

ENERGY SCIENCE ESSAY NO. 14

FUSION BY THUNDER?

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Introduction

My [Lecture No. 23](#) is a record of the notes I compiled in preparation for my participation in a meeting in London on May 10, 1998 at which we discussed developments concerning the New Energy field.

It was at that meeting that I met another speaker, Nick Hawkins, who described something quite extraordinary. It is of such interest that I feel it necessary to present this brief commentary and offer my own thoughts on the subject.

His topic concerned some experimental work involving cold fusion that had taken him to China to perform experiments in an active thunderstorm region. His thesis was that, in thunderstorm conditions, there is something present in the atmosphere that can enhance the activity in a cold fusion cell. His experimental findings in his Chinese venture, where Chinese university facilities were deployed to assist in his project, were said to be positive, with cathodes melting owing to excess heat and other effects occurring that one hears about from reports on cold fusion research elsewhere.

Abrikosov Vortices

I had never heard before of something called 'Abrikosov Vortices'. According to Hawkins they are 'rotating strings of electrons' and 'their rotation gives them an axial magnetic field'.

He writes, in a hand-out distributed at the meeting:

"In the 1970's Geert Dijkhuis pointed out that, just as individual electrons adopt quantum-mechanical orbits round positive nuclei, so positive nuclei will adopt quantum mechanical orbits round Abrikosov vortices; and, unlike electrons, nuclei will collide there and fuse."

His argument then develops along the following lines. It was noted that Dijkhuis thought that those vortices are created in electric storms and Hawkins related the fusion theme with the cold fusion discovery of Fleischmann and Pons, concluding that it was of interest to try to correlate the erratic data reporting success on cold fusion claims with whether the laboratories involved were located in very active thunderstorm regions.

Hawkins' assessment of available data in 1989 assured him that the positive outcome of cold fusion experiments was very much in favour of electric storm areas, the negative outcomes from such experiments being those concentrated in non-storm areas.

Now, with that general introduction, Nick Hawkins proceeded to explain how he had convinced academic interests in China to support his experimental pursuit in trying to verify his hypothesis. He had gone to Beijing, a notorious storm area in summer, having continuous

lightning every other night, and had performed a series of cold fusion experiments in apparatus set up on the roof top of a university building.

He reported: "We got gamma radiation at 4 times background and a rather melted cathode - but only on good storm nights and under certain conditions."

So, in summary, that being the state of my information on this subject at the time I write this, I can but express my interest and convey my own thoughts on this rather curious situation.

The Aether and Its Spin

Now, if you have read the previous [Essay No. 13](#), you will have seen that there is every reason to expect a state of spin to develop in a plasma when the radial electric field is set up by some means or other. That plasma spin has a counterpart phenomenon in the vacuum itself, owing to aether being a kind of cold structured plasma, and there is good reason to interpret this action as accounting for the thunderballs generated in electric storms. Those thunderballs can exist unseen if they lack the energy concentration that otherwise develops ionization in coextensive air. They may float around everywhere at times when thunderstorms are prevalent. They can be set up by the electrodynamic pinch action in the channel of a lightning flash which in turn produces transiently a radial electric field condition about the axis of the lightning discharge. Alternatively, under certain conditions a very miniature version of aether spin globules could arise from spurious radial electric fields set up in an electrolytic cell which happens to have an elongated cathode within a concentric anode structure.

I do not need therefore to understand the theory of the 'Abrikosov vortices' to see scope for connecting enhancement of cold fusion activity with the presence of thunderstorm conditions. I just need to imagine that the aether spin involved, which is a condition in which aether charge of one polarity sits inside an ionic material system of charge of opposite polarity, can penetrate into a cathode of a cold fusion cell. It might then set up within the cathode a negative space charge sufficient to bring two positive deuterons close enough to induce a fusion reaction.

On the other hand, one must wonder whether performing experiments on a roof top in an active thunderstorm area might be a little reminiscent of Benjamin Franklin's kite flying and attract discharges which could melt a cathode owing to a lightning strike. One must, however, discount that possibility because the test apparatus would have suffered greater damage than that in such a case.

On balance, therefore, I find Nick Hawkins' report interesting and relevant and suggest that it points the way forward by which one can explore how best to trigger the cold fusion reactions in a host cathode.

As to those 'rotating strings of electrons' that are said to be 'Abrikosov vortices' that seems a speculative theoretical notion. I can imagine instead the existence of strings of electrons and positrons linked in an alternate sequence and forming a loop which could amount to a vortex configuration. Yes, I know that electrons and positrons will annihilate one another in pairs, but they might then only recreate electrons and positrons in positions advanced around the loop. Indeed, if, in their merry dance of changing places, the electrons and positrons of each charge pair interchange positions at the same instant there will be a flow of positive charge

one way around the loop accompanied by a flow of negative charge the opposite way around the loop and one then has that 'rotation which gives them an axial magnetic field'.

I am intrigued all the more so by this notion of the 'Abrikosov vortices', given the latter interpretation, because in 1974 I published a paper entitled *The Chain Structure of the Nucleus*, based on something I disclosed about nuclear theory on pp. 147-149 of my 1969 book *Physics without Einstein*. My subject there was precisely the closed electron-positron chains which I regard as necessary in nuclear structure to bond nucleons together. As I see the atomic nucleus it comprises, in the main, antiprotons which have taken up sites in the aether lattice structure by displacing the normal negative aether lattice charges. Those sites need to be bonded together by neutral strings, those electron-positron chains, and so we have then a neutral composite nuclear form, with those antiprotons having fallen into the positive holes left by the displaced lattice charges. To complete the atomic nucleus one then needs a positive core charge plus the usual entourage of electrons, but certainly one can develop a very effective nuclear theory on this basis.

The key task is to develop a nuclear theory which explains why the mass per nucleon decreases from hydrogen to chromium in the Periodic Table of Elements and then increases steadily as one progresses on to uranium and beyond. That was the subject of that 1974 paper: *The Chain Structure of the Nucleus*. It warrants inclusion in these Web pages and it will be duly entered as the next Essay.

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