INTERPRETATION OF CROP CIRCLE PATTERNS

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Abstract

Diagrams and images of selected crop circle patterns are interpreted in relation knowledge of design requirements for the development of a strong response to the perfield.

Introduction

Many have addressed crop circles patterns and all attempt to interpret observations relative to a favoured theory. While the theories have little substantive basis the observations are real. Hoaxes aside, all involve geometric shapes, often in recurring patterns with scales changing similarly to fractals.

This interpretation of crop circles is based on their being produced by spacecraft powered by energy obtained from the perfield. This conclusion derives from the relationship between the design requirements for devices that response to the perfield, and crop circle patterns and descriptions of 'flying saucers'. Many observed characteristics of crop circles and spacecraft are essential to producing a strong response to the perfield.

Interpretations in this report are substantively based on information not available to others and no attempt is made to justify what is presented. Comprehension of the information will largely depend on details on the perfield and devices for its measurement to be presented elsewhere which provides information of the nature of the power source.

Cautious Approach

Many crop circles are now man made and represent hoaxes. The requirement to only address those produced by spacecraft can be partially addressed by considering ancillary ground observations, as with magnetic fields. It can also be partially addressed by knowledge of the shape constraints to objects that can harvest energy from the perfield. However, aspects of harmonics associated with energy waves limit the ability to uniquely identify that a circle is a direct consequence of a propulsion source of a spacecraft.

Fine structure in intricate crop circles can derive through harmonics. That is, while the power unit directly produces a simple pattern this pattern can be repeated and otherwise modified through a harmonic response. Separation of the main effect from the harmonics is invariably difficult with intricate patterns as the causal effect can be geometrically split.

Fractal geometry is often applied to such patterns as it can provide a simple means of describing complex patterns that recur at different scales. However, the reason for the recurring patterns relates to physical processes. Fractals provide a simple a means of mathematically describing the patterns but do not identify cause.

Given the constraints that arise due to harmonics the approach taken is to start with the simple and progress to the complex.

Perfield and Spacecraft Design

Differences in responses of materials and shapes can be used to design structures having particular responses to the perfield. With spacecraft the body is the source of power as it harvests energy from the perfield[1]. The shape of the craft and the type of materials are designed to produce desired responses where the amount of power depends critically on the shape, arrangement and selection of materials.

Many basic geometric shapes produce strong perfielders such as spheres, cubes and pyramids. With all shapes the proportions between different elements are critical. For example, the height of a pyramid should be just greater than the width of the square base. Common proportions are half, thirds, and two thirds, either being equal to or just bigger/smaller than.

The design requirements for perfielders depend on the structural form of the elements, which can be conveniently but not accurately identified as comprising 1, 2 and 3 dimensional objects. 1D objects are rods or wire frames, 2D objects are flat similarly to plant leaves, and 3D objects are effectively solid. Each has its own set of requirements or rules for construction. Moreover, there are complex requirements when combining different structural elements into a single structure. Trees, for example, have 2D leaves attached to 1D twigs which attach to 3D trunks. They can also have 3D fruit attached via 1D stems.

Each element of a tree is responsive, and the combined response is much greater than given by the sum of the components. However, achieving a high combined response depends on appropriate connections between the elements. This has resulted in plants having well defined morphological forms, and characteristic structures such as petioles.

Exact definitions cannot be given because things are relative rather than absolute. Whether something is 1D, 2D or 3D can depend on size and/or the relative proportions of different dimensions. The penchant for exact measurement that characterises current science is inappropriate when addressing perfielder designs.

Most features of 'flying saucers' that relate to perfield associated propulsion will be addressed elsewhere. However, one that is always mentioned is critical, the occurrence of a smooth polished surface. As with other aspects of construction the rules are complex, but all surfaces should be highly polished and, with simple designs, be flat or smoothly curved.

The design requirements for perfielders are very complex, particularly when composed of multiple elements. The probability of those requirements being met by chance in crop circle patterns and other features is highly remote.

[1] This is a poor representation but an improvement depends on describing the likely associated physics

Patterns Within Crop Circles

The circular patterns in snow (Fig 1) are more detailed than provided in crops and are consistent in scale with banding observed with the perfield. However, the banding with the perfield is linear and three dimensional while the banding with the pattern in Fig. 1 is circular with no information on the vertical dimension.

Concentric banding within crops is seldom as detailed as in Fig. 1 but can still be clear (Fig. 2). Banding is not apparent in the very small crop circle in Fig. 3, however, the pattern of flattened stems is not random. An extreme of this situation is illustrated in Fig. 4 where the bent stems are interlaced on a scale equivalent to the banding in Figs. 1 & 2.

