

11/73

Neuerwall 69
Hamburg. Oct 31. 1891

Dear Sir

I had much pleasure in receiving your very detailed and interesting letter of the 29th. The various points under discussion are brought out clearer by you now, and I thank you for the additional development. The question about the effect of a porous partition (in sifting) seemed to me interesting, as this is about the most direct way we have of getting at molecules, and a really direct way as may be said: but I can see reasons for the result being nil (as you say) in the special case mentioned. It is satisfactory to me to find that you sympathize with the idea of utilizing the stores of energy in the ether by means of some mechanism or machine - an attractive and practical problem, and one which (as agreed) opens out special hopes of giving unexpected power to man, unattainable perhaps in any other conceived direction. Having treated this subject theoretically already in 1875 in a small work "Physics of the Ether" (Sporn), I was interested to find afterwards that Thomson (Sir W.) had cursorily mentioned an hypothetical case in his paper relating to Le Sage's theory of

gravity, Phil. Mag. May 1873, which seemed to concede the principle (and yet he is a great stickler for the second law of thermodynamics?). I conclude the point he mentioned would not oppose this - viz. A bi-refracting crystal may under Le Sage's theory be slightly heavier* according to which axis is vertical. If it be (and certainly the following has force if the difference were great, which it conceivably might be): - then obviously, we might use the crystal as a machine for deriving motion from the ether or matter of space. For, of course, the crystal could be lifted up in its position of least weight, with less expenditure of work than that derived at its fall when in position of maximum weight - ad infinitum. But I am doubtful from the cursory way in which this is mentioned without going into its kinetic aspects - if Thomson realized the vast issues involved in such a speculation (ie in point of principle). It need scarcely be said, I see your meaning clearly now as to kind of motion in a fluid, which in your view, is more hopeful in explaining phenomena than the small separate water atoms (translatory motion - as agreed - implying obviously no definite property). It is noteworthy to find too in the present day the study of the ether has become a practical matter in connection with the applications of Electricity, which has become so much a phenomenon of every day life.

Yours very truly
J Toliver Preston

*I may just mention that in my article in The Electrician of April 21st, page 754, from line from top (in reference to coal) are the words "new machines", which should be "mere machines".

Prof. J. F. Fitzgerald 985