in a quotation from Mr. Faraday's published observations on the subject:—

"Having arrived at this point, I may observe that we can now have no difficulty in admitting that the phenomena abundantly establish the existence of a magnetic property in matter, new to our knowledge. . . . All the phenomena resolve themselves into this, that a portion of such matter, when under magnetic action, tends to move from stronger to weaker places or points of force. . . . This condition and effect is new, not *only* as it respects the exertion of power by a magnet over bodies previously supposed to be indifferent to its influence, but is *new* as a magnetic action, presenting us with a second mode in which the magnetic power can exert its influence. . . . All matter appears to be subject to the magnetic force as universally as it is to the gravitating, 'arranging itself' into two great divisions—the magnetic, and that which I have called the diamagnetic class; and between these classes the contrast is so great and direct though varying in degree, that where a substance from the one class will be attracted, a body from the other will be repelled.

"Mr. Faraday considers that the uses of this power will eventually be developed. 'It cannot for a moment be supposed that being given to natural bodies, it is either superfluous, or insufficient, or unnecessary. It doubtless has its appointed office, and that, one which relates to the whole mass of the globe; and it is probably because of its relation to the whole earth, that its amount is necessarily so small, so to speak, in the portions of matter which we handle and subject to experiment. . . . Matter cannot thus be affected by the magnetic forces, without being itself concerned in the phenomenon, and exerting in turn a due amount of influence upon the magnetic force. . . . When we consider the magnetic condition of the earth as a whole, without reference to its possible relation to the sun, and reflect upon the enormous amount of diamagnetic matters which, to our knowledge, forms its crust; and when we remember that magnetic curves of a certain amount of force, and universal in their presence, are passing through these matters, and keep them constantly in that state of tension, and therefore of action, which I hope successfully to have developed, we cannot doubt but