St Patrick's College, Maynooth,
Dec. 13th, 1897.

Dear sir,

I hope you will pardon me the intrusion of this letter, the only justification of which can be that I am searching for information of a kind that few possess, ~~and~~ of whom you are most probably one. I know well how precious your time must be, yet I hope you may spend a little of it in listening to and answering my questions.

I am interested in the nature of activity, especially in that phase of the question as to whether the ether may not be the store-house whence all mechanical motion is originally derived. This involves considerations as to the properties of the ether.

Now I find ~~it~~ in Professor Lodge's book, Modern Views of Electricity, that 1) he supposes the ether to be "a perfectly homogeneous incompressible continuous body" (p.396). This is repeated in substance in many places throughout the book.

2) He says, moreover, that "the density of the ether in inter-planetary space, though small, is enormous by comparison" with the density of any air there may be in the same regions; and he gives the density of ether, as calculated by Lord Kelvin, as "about 10^{-22}, a number with 21 ciphers after the decimal point before the significant figures begin" (p.399). Indeed, he supposes all through the book that the ether is not of absolute nor even of ~~enormous~~ great density.

3) He represents the ether as frictionless,- "a continuous frictionless medium possessing inertia" (p.397); which may be "perfectly fluid and allow bodies to pass through it without resistance" (p.247).

4) Yet he had said (p.245) that he "recognized something of the nature of friction between each constituent [of the ether,- positive and negative electricity, according to his view] and ordinary matter"; and this is repeated in substance several times.

All this is to me very puzzling, and I am anxious to

know whether it represents merely the view of Professor Lodge, or whether scientific men of the first class share the same opinions. I do not expect you to write a scientific treatise for my special benefit, but should be very thankful if you could spare time to say a word or two in reply to the following questions:-

1. Do scientific men of the first rank now regard the ether as "perfectly homogeneous and continuous"?

2. DO they regard it as absolutely incompressible ?

3. Do they regard it as frictionless ?

4. Do they regard it as being as dense as it is continuous ?

5. If the ether be perfectly continuous and absolutely incompressible, must it not be absolutely dense ?

6. May I ask you, in fine, to read over the enclosed printed note on the density of ether, and say in a word or two whether you consider the argument in the passage marked ~~as~~ perfectly ridiculous.

I feel that you can gratify me only at great inconvenience to yourself, and that I have no claim on your attention, except that I am groping for light, and that you yourself must often have been tempted in similar circumstances to apply for assistance to some one who was under no obligation to you.

I am

faithfully yours

(Rev) Walter McDonald.

George F. Fitzgerald Esq. M.A., F.R.S.