

Faraday to James Clerk Maxwell 13 November 1857

[Royal Institution embossed letterhead] | Albemarle St. London W. | 13 Novr. 1857

My dear Sir

If, on a former occasion, I seemed to ask you what you thought of my paper¹, it was very wrong; for I do not think anyone should be called upon for the expression of their thoughts before they are prepared, and wish to give them. I have often enough to decline giving an opinion because my mind is not ready to come to a conclusion, or does not wish to be committed to a view, that may by further consideration be changed. But having received your last letter, I am exceedingly grateful to you for it; and rejoice that my forgetfulness of having sent the former paper on conservation, has brought about such a result. Your letter is to me the first intercommunication on the subject with one of your mode & habit of thinking. It will do me much good; and I shall read and meditate on it again & again.

I dare say I have myself greatly to blame for the vague use of expressive words. I perceive that I do not use the word “force” as you define it, “the tendency of a body to pass from one place to another”[.] What I mean by the word is the *source* or *sources* of all possible actions of the particles or materials of the universe these being often called the *powers* of nature, when spoken of in respect of the different manners in which their effects are shown. In a paper which I have received at this moment from the Phil. Mag.² by Dr. Woods³ they are called the “*forces*, such as electricity heat &c”. In this way I have used the word “force” in the description of gravity which I have given as that expressing the received idea of its nature & source; and such of my remarks as express an opinion or are critical, apply only to that sense of it. You may remember I speak to labourers like myself experimentalists on force generally, who receive that description of gravity as a physical truth and believe that it expresses all, and no more than all, that concerns the nature and locality of the power. To these it limits the formation of their ideas and the direction of their exertions, and to them I have endeavoured to speak, showing how such a thought, if accepted, pledged them to a very limited and, probably, erroneous view of the cause of the force, and to ask them to consider, whether they should not look (for a time at least) to a source in part external to the particles. I send you two or three old printed lines *marked* relating to this point. To those who *disown* the definition or description as imperfect, I have nothing to urge; as there is then probably no real difference between us.

I hang on to your words because they are to me weighty; and where you say “I, for my part cannot realise your dissatisfaction with the law of gravitation provided you conceive it according to your own principles” they give me great comfort. I have nothing to say against the law of action of gravity. It is against the law which measures its total strength as an inherent force that I venture to oppose my opinion; and I must have expressed myself badly (though I do not find the weak point) or I should not have conveyed any other impression. All I wanted to do was to move men (not No.I, but No.II) from the unreserved acceptance of a principle of physical action which might be opposed to natural truth. The idea that we may possibly have to connect *repulsion* with the lines of gravitation force (which is going far beyond anything my mind would venture on at present except in private cogitation) shows how far we *may* have to depart from the view I oppose.

There is one thing I would be glad to ask you. When a mathematician engaged in investigating physical actions and results has arrived at his own conclusions, may they not be expressed in common language as fully, clearly, and definitely as in mathematical formulae? If so would it not be a great boon to such as I to express them so?— translating them out of their hieroglyphics, that we also might work upon them by experiment. I think it must be so, because I have always found that you could convey to me a perfectly clear idea of your conclusions which, though they may give me no full understanding of the steps of your process, give me the results neither above nor below the truth;— and so clear in character that I can think and work from them. If this be possible would it not be a good thing if mathematicians, writing on these subjects, were to give us their results in this popular, useful, working state, as well as in that which is their own and proper to them[.]

Ever My dear Sir | Most truly Yours | M. Faraday

Prof | J.C. Maxwell Esqr | &c &c &c

¹ Faraday (1857a), Friday Evening Discourse of 27 February 1857. See [letter 3354](#) referring to [letter 3260](#).

² Woods (1857).

³ Thomas Woods (d.1905, age 89, *Med.Dir.*, 1906, p.1815). Physician in Parsonstown.

Bibliography

FARADAY, Michael (1857a): “On the Conservation of Force”, *Proc. Roy. Inst.*, 2: 352–65.

WOODS, Thomas (1857): “On the Time required by Compounds for Decomposition”, *Phil. Mag.*, 14: 346–51.

Please cite as “Faraday3357,” in *Epsilon: The Michael Faraday Collection* accessed on 10 December 2023, <https://epsilon.ac.uk/view/faraday/letters>

[/Faraday3357](#)

Summary

No summary available.

Letter details

Record number

Faraday3357

From

Michael Faraday

To

James Clerk Maxwell

Date

13 November 1857

Source of text

ULC Add MS 7655/II/14

Contributor

Faraday Project

[\[View Epsilon collection\]](#)

Also published in *The Correspondence of Michael Faraday*, vol. 5 (2008).

Browse

[All records](#)

[Letters](#)

[People](#)

Search

[Keyword](#)

[Advanced Search](#)

Work with us

[Contributing your collection](#)

[Technical details](#)

About Epsilon

[History and contributors](#)

[Rights and takedown policy](#)

[Privacy statement](#)

[How to contact us](#)