Plant stems flattened within crop circles are characteristically bent at nodes (Fig. 5). The stems do not break and perennial plants so impacted continue to grow. The change does not eliminate their functionality. Impact at nodes can also be manifest as what have been termed expulsion cavities as they are thought to arise through the rapid expulsion of gasses (Fig. 6).

Various physical measurements have been taken at crop circle sites. The most consistent result appears to be the development of a magnetic field which is strongest within the circles (Fig. 7).

Fig. 1 'Crop' circle produced in snow.

Fig. 2 Concentric banding in a crop circle.

Fig. 3 Small crop circle.

Fig. 4 Interlacing stems within a crop circle.

Fig. 5 Bent stems.

Fig. 6 Expulsion cavity at stem node.

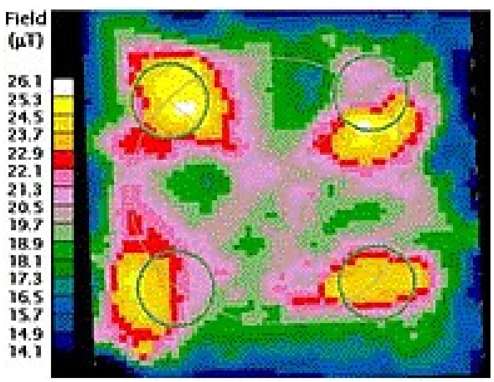

Fig. 7 Magnetic variation map encompassing crop circles.

Patterns of Crop Circles

Key Shape Characteristics

For single objects the potential shapes are spheres, cones, triangles (tetrahedra), square pyramids and octahedra, and vortex spirals. The shape described for flying saucers derives from a sphere and this is by far the most aerodynamic of the appropriate geometric shapes. It is basically a flattened sphere where the depth of top is slightly less than for the bottom (Fig. 8).

Effective shapes can be produced as solids, wire frame structures, or a combination of both. It appears that the solid objects can be arranged at the corners of wire frame structures as well as along them.

Basic pattern

Early observations of crop circles were for small craft and represented a single circle. Current arrangements for small craft are as in Fig. 9 where there are two outriggers. A larger more complex unit has four outriggers where the directions of rotation can differ between circles (Fig. 10).

One explanation for the small outriggers is that ancillary power units are used to increase stability with small craft. Another is that small power outlets arranged around the perimeter of flying saucers needed for directional control have been disbanded in favour of the outriggers. Outriggers can provide directional control as well as stability.

The pattern in Fig. 5 effectively represents three circles arranged on the corners of a triangular wire frame. The interpretation of the Bradbury crop triangle (Fig. 6) shows a more complex pattern of a central circle connected to three outriggers. Each outrigger has a different shape but all are based on circles. One circle is likely a straight circle, one a segmented circle, and the other effectively has a compressed helical vortex similar to with cone shells

Large Craft

There appears to be a physical limit to the size of single object relating to the power to weight ratio. Large spacecraft appear to be formed by combining discrete units. Effectively, separate craft are linked using a wire frame structure where the wire frame is integral to developing power.

A wire frame structure gives maximum power for minimum weight but a solid shape is needed to provide useable space. The design of large spacecraft connects several discrete solid modules using wire frames to balance the power, weight, and usable space. Power is collected by the frame connecting the solid modules as well as by the modules. As with trees, the combined response is much greater than the sum of the component parts.

Currently there is no definitive way of knowing the extent to which wire frames produce crop patterns. Electromagnetic readings indicate that the effect of a frame on the ground is much less than for solid units, but the magnetic effect on crops can apparently still be large. Output from the wire frame, other than from specific points such as corners, appears to be magnetic and its effect on crops would then depend strongly on proximity.

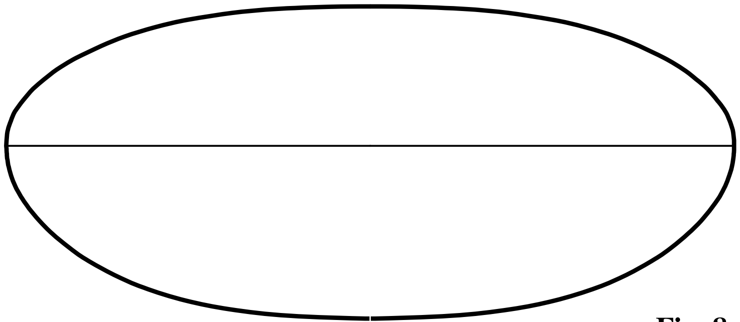

Fig. 8 Vertical section for the correct shape of a 'flying saucer'.

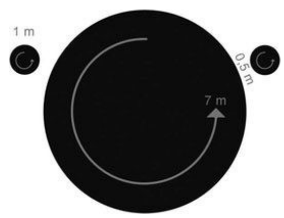

Fig. 9 Crop pattern for a small craft, Holland 2007. Single direction of rotation.

