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PREFACE

THE subject of metering the output of central stations has been to me one of the most interesting of the many problems arising in the development of the supply of current for various commercial needs. There are many minor details omitted in the work, which would doubtless prove of interest to the practical worker in meters, but, however poorly set forth, the effort is made to outline the underlying principles of operation and practice and leave the minor details to be worked out to suit local conditions.

In describing only a few meters my object is to select one each of well known and representative types and not to weary the reader by reciting the same characteristics held by a number of meters of the same type.

Any intention of slighting in any way many excellent meters, herein mentioned but not described, is entirely foreign to the purpose of this work. The meters selected have each some distinguishing feature which makes them representative of as many respective classes.

To the consumer of power who is not a technical man, Chapter XIII, on How to Read Meters, will probably be of most interest since it will enable him to figure out and check up his meter bills. This knowledge should bring about the very friendliest relations between the supplier and consumer of electricity.

LYMAN C. REED.

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AMERICAN METER PRACTICE.

CHAPTER I.

Measurement of Power in Direct Current Circuits.

Electrical measurements in the laboratory have been carried on for many years with great accuracy. The conditions are carefully studied when a determination of some quantity is sought, and the errors which effect the accuracy of the measurement eliminated. The study of the phenomena of electricity is rightly called an exact science, but the perfecting of an accurate commercial meter has been a slow and tedious process. At first the principles of correct design were not embodied in the meters put on the market, and no matter how perfect they were made mechanically a correct registration of the power consumed could not be obtained. But, as a rule, the mechanical features were more defective than the theoretical ones, and the combination of these defective elements has given the meter of commerce an unenviable reputation.

Such great inventors as Edison, Thomson, Shallenberger and Duncan have spent much time in trying to get together various elements in suitable combination to meet the requirements and accurately measure the current or the power in the many various applications and uses to which electricity is put. Edison gave us the chemical ampere hour meter, which has done yeoman service in the