

torsion, were used as the suspending medium, bearing at their lower extremity a small stirrup of non-magnetic paper, in which was laid the substance forming the subject of the experiment, and the whole was hung inside a glass chamber, to protect it from currents of air. On placing a small bar of the heavy glass in the stirrup, instead of pointing north and south, it took up a directly contrary direction, EAST AND WEST, or what the lecturer termed the equatorial, in contradistinction to the axial line; describing it, further as 'a tendency of the particles to move outwards, or into the position of weakest magnetic action,' the whole of the particles being jointly exercised in producing the effect.

"Of all the metals, bismuth is found to be the most energetic diamagnetic; and to show that such substances are repelled by either pole of the magnet, a long glass tube, balanced horizontally, was charged with a piece of the metal, at the end within the line of force; at the other end a piece of coloured paper was fixed, which, by the sweeping arcs it described, demonstrated the repelling power of the two poles as the piece of bismuth was alternately brought within their influence. Sufficient care was taken to show that this is not an accidental, but a constant result in the numerous substances which have been put to the test of experiment, among which were phosphorus and water; the latter constituting nine-tenths of nature, may play a most important part as a diamagnetic. All natural substances are affected one way or the other, either magnetically or diamagnetically. A slice of apple cut with a silver knife, a piece of wood, beef, bread, and a thousand other objects—a man, even could he be suspended with the requisite delicacy—all would point east and west, or in the equatorial line. They are all acted on by magnetism, though not magnetic, as iron.

"Some curious facts came out with regard to gases, which appear to fill a place, as yet unoccupied by any other substance, between the magnetics and diamagnetics. Whether dense or rare, the phenomena produced are the same; from which it has been inferred 'that air must have a great and perhaps an active part to play in the physical and terrestrial arrangement of magnetic forces.'

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"The general sum of the experiments may be best given

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