

Electromagnetic Anomalies and Scale-Free Networks in British Crop Formations

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Abstract:

Unexplained geometric formations in grain and cereal crops have been appearing around the world with increasing regularity for the past fifteen years or so. While the exact mechanisms creating these patterns are still a mystery, there is an increasing quantity of scientific evidence which suggests that anomalous electromagnetic phenomena are associated with these formations. In addition to physical and chemical changes seen in plant material at a cellular level, crop formations are also linked with magnetic disturbances and the failure of electrical equipment. To investigate the possible existence of non-ordinary electrical fields in and near crop patterns, twelve formations in the Wiltshire area of England were sampled during the summer of 1999 to measure their ambient electrostatic fields. Measurements were taken with a TREK-520 electrostatic field meter. Results were consistent with previous studies. Several of the sampled formations displayed highly anomalous and irregular energy fields, some sufficient to render the field meter inoperable. This may indicate the presence of non-ordinary causative mechanisms or energetic correlates of the formation process that are beyond the scope of commonly known physical principles.

Introduction

The formation of crop circles over the past fifteen years has been and is still a mystery. While the media have attempted to explain all formation as hoaxes, serious scientific research has shown that most crop formations are anything but ordinary. The work of Burke, Levenson and Talbot, specifically, have shown many chemical and biological anomalies in crop formations from different parts of the world. These include an increased presence of meteoric iron in formations, disturbances to the mitochondria in plant cells in and near formations, and changes to the plants cells including cell-wall pitting and swollen nodes. This evidence may indicate that these grain cereals have undergone some form of energetically induced stress. In the early 1990's, John Burke measured the electrostatic charge of plants within several formations and found some anomalous readings in fresh formations but not in manmade ones. This led him to conclude that genuine formations exhibit anomalous electrostatic charges.

In the summer of 1999 we attempted to replicate Burke's findings with a larger sample size. Using the same equipment as Burke, a Trek-520 portable electrostatic detector, we sampled a total of 12 formations made in wheat and also manmade flattened areas of wheat and wind damaged areas. All research was carried out in Great Britain in the Wiltshire area, about two hours West of London. Burke found that two formations that he visited early in the morning had noticeable static charges, while known manmade formations did not. Our results support Burke's findings and lend credence to the idea that formations are associated with anomalous energetic phenomena.

Methodology

The Trek-520, available from Trek Inc. of Medina, NY, measures surface voltages from 0 to 2000 volts, positive or negative. While the unit is designed to measure surface voltages at a distance of less than 25mm, we found that it is also capable of detecting field gradients several feet off the ground. With this in mind, we measured the field gradients of different formations by walking in them with the meter held at a constant height. Typically we measured the static charges from several feet outside of the edge of the formations and then at various points inside the perimeter of the formation. This procedure was followed for every crop formation and control sample area. Trek meter readings were videotaped for later analysis and notes were made of the age of the formation being measured and also time of day and weather conditions.

A total of 12 crop formations and 6 control areas were tested during June through August 1999. At their time of testing, none of the 12 formations were of known origin. The 5 control areas included 3 wind damaged areas, 2 formations known to be manmade, and 1 flattened area near a grain silo storage area. Readings were made at a constant height of about 1 meter off the ground. A grounding screw on the back of the Trek device was in contact with the observer's hand at all times (see Appendix A for pictures of the Trek-520 unit).

Theory

Crop formations are still largely an unexplained phenomena. Despite a plethora of eye witness reports, about forty in Britain alone, and a host of other anomalous phenomena associated with the formation process, it is unclear, at this time as to what causes crop formations to occur or how they are made. Witnesses typically see wind vortices of wind and columns of dust rising from the fields where formations are later found. This is followed by a flattening of the grain crops in a period of under 10 seconds. Recently formed formations are sometimes still warm to the touch. Witnesses have described balls of light in the vicinity before and after the formations appear, and these have sometimes been videotaped such as the photographer Steve Alexander's 1992 footage. Unusual aerial objects and mechanical chirping sounds have also been associated with these formations. On occasion, flattened, dehydrated mammals, such as porcupines, have been found inside the radii of crop formations.

People entering formations after they formed have reported camera, cell phone, and equipment failures, especially with battery operated devices. On occasion, clocks seem to slow down or speed up, and magnetic compasses lose their direction. These experiences all suggest that non-ordinary energy fields are present in some crop formations. These energy fields may be the residue of the formation process itself, or the result of unknown energy flows passing through formations for a period of time after their creation.

While manmade activity may account for some of these formations, this is increasingly unlikely outside of areas like Britain where chemicals are applied with tractors that leave lines in the fields where people could enter at night. In other areas like the United States and Canada pesticides and fertilizers are applied by air: there are no gaps in the field. This makes undetected human entry into the grain fields all but impossible. As almost 10,000 formations have appeared around the globe in the last fifteen years, it seems likely that only a small portion of these are manmade. The rest are a product of a process that has yet to be understood and our results support this perspective.