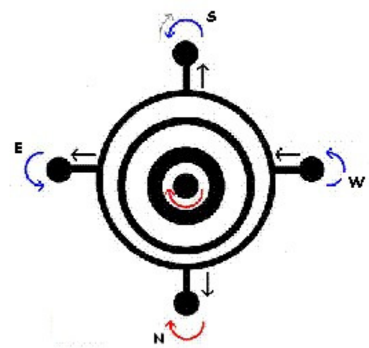

Fig. 10 Crop pattern for a small craft with four outriggers. Multiple rotations.

Fig. 11 Circular patterns at the corners of a triangle. The circles are connected by straight lines

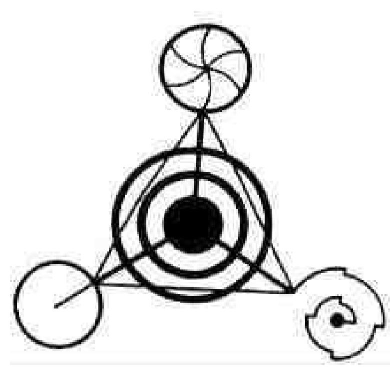

Fig. 12 Interpretation of the Bradbury triangular pattern

In Fig. 13 four lines of 2 circles connect back to a centre ring. With this structure it is cannot be known whether it is two or three dimensional. The lack crop compression of in the centre part of the ring indicates a different arrangement from the prior units. Fig. 14 is a variant of the arrangement in Fig. 13 that increases the usable space by way of solid shapes but at a cost of reduced power.

Fig. 13 Four arms radiating from a central ring each having two circles of reducing size.

Fig. 14 Crop circle involving two groups of 4 circles linearly connected to a centre ring.

Fig. 15 illustrates a design constraint of wire frames whereby a thick wire will respond similarly to a solid shape and thereby loose the benefits of a wire frame. There is a limit to the diameter of the rods that can be used in a wire frame structure, and those in Fig. 15 are close to the limit. The mechanical constraint associated with this maximum diameter limits the length of separation of solid parts in horizontally aligned structures. Early development of wire frames employed triangular sections to connect solid circles because of the mechanical advantage, as with the crop circle image named the tree of life (Fig. 15).

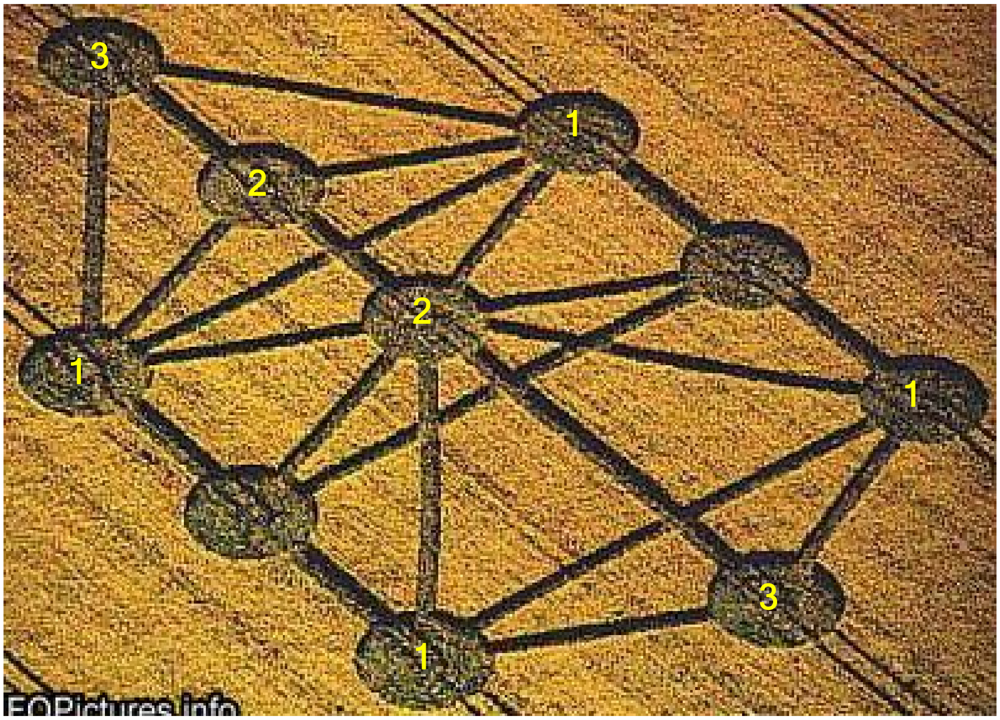

Fig. 15 Crop circle image named the tree of life.

