

more weight on numerous questions which are now fluttering the public mind; and the expressions of opinion which he has given with respect to electric lighting, gas lighting, gas engines, the fuel of the future, and the electric transmission of power, must be accepted as sober and well-balanced statements of the hopes which the public may reasonably entertain on these important points. The array of expectations thus presented is sufficiently startling. Gas engines to take the place of steam engines, and gas-making apparatus to replace boilers in our steamboats—smokeless fuel for the fires in our houses and factories in the shape of gas with or without coke or anthracite—the incandescent electric lamp for the houses of the rich, but gas still to remain the poor man's friend—small steam engines to be superseded by a few central large ones, distributing their power by means of electric transmission—are changes which Dr. Siemens thinks to be not far distant. As regards electric railways he is not sanguine, except for short lines in the neighbourhood of water power, and the particulars which he has given as to the plan which will be followed in the new line which is about to be opened near the Giant's Causeway will be read with interest. The current will be sent to the train by means of a separate conductor suspended on one side of the line, and will return by the rails, which for this purpose need not be insulated. Storage batteries will be used as auxiliaries, accumulating energy while the train is running downhill, and giving it out in ascents, as well as at level crossings where the side conductor will be interrupted.

The addresses of the presidents of the sections have been well up to the mark. Lord Rayleigh accomplished the very difficult task of giving a philosophical disquisition on physical investigation generally without indulging in platitudes. He enforced principles important to be remembered, and apt to be overlooked by those engaged in scientific work, illustrating his remarks by numerous well chosen examples. Prof. Liveing began with a discussion of some of the elementary ideas of chemistry, insisting on the absurdity of the views of chemical attraction which are taught—directly or implicitly—in the current text-books; and the necessity of looking to ordinary dynamics for the explanation of chemical phenomena. He referred to the modern hypothesis of vortex atoms as one which, whether true or false, at least showed the feasibility of an ordinary dynamical explanation. The latter