Results

Results can be divided into roughly three categories: large effects, medium effects, small or no detectable effect (Table 1). Large effects include instances when the Trek device, on entry into the formation, ceased to function or jammed. This occurred in three formations. Medium effects include changes in the static readings of twenty volts or more. This scale of magnitude was seen in 5 formations. Small effects include areas where the meter changed only a small amount or not at all. This was seen in 10 areas. The same methodology was employed in all formations and control areas. See Appendix B for pictures of some formations mentioned below.

Large Effects:

Formations at Hackpen Hill, West Overton, and Devil's Den showed the largest effects of all formations in the sample. The Hackpen and West Overton formations, of early July and late June respectively, caused device failure immediately upon entry. This was apparently due to battery failure. In each case, the batteries were new. The Hackpen formation was subsequently measured again about three weeks later and some changes of greater than thirty volts were still detected in some areas. The Devil's Den formation, located in the area of the Fyfield Downs,

was tested several days after it appeared. Upon the first entry into the circle, the Trek device froze with a reading of -3 volts, for no apparent reason. The device remained in this frozen condition for several hours afterwards. Other devices such as camcorders and a GPS device also failed around the same time. The GPS device apparently had 14 hours of battery life before entry into the formation but quickly lost all power. The camcorder, a Sony digital TRV-10, though brand new, displayed a “dirty heads” indicator for several minutes and would not function. Shortly thereafter, this camcorder and the author’s, which coincidentally was the same model, lost most of their battery power; the equivalent of roughly several hours in about 15 minutes. The Devil’s Den formation was tested again a day later with similar results, though the meter did work for about one minute this time before failing and remaining stuck for several hours. This reading of -3 is hard to interpret but seems to suggest battery failure, although the device has a low battery indicator that was not lit at the time.

The Devil’s Den formation was tested three times subsequently to these two original readings. One week after these two initial readings the formation was found to have significantly higher readings than the surrounding fields, particularly in the small circles within the main formation. Also, a membrane of energy was detected at the edge of the formation. The larger circles in the formation did not show any significant difference in energy readings from the surrounding areas. The formation was tested again two weeks later in August and only a slight effect was seen on the Trek device. Finally, measurements of the entire area were taken at the end of October, after the field had been harvested but not plowed. This was done in order to see if the anomalous electrostatic charges were a property of the area itself. No detectable effects were found where the formation had once been.

Medium Effects:

Formations in this category include those formations at Liddington Castle, Roundway, Bishop’s Cannings, Barbary Castle, and Cherhill. These formations also showed electrostatic changes of twenty volts or greater compared to the surrounding fields. The Barbury and Cherhill formations in particular showed a membrane effect where the meter indicated a small reversal in voltage a few inches from the circle before increasing greatly once inside. The Cherhill formation, a nine-sided star shape, had a small flattened area, most likely manmade, within a few meters of its perimeter that provided for a convenient control test area. This manmade area had no sizeable difference energy reading from the surround area, whereas the main formation showed a change greater than one hundred percent with meter changing from 30 to more than 60 volts once inside the formation. The Cherhill formation was tested a total of three times with the voltage readings gradually declining each time.

The Liddington formation was similar to Devil’s Den in that specific shapes in the circle showed high charges where other areas in the formation did not. The Liddington formation seemed to show medium energy-effects for several weeks after its formation. The manmade tramlines outside of the formation produced no effects so it is unlikely that these readings were caused by the place itself independently of the formation.

The formation at Roundway showed large effects with readings of greater than one hundred volts within the formation. However, on the first day, it was not measurable as the meter stuck at -3 upon approaching the formation. At first this effect was thought to be due to

nearby power lines running over the field and we returned the next day. But when measurements were taken near and under the power lines only small changes in the meter were seen, specifically a reversal in charge from positive to negative at even, pulsing intervals. The Trek meter measures DC charges and the power lines carry AC current so this reading was thought to be caused by spurious interference. The Roundway formation, which appeared at the end of July, was measured four times with all readings showing large changes.

The Bishop's Cannings basket formation appeared in early August but was cut down the same day by the farmer in an attempt to keep people out of the field. Ironically, this provided us with a good opportunity to test for residual energies in the soil below a fresh formation, as the most of the wheat in the formation had been taken away. Curiously, when the area where the formation had been was tested the next day it showed large energy readings of more than one hundred volts greater than the surrounding wheat field. These energies were detected at every point within the 75 foot diameter formation. A mowed area going from the road to the formation that the farmer had also cut down to make a path to the circle also showed some energy changes but these were considerably smaller in magnitude, less than 50 volts, than was found in the main circle.

Small Effects:

Effects that were small or negligible included a number a crop formations, wind damage, and manmade flattened areas near wheat fields. These areas serve as controls for the sizeable electrostatic readings found in other formations. Some researchers have suggested that manmade formations have no energy signature and this may account for the lack of electrostatic charges in these areas. None of the control areas showed readings that approached those described above.

