

In the first place, you will, perhaps, pardon us for saying that it is a mistake to suppose that science takes nothing for granted, for if it did so, progress would be impossible. For instance, a geologist discovers a bone of considerable structural importance in a rock, which bone is precisely similar in every respect to the bone of a well-known living animal; he immediately reasons by analogy that the animal to which the fossil-bone belonged was identical with the living species. So also Professor Tyndall, in his late lecture in Manchester, on "Crystalline and Molecular Forces," makes a deduction which is quite as scientific. He says that if a magnet is broken in pieces, each piece, no matter how small, is still a complete magnet with two poles; the inference then is that the most minute invisible atom of the magnet is also a complete magnet with two poles, and the deduction is considered conclusive, for it is impossible to test the polarity of an individual molecule of a magnet.

Premising then that Science must take something for granted, we proceed with an explanation of our theory. While agreeing with Professor Tyndall, we also go much further than him. We find that by taking a magnet, and attaching needles to the ends, the points on each pole all repel one another; no needles will, moreover, attach themselves to the centre of the magnet, as the exhibition force is all concentrated at the poles. In examining any plant, flower, or tree, we find that they are similar to a magnet in many respects; the branches in the air spread their limbs and twigs apart, while the roots in the ground grow similarly, thus exactly resembling the needles on the magnet. We find also that from the trunk no large limbs or roots grow. What is the natural induction, or would it be unscientific for us to say (no satisfactory solution of the problem having ever been offered before) that the tree or plant is a magnet, and that its form is governed by the same magnetism which is exhibited in the iron magnet? We have had the spruce and banyan trees offered in objection to our theory. But while the spruce tree has a comparatively small trunk in comparison to other trees, yet it still has one. We have also always looked upon the banyan tree as a beautiful illustration of our theory of the poles. It can be shown by experiment that while the needles on one pole of a magnet, or on similar poles of two magnets, when brought together will repel each other, yet needles on the opposite poles of a magnet will attract each other.

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