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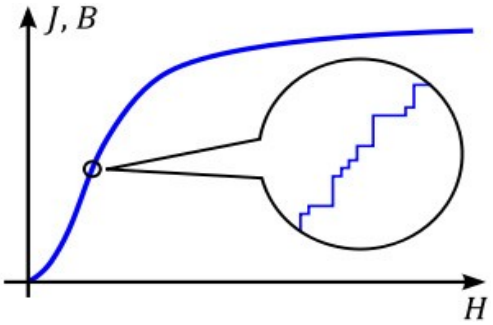
The Barkhausen Effect



by Miles Mathis

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The Barkhausen Effect was discovered in 1919 and is simply a discontinuity in the magnetization of a substance. Heinrich Barkhausen discovered that when magnetizing iron, the iron didn't accept magnetization uniformly. Instead, the magnetization occurred in random steps, none of them corresponding to the size of a single atom of iron. This phenomenon is now used as evidence of domains, but I will show this analysis is faulty.

In assuming that the Barkhausen Effect is evidence for domains, mainstream theorists must first assume that the given substance contains no residual magnetism to start with. Only if the substance contained no (even accidental) alignment between neighboring atoms, would anyone expect magnetism to proceed in a continuous and fluid manner, with no jumps. But given that—purely by the laws of chance—some atoms will align even in no magnetic field at all—physicists should have *expected* these Barkhausen jumps.

To see what I mean, consider flipping a coin a million times. Even with no field to influence your tosses, constrain the outcome, or give weight to either heads or tails, you will expect to find some short runs of either heads or tails. This is all we are seeing in the Barkhausen Effect. The iron already contains runs of alignment, purely by chance, and these runs creates small pockets of magnetization. Each pocket is an accident, though, not a domain. You would not call a short run of tails a domain in your coin tossing, and in the same way it makes no sense to call these small runs of alignment in iron a domain.

We can tell my analysis is the correct one just by studying the mainstream's own diagram, under title. They tell us the jumps are random in size. Well, that is indication the steps are caused by random alignment, not by domains. If a domain were a real physical parameter, determined in some way by the element in question, it should have a determined size. Just as the size of the atom or molecule is not random, the domain size should not be random, either. All evidence points to these jumps being random runs, not domains; so why are we being told they are evidence of domains?

The reason mainstream physicists have pushed the Barkhausen Effect to indicate the existence of

domains is that these physicists think they need domains to explain magnetism. Without domains, they can't tell you what is aligning to create magnetism at the fundamental level. But since I can, I have no use for these manufactured domains. What is aligning is the nuclear poles, by which charge is channeled through the nucleus in defined channels. Elements like iron create through charge, which runs from pole to pole instead of pole to equator. When the nuclear poles of neighboring atoms are aligned, you get directionalized charge, which we call a field.

Since the mainstream has never had a working model of the nucleus, or of the charge field, it has never been able to supply this simple explanation. It needed domains so that it had something physical to align. But there are no domains. Once we understand how charge is channeled at the quantum level, we have no need for domains.