Distortions due to parallax make the structural form difficult to interpret but the core is a modified square pyramid having a ridge rather than point at the top. The circles labeled **1** lie at the corners of the square base, and the circles labeled **2** lie at the ends of the ridge.

The circles labeled **3** form the peak of tetrahedrons each having one '**2** circles' and two '**1** circles' at the corners of the base. The two unlabeled circles increase the power of the pyramid while increasing the strength of the structure. From observations on models the height of each tetrahedron would be around 1.3 times the base and the height of the pyramid around 1.1 times the base.

Fig. 16 provides information on the relative sizes of the solid shapes and their separation distance. The spheres progressively decrease in size in proportions of .36 to .375. This is just slightly less than a 2/3 reduction in each step. The progression with the lengths of the arms is less clear. The lengths of the segments are 0.33, 0.15 and 0.5 the diameter of the main circle. The final segment is 1/3 the length of the preceding segment but the middle segment is only 0.23 the length of the first segment. A two third reduction is common to all but one step. This configuration developed considerable power when constructed using spheres and rods.

The vortex arrangement in Fig. 17 is a 6 spiral vortex composed of 6 arms rotating through 360 degrees. The bases and tops of the arms attach to or combine to form circles but their mode of attachment is not clear from the image. The diameter of the center circle is just less than one third that of the large circle. Current knowledge does not allow speculation on even the most basic aspects of this pattern in terms of the form of construction.

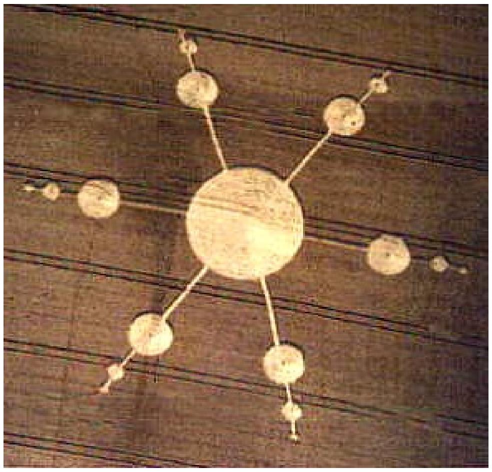

Fig. 16 Six linear arrays of crop circles linearly connected to a large centre circle.

Fig. 17 Vortex comprising six spirals.

The most effective simple vortex spiral tested has 4 spirals. The vortex in Fig. 18 is close to this with around 3.75 spirals in a single arm. The accuracy of the representation is unknown but the spacing between spirals should decrease towards the centre and not be constant as indicated. Reasons for the circles on the arms of the vortex are unknown.

Fig. 16 could represent a very complex arrangement of circular units in modified vortex spiral given the linear arrangement of small circles about the large central circles (the circles on the lines sum to 4 when the central circle is counted) but it may also involve resonance.

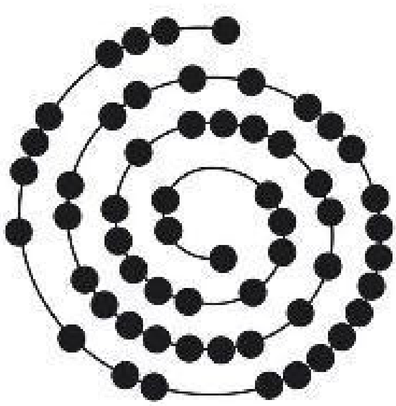

Fig. 18 Vortex arrangement of crop circles with four spirals.

Fig. 19 Complex arrangement of spirally linked crop circles.

DISCUSSION

Characteristic changes that occur within crop circles include the bending of plant stems when there is no known means of implementing such bending. Also, areas containing such bending develop a strong magnetic field. While circles can be formed in crops by humans they cannot replicate the bending, and they would have considerable difficulty achieving the observed changes in the magnetic field.

Despite the scant knowledge of the design requirements for devices responsive to the perfield (perfielders) the crop circle patterns yield information on the nature of the craft. The limited knowledge is sufficient for it to be clear that the shapes are responsive in allowing the structures to derive energy from the perfield. However, while crop circle patterns can be used to identify aspects of different forms of structures, they cannot be used to identify details on the shape, construction or materials.

The rapid expansion of developments in the complexity of crop circle patterns around the mid 1990s appears to have arisen from development of the capability to construct large, structurally strong wire frames. The options are the use of thin walled tubes and triangulated beans. The first step in this development involved small outriggers close to the main body of the craft. Craft were then produced using equally sized large solid shapes connected in a three dimensional wire frame. The most recent development, apart from the use of more intricate wire frame shapes, appears to be the translation of three dimensional wire frame shapes to two dimensions.

Crop circles currently do not provide information on the design of the power delivery other than form, number, and connection of shapes, and that information is not comprehensive. However, it is likely that with a little more knowledge on the perfield they will yield more information.

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