to others I suggest this. "Which is the worse, the English of scientists or of politicians?" *Will* and *shall* barred.

Arthur Gordon Webster
Worcester, Mass.,
August 4, 1911

SCIENTIFIC BOOKS

A History of the Theories of Æther and Electricity from the Age of Descartes to the Close of the Nineteenth Century. By E. T. Whittaker. London, Longmans, Green & Co.; Dublin, Hodges, Figgis & Co., Ltd. 1910. Pp. xiv + 475.

In this excellent volume, the Royal Astronomer of Ireland traces the development of our ideas concerning the nature of the ether and of electricity, as expressed by the various theories which have been proposed from time to time about these entities.

The treatment includes an account of those discoveries in light, electricity and magnetism which have been influential in shaping and supporting theory, and these facts are interwoven with the discussion of the theories themselves in such a way that a historically continuous narrative results. Everything is made subservient, however, to the explanation of the theories themselves. These are discussed at sufficient length to bring out their chief features, and often too their limitations are noted. The discussions are not confined to verbal description, but preference is given rather to a deeper treatment from the mathematical side. The book is intended, therefore, mainly for the advanced student who alone is in a position to go into the details of the subject.

The work opens with a chapter on the theory of the ether in the seventeenth century, covering a period in which the wave theory of light had but begun to receive attention. The next two chapters deal with the fundamental discoveries in electrostatics and about steady currents in conductors, and with the earlier electrical theories. Then come two chapters on the ether in that period when the wave theory of light had its greatest development, although light was still not associated with electrical action.

The following five chapters, beginning with one on Faraday, cover a half century in which attention was directed more and more upon the action in the dielectric surrounding a conductor, which finally resulted in the electromagnetic theory of light. The two closing chapters deal chiefly with the rise of the theory of electrons and the part they play in optical and electrical phenomena.

The book will be welcomed by all physicists as a valuable contribution. J. Z.

The Social Direction of Human Evolution: An outline of the science of Eugenics. By William E. Kellicott. New York, D. Appleton & Company. 1911.

William Morris once said that a cause, in winning its way to acceptance, had to pass through three stages: first, all men ignored it; second, all men opposed it; third, all men accepted it. The cause of eugenics has survived the first stage without really entering upon the second. It even seems possible that it may contrive to skip a considerable part of the second stage of the metamorphosis, and enter into its heritage with little opposition. It is much too early, however, to confidently predict anything of the sort, and it may be necessary to go through troublous times, if only to arrest the attention of an easy-going and unscientific public.

Just now, the time is not ripe for an extended work on eugenics, but, on the other hand, the moment is opportune for the appearance of a little book such as that of Professor Kellicott. Not long ago, Dr. C. B. Davenport issued a very convenient little pamphlet, which has been widely read. Professor Kellicott's book is larger, but has a similar aim, both being admittedly ephemeral works intended to inform the general public. Now that interest has been aroused in several quarters, and important investigations bearing upon the subject are being made, a new book, or a new edition of an old one, will be needed perhaps nearly every year for some time to come. The volume before us will excellently serve present needs, and perhaps as the necessity arises its author will prepare