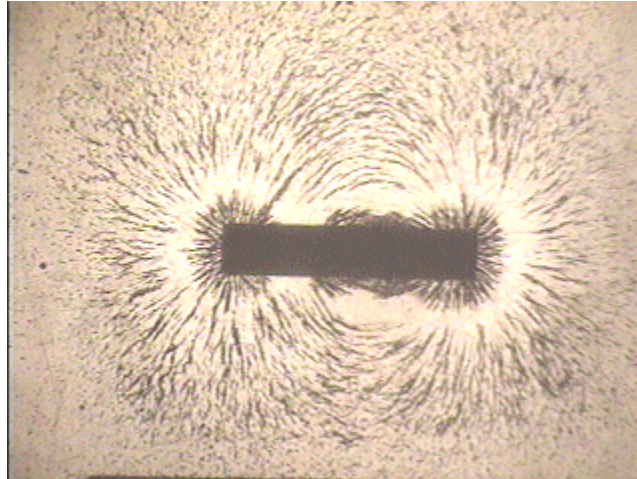


Question #83

The magnetic field of the bar magnet in the picture below is rendered visible by sprinkling iron filings on a plastic sheet resting on the magnet.



Suppose that the magnet is now broken into two parts, with the section on the left including about one-third of the original magnet and the section on the right including about two-thirds. What will happen to the magnet? It might break so that one pole is in the left segment and the other pole is in the right segment. Or. Perhaps it will break up such that each of the parts becomes a bar magnet on its own, containing both North and South poles. Or maybe breaking the magnet into two parts will cause the magnet to demagnetize, so no magnetic fields are present after the break. Exactly what is the result of breaking the magnet into two parts?

When the magnet is broken into two parts:

- (a) each part will contain one magnet pole.
- (b) each part will be a new bar magnet including both poles.
- (c) the magnet will become demagnetized, resulting on no magnets.

Click here for [Answer #83](#) after September 24, 2001.

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