commented upon. The book is concluded with chapters on the maritime and military and various applications of the electric light, and descriptions of the several methods of preparing the carbons consumed in the lamps. There is also a chapter on apparatus for maintaining electric currents at constant strength, although this kind of apparatus has not met with practical application.

In conclusion, I can only hope that my readers, whether of the press or of the public, will accord me the kindly consideration extended to my previous attempt to place before them a synopsis of this subject.

PAGET HIGGS.

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