I have not got it right. This is hot weather anyhow. I presume the passage in "quotes" is from some of Sir J. J. Thomson's writings. I do not want Dr. McCoy to think that I am blaming him. But if so, what are all these papers of Thomson's and Wien's on positive rays about? Being an old fogy, I sometimes feel that there are too many electrons about, and that one of the wonderful fly-traps that you read so much about in the papers ought to be devised to catch them. I remember (dimly) that when I was a boy in college I had a great aversion to molecules. I had never seen one, and didn't like them. And now I have the same queer feeling about electrons. But perhaps I shall see one some day. Rutherford has. But the one he saw was positive. Wasn't it? I am not positive.

Speaking of chemists, I think the best joke ever made by a chemist was when Mendelejeff undertook to consider the ether as a chemical element! Why not have the ether made of electrons? To which of these hypotheses should we incline? I answer in the words of Dr. Holmes, "To ether."

ARTHUR GORDON WEBSTER

WORCESTER, MASS.,
August 4, 1911

THE SCIENCE OF GOVERNMENT

TO THE EDITOR OF SCIENCE: Investigations are the order of the day, not only by scientific men, but (save the mark) by Congress. Your quotation from the *Independent* with regard to Dr. Wiley encourages me to express the hope that this incident may lead to an investigation (by both classes of persons) of the whole question of the relation of the government to science. Every interest in the country that has votes enough and can log-roll enough support is looked after by the government, and eventually gets a cabinet officer, why not science? I suppose there is no doubt that our government spends more on science than any other. I suppose there is equally no doubt that it gets less for its money than any other, and that there are many abuses unworthy of a civilized régime which ought to be abolished. Of these the chief one is, why are not scientific affairs managed by scientific men? I suppose it is because members of congress do not believe that scientific men are worth more than $9 a day. As long as scientific men are willing to tolerate such an assumption I do not much blame the congressmen.

But there is another reason, hinted at in your quotation. It is that the atmosphere of Washington is not only rotten (I have treated the atmosphere elsewhere) for science, but it is infested with a most dangerous parasite, the *red-tape-worm,* I do not rightly know whether to call it a protozoan, a microtome, or a cytoblast, but either Dr. Charles Hookworm Stiles or Dr. L. Culex Howard can tell. This worm eats the vitals out of the scientist, and leads him to pretend that he didn't do the research, but that the man higher up did. Washington is a charming city, full of statues of men on horseback, waving cocked hats, but when every scientist has to have an assimilated rank, so that he shall know whether he is a captain or a major-general, the results can only be painful. I am glad that I did not coin the phrase, "Washington Science," and equally glad that some one else did. By the way, not all Washington science is done under the government. I hope this letter may provoke discussion, but I do not wish to take part in it. Like all brave anarchists, I wish merely to explode the bomb, and then run like . . . . !

ARTHUR GORDON WEBSTER

WORCESTER, MASS.,
August 4, 1911

DUE—

TO THE EDITOR OF SCIENCE: Due to the death of my imaginary stenographer, I am able to write you but a few lines. This is a quotation from any one of several hundred scientific contributions that I have read lately. The object of my writing now, Mr. Editor, is to ask of you (for the first time) a favor, and that is that you will refuse to print any communication in which the adjective "due" appears in any way except as agreeing (I think that is the word) with some noun or pronoun. As I believe that one who does not do research himself may do good by suggesting subjects

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