

A few experiments were made to display the energy of the magnetic force, with less than which, the lecturer observed, it would be in vain to look for the phenomena. He succeeded in showing, with a quantity of iron nails, the line of force passing from one pole of the magnet to the other; along this curve they were seen clinging to each other, and describing a regular arch several inches in length and height; which position they retained until, on breaking communication with the battery, they instantly fell in a confused heap to the table.

"Mr. Faraday next adverted to the popular ideas of magnetism with regard to iron and some other metals, which point freely north and south, and explained the importance of showing the relation of the power he employed to common magnetism. A small bar of iron was suspended by a thread to move freely in the line of force between the poles, and, on charging the magnet, the bar was seen to obey the natural law by pointing north and south, in a line from one pole to the other, or what the lecturer terms the *axial* line. This simple experiment was necessary to enable the audience to understand the allusions to the axial line in the subsequent portion of the lecture. Among the metals, nickel, cobalt, platinum, palladium, titanium, and a few others possessed of the same property, are classed as magnetics.

"The power here afforded for testing the magnetism of all substances, was noticed and exemplified by suspending, in the place of the iron, a small bar of copper, which was found to be neither attracted nor repelled, remaining, with the exception of some very feeble manifestations, indifferent to either position. A piece of paper was also tried, and, after some vibrations, proved to be magnetic, by remaining stationary in the axial line.

"Mr. Faraday then recalled to the memory of his hearers the experiment in his former lecture, showing the peculiar action of glass on light. On that occasion the piece of glass, through which the magnetism found its way as readily as though no substance intervened, was named a diamagnetic; and it was to the testing of this peculiar property that the subsequent experiments were directed. To insure a satisfactory result, more than ordinary care and delicacy were required in the manipulation. Threads of cocoon silk, free from