



PREFACE TO VOLUME II

It will be observed from the Title Page of this volume that the standard of distinction of the contributors has been well maintained. We are indebted in having secured the assistance of so many able electrical engineers in the compilation of this work.

It will be noticed also that whilst the qualifications of the writers are beyond criticism, the style of treatment is still such that it can be appreciated by the man who has a practical rather than a theoretical turn of mind. Various aspects of Electric Lighting have been dealt with in the following articles:—

- The Development of Electric Lighting.
- Illumination and Design of Electric Lighting Schemes.
- Fitting of Electrical Accessories.
- How to Provide Adequate Illumination.
- Fitting Additional Points of Supply.
- The Planning of a Lighting Installation.
- Theatre Lighting.
- Shop Lighting and Wiring.

Another branch of electrical engineering which is becoming every day of greater importance to the man in the industry is that of Wireless Electricity. The following articles in this volume have a particular bearing on this subject:—

- Fault Tracing Chart for Radio Sets.
- High Tension Eliminators.
- More Radio Receiving Circuits.
- Making a Double-Cone Loud-speaker.
- Simple Battery Chargers.

In connection with the latter, it should be mentioned that the larger subject of Accumulator Charging on a commercial scale forms the subject of a separate article in a later volume.

Industrial applications of electricity have received their full share of attention. As examples may be instanced the articles on:—

- Electroplating Apparatus.
- Hairdressers' Equipment.
- Electric Railways.
- Electric Heat Treatment Furnaces.
- How to Install a Power Transformer.
- Installation and Erection of Electric Motors.

It will be seen that a considerable amount of space has been given to the hitherto somewhat neglected subject of Electric Clocks. This has been done

CONTENTS

- | | | |
|---|---|-----|
| THE DEVELOPMENT OF ELECTRIC LIGHTING | By Colonel R. E. Croopson,
C.B., R.E., M.I.E.E., E. M.I.E.E. | 200 |
| The First Single Machines—Early Applications of Arc Lighting—Tests with Carbon
Brushes—Lord Kelvin's Influence—Invention of the Incandescent Lamp—Rapid
Development—First Order for Lighting a Country House—How Edison Supply was
Handled—Distribution Experiment Abroad—The Five-Wire System—Lighting in
London. | | 203 |
| ILLUMINATION AND THE DESIGN OF ELECTRIC LIGHTING SCHEMES | By E. H. Freeman, M.I.E.E. | 274 |
| What to Measure by Candle Power—Measurements of Candle Power—Intensity of
Lighting—The Lumen—Efficiency of Electric Lamps—Interesting and Useful Data
About Electric Lamps—First Step in Designing a Lighting Installation—Maintenance
Details. | | |
| FITTING ELECTRICAL ACCESSORIES | By H. W. Johnson | 403 |
| General Substitution for Electrical Accessories—Switches—Qualities of a Good
Switch—Types of Switches—Main switches—Branch switches—Iron-clad switches—
Fusing and connecting a Main Switch—Latching switches (Non-Flame Type)—
Connecting the Cables—Locking switches (Flame Type)—Circuit Breakers—
Construction—Fusing and Connecting—Fusing the Fuses—Lamp-holders (Bayonet
Type)—Lamp-holders (Edison Screw Type)—Lamp-holders (How Green Type)—
SWITCH LAMP-HOLDERS—LAMP-HOLDER ADAPTORS—PLUGS AND SOCKETS—FUSIBLE
OUTLETS—REWORKING & FUSES. | | |
| ELECTRO-PLATING APPARATUS | By W. Merry | 429 |
| Choosing a Room—Preventing the Flow—Deciding Upon the Plant—Concentration of
the Vats—How Beds Should be Joined—DYNAMOS FOR ELECTRO-PLATING—Testing—
Build and Winding—Use of D.C. Motor Generators—FILING AND MANUFACTURE OF
THE DYNAMO—Adjusting the Pulley—How to Avoid Sparking—Care of the Armature
—Faults and Remedies—CONNECTIONS TO THE DYNAMO—THE PLATING VATS—
TURNS and RODS for Vats—Resistance Boards—TONGS, PINS and FIGURES FOR
THE PRACTICAL MAN—What the Electro-Plater Does—ELECTRO-PLATING PROCESSES
DESCRIBED IN DETAIL—Cleaning—NICKEL-PLATING—Solutions—Faults in Nickel
Solutions—CHROME PLATING—COPPER-PLATING AND ELECTROTYPE—Nickel or
Steel Facing—SILVER and GOLD PLATING—"Dusting" Silver Plats—Gilding—
Inside Gilding—Gilding Troubles. | | |
| FAULT-TRACING CHART FOR ALL TYPES OF RADIO SETS | By H. K. J.
Butler | 433 |
| GENERAL FAULTS—Two or More Stations are Heard at the same Dial Setting—High-
pitched Whistles or Squeals at Some Stations—Intermittent Crackling Noises—Crackling Persists
when Aerial and Earth are Disconnected—Loud scratching and crackling noises
when Tuning in—A Metallic Ring is Heard—Reception lasts only a few seconds—
Reception weaker than usual on all Stations—FAULTS PARTICULAR TO BATTERY
RECEIVERS—Reception stops suddenly—Crackling noises in Phones or Loudspeaker
—Set Will Not Oscillate—Whistling noise of low frequency oscillation—Low
frequency valves or output valves run very hot—FAULTS IN ALL-MAINE RECEIVERS
—No Reception when Set is switched on although Valve Filaments glow—Valves
do not glow when Set is switched on—Reception stops suddenly—Crackling noise
in Loudspeaker—Steady Hum—Valves burn out quickly—Output valves get very
hot. | | |
| TRAFFIC PROBLEMS OF TELEPHONE ENGINEERING | By Colonel Sir
Thomas F. Purves, M.I.E.E. | 466 |
| How the Traffic at an Exchange Varies—Providing for the Maximum Demand—
"Busy Hour" Traffic—How a Manual Exchange is Planned—Determining the Load
an Operator can Carry—Junction Circuits—The Working of an Automatic Exchange—
What Happens when a Number is Dialed—Why a Call May Fail—Proportion of Calls
liable to fail—How the Amount of Plant is Determined—"Full Availability"
Condition—Carrying an Overload—The "Grading" Method. | | |