A: Crop Formations With Small or No Detectable Energy Readings.

A number of formations showed little or no differences between the surrounding areas. These included the formations at Sillbury Hill, East Kennet, Windmill Hill, Avebury, Milkhill and Woodborough Hill. The latter formation was known to be made by the German research team of Koch and Kyborg, with permission of the farmer. The Milkhill formation was created by Doug Bower for Japanese television. Both formations showed little or no changes when the meter is brought into the formation. In each case the changes were twenty volts or less. As the electrostatic meter is sensitive to distance from crops and the ground, this small voltage change is probably accounted for by a distance effect as the meter, held at waist level, is farther from plant material inside a flattened formation than in the surrounding standing wheat.

The Avebury formation, though quite large, showed no detectable energy readings on the first day of its formation. Later this formation was revealed to have been commissioned by a local newspaper and created by the so-called "Team Satan," crop artists known for their manmade formations, as a publicity stunt. We weren't fooled. Apart from the lack of energy in the formation, it had a messy, disturbed appearance. Silbury Hill and East Kennet, both squarish types of formations, were also measured on the first day of their formation but mostly showed no energy readings at all. The Windmill Hill formation was measured one month after its appearance which may explain the lack of static charges within.

Table 1: Crop Formations and Voltage Effect Size

Large Effects (Device Failure or Jamming)	Medium Effects (20 to 200 volts change)	Small Effects (20 volts or less)
West Overton Hackpen Hill Devil's Den	Barbury Castle, Bishop's Cannings, Cherhill, Liddington Castle, Roundway	Avebury, D. Bower Milkhill, East Kennett, Koch/Kyborg, Silbury Hill, Wind Damage, Windmill Hill

B: *Control Areas.*

A number of control areas were measured including 3 wind damaged fields and manmade flattened areas. The sampled wind damaged areas were at Roundway, Silbury Hill, and West Overton. While some small effects were seen at West Overton, for the most part there were no significant changes in the meter of more than a few volts. An area near a grain silo in Stanton St. Bernard was tested and some small effects, less smaller than 15 volts, were detected between the standing crop and the cut area. No changes were found between the farmer made grain piles and the cut area. This suggests that manmade areas of flattened wheat do not produce any significant electrostatic charges when compared with surrounding areas.

A Possible Explanation of the Results

A recent article by Barabasi and Albert (1999) in *Science* magazine suggested that self-organizing systems like biological or computer networks may be the results of interactions that defy conventional linear systems. Specifically, the topology of nonlinear networks is described by scale-free distributions rather than typical metric distances. Scale-free systems follow fractal power-laws rather than linear growth patterns. If crop formations are thought of as self-organized networks, certainly just a hypothesis at this point, it is possible that their energy dynamics, in this case, electrostatic charges, are characterized by scale-free distributions rather than conventional ones. These non-linear energy fields, a natural out growth of the process of self-organization, may interfere with electronic components designed for linear environments and could also create new distributions of energy in a given setting such as wheat fields. Thus, the shapes of crop formations may, in fact, alter the given background energy distribution of a given area creating the results obtained by our Trek meter.

Conclusions

This research raises more questions than it answers. However, for the moment we can say that the energies present in some fresh formations defies the mechanics of electronic devices to the point where they sometimes fail. This suggests that temporarily stable, or unstable, as the

case may be, electrostatic energy fields exist in certain crop formations. These energy fields may have the ability to weaken and destroy fresh batteries, and to a lesser degree give unexplainable readings on lab grade electrostatic detection equipment. The cause of these energy fields remains unknown at this time. However, it is clear from this research that some formations have high energy areas within them, that may last for several days or weeks, while others do not. The cause of these findings remains for future research to explain.

The failure of the Trek device may also be due to the presence of energies such that they cause erratic functioning in certain electronic devices. The source of these energies may be a result of the formation process. They could also be a temporary artifact that is somehow embedded in the crop material or soil. Perhaps the formation process itself alters the structure of the grain crops allowing them to act like electrical conductors in a given area. Or, as suggested above, perhaps the shapes of crop formations, and their placement over a given geographic area induces new, non-linear energy distributions on a large-scale. More research will help to answer these questions.

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Appendix A: Trek-520 Device in Different Locations

<p>The Author in the Liddington Castle Formation</p> 	<p>Malfunctioning Trek Device in Devil's Den Formation.</p> 	<p>Wind Damage (Control Area)</p> 
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Appendix B: Some of the Formations Mentioned in the Text.

<p>Devil's Den</p> 	<p>Hackpen Hill</p> 	<p>West Overton</p> 
<p>Liddington Castle</p> 	<p>Bishop's Cannings</p> 	<p>Roundway</p> 
<p>Cherhill</p> 	<p>Koch/Kyborg</p> 	<p>Barbury Castle</p> 
<p>East Kennett</p> 	<p>Windmill Hill</p> 	<p>Avebury</p> 