without undue regard to "requirements" of any kind.

All *teachers* of physics, whether in the secondary school or the college are under great obligations to Mr. Kent for his clear, excellent and simple explanation of this debated subject.

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NOTE ON FREE PUBLIC MUSEUMS

WHILE reading Mr. Henry L. Ward's very excellent paper on "Modern Exhibitional Tendencies of Museums of Natural History and Ethnology designed for Public Use," recently published,[1] the following interesting statement was noted:

> In fact, to the best of my knowledge, the Public Museum of the City of Milwaukee was the first institution of this nature to throw open its doors for the free admission of the public on every day of the year, a regulation to that effect having been adopted and put into force in December, 1905.

It is exceedingly gratifying to note that this progressive institution has been among the first to recognize that public museums are for the people and that all should be admitted freely with as little hindrance as possible. In this commendable movement, however, the Chicago Academy of Sciences has about ten years' priority over the Milwaukee Museum, its doors having been continuously open to the public since October 1, 1894. The hours are 9 A.M. to 5 P.M. week days and 1 to 5 P.M. Sundays. It is interesting to note that the Willner bequest of $100,000 recently received by the academy was won because the children were allowed free access to the building, especially on Sunday afternoons, and were given more or less attention. Mr. Willner once said to a friend, as he observed the interest of the children in the museum exhibits, "I think this institution is deserving of support." The fact that the academy received one third of his fortune is ample evidence that he believed in the educative value of institutions of this character.

FRANK C. BAKER

[1] Trans. Wis. Acad. Sciences, Arts and Letters, XVI., pp. 325–342, 1908.

SCIENTIFIC BOOKS

The Theory of Electrons and Its Applications to the Phenomena of Light and Radiant Heat. By H. A. LORENTZ.

This book is based upon the course of lectures delivered by Professor Lorentz at Columbia University in March and April, 1906. But the author has introduced into the book considerable material not given in the lectures and has also given in the form of notes many mathematical proofs which were omitted in the lectures.

It was naturally expected that this book by an author, who is himself responsible for a large part in the remarkable development of the modern theory of electrons, would prove of absorbing interest to physicists and to those in general who have any knowledge of the importance and fascination of the subject. As was expected, this is the case.

The author states in his preface that he is perforce obliged to restrict himself greatly in discussing the applications of the theory as to the number of topics considered, and remarks that the work of Voigt on magneto-optical phenomena, of Planck on radiation and of Einstein on the principle of relativity, has not received the attention which its importance would justify. The scope of the book will to some extent be revealed in the present brief review.

In the first chapter the fundamental formulæ of the electron theory are derived from Maxwell's well-known theory, with the aid of auxiliary hypotheses which the nature of the subject demands. Referring to Maxwell's equations, the author calls attention to the fact that, while they are useful and adequate in the treatment of many problems, there are yet many problems for which they are not. He goes on to say:

> Moreover, even if they were so, this general theory, in which we express the peculiar properties of different ponderable bodies by simply ascribing to each of them particular values of the dielectric constant, the conductivity and the magnetic permeability, can no longer be considered satisfactory when we wish to obtain a deeper insight into the nature of the phenomena. If we wish to understand the way in which electric and magnetic properties depend on the temperature,