Analysis of the Madisonville Crop Circle Formation

A Study To Determine Its Relationship To Musical Notes

By Dee Gragg, P.E.

Executive Summary: This study shows a strong link between the crop circles analyzed by Dr Gerald Hawkins in southern England in 1981-88, and the USA circles of Locust Grove, Ohio, 2003, Miamisburg, Ohio 2004, and Geneseo, Illinois 2006. This link was established by studying the USA formations using methods identical to those used by Dr. Hawkins in southern England. In this formation we found the note D twice at a frequency of 297 Hz. This is the second occurrence of the note D in the crop circle formations of the United States. It also occurred twice in the Geneseo formation. Geneseo was also a cross formation. So, Geneseo and Madisonville share this relationship. Additionally, Madisonville has a computational relationship with Locust Grove. Finally, I have added a Figure 2 which shows the four USA formations plotted together at the same scale.

The Madisonville crop circle formation was discovered May 15, 2007. It is in wheat and is located in Monroe County near Madisonville, Tennessee. The field measurements were made by Jeff Wilson, Ted Robertson, Sally Boring and Mark Boring.

My objective was to determine if the United States, 2007 Madisonville crop circle formation contained diatonic ratios which could be related to musical notes. If so, can they be related to the Locust Grove, Miamisburg and Geneseo studies (Gragg p.5) and the work of Dr. Gerald Hawkins (Hawkins p.5 and Andrews p.5)? This study and the Locust Grove, Miamisburg, and Geneseo studies used the same methods as those employed by Dr. Gerald Hawkins in his classic study of 1981-88 crop circles of southern England.

By using the same methods as Dr. Hawkins, any diatonic ratios and their relationship to musical notes will then be comparable to his work and the Locust Grove, Miamisburg, and Genesco studies. This will strengthen the link between the five studies.

Dr. Hawkins took the diameters of the large circles and divided them by the diameter of the satellite (smallest) circle and used this result to determine any integers.[1] Using the integers found, he searched for diatonic ratios by raising 2 to the n/12 power where n is the integer just found. For example if:

Large Circle = 10 Satellite Circle = 2

Then: 10/2 = 5; And the diatonic ratio = $2^{5/12} = 2^{.4166} = 1.335$

This is the diatonic ratio 4/3, which is F just above middle C.

In the Locust Grove paper (Gragg p.5) I gave the theory and computations as to why it is impossible to have exact dimensions and, for the most part, I will not repeat them here. But in summary, you can have an exact diameter, an exact integer or an exact diatonic ratio. But you cannot have all three. You can have **only one** exact and the other two will be slightly off. This is the general case for any analysis of crop circles.

I have chosen to use the exact integer in my calculations. The results will then compare to the Locust Grove, Miamisburg, and Geneseo results and I believe that this is what Dr. Hawkins would have done.

I began this analysis with Circle 9 ID which had the smallest diameter and was deemed to be the satellite circle (Figure 1). I divided its diameter into the diameter of the other 9 circles. See Table 1.

Circle 1 contained no integer. Circle 2 contained the integer 2. Raising 2 to the $2^{2/12}$ gave a diatonic ratio of 1.122. See Table 1. This is 9/8 of Middle C which is the musical note D at 297 Hz.

Table 1

Circle	Diameter (Feet)	Satellite Diameter (Feet)	Integer	Diatonic Ratio	Fraction of Middle C	Musical Note	Frequency (Hz)
1	**11.4**	**No Integer**					
2	**20.8**	**10.6**	**2**	**1.122**	**9/8**	**D**	**297**
3	**11.3**	**No Integer**					
4	**21.5**	**10.6**	**2**	**1.222**	**9/8**	**D**	**297**
5	**11.4**	**No Integer**					
6	**19.6**	**No Integer**					
7	**11.8**	**No Integer**					
8	**21.9**	**No Integer**					
9 OD	**22.8**	**No Integer**					

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Circle 4 also contained the integer 2. Its identical results are also shown in Table 1. There were no other integers.

This formation seems related to the Geneseo formation. For comparison purposes I have plotted all four USA diatonic formations in Figure 2. The first thing that jumped out at me was how the formations have grown increasing smaller. I do not know if this has significance.

Here one may see the relationship between the Locust Grove and Miamisburg formations as previously pointed out (Wilson p.5).

In the Geneseo formation we found the note D twice at a frequency of 297 Hz. This was the first occurrence of the note D in the crop circle formations of the United States. We now have in this formation for the second time, the note D twice at a frequency of 297 Hz.

Further, Geneseo was a cross formation and this formation is also a cross with a second smaller cross at 45 degrees. I have not made the detailed comparison as Wilson did with Locust Grove and Miamisburg but it seems safe to conclude that Geneseo and Madisonville are related.

There is one other possible diatonic ratio to consider. Circle 9 ID and Circle 9 OD are concentric[1]. When I previously considered Circle 9 OD as not concentric, it was not diatonic. Will it be diatonic if considered as part of a concentric formation with Circle 9 ID?

Remember that with concentric circles we must look at the ratio of diameters squared to find diatonic ratios. Dr. Hawkins and I have both verified this (Gragg p.5).

So, dividing the diameter of Circle 9 OD by the diameter of Circle 9 ID I got 22.8/10.6 = 2.15. Squaring gives $(2.15)^2 = 4.622$ which is far from being an integer so obviously there is no diatonic ratio present.

Even though there is no diatonic ratio, there is an unusual relationship to the Locust Grove formation. In the Locust Grove formation when I divided the diameter of Circle E by the diameter of Circle B I got 43/20 = 2.15. Squaring gave $(2.15)^2 = 4.622$ which is identical to the results of this formation!?

Coincidence? Perhaps, but I am hesitant to call something coincidental when possibly I am just too dense or don't have enough information to understand the phenomenon occurring.

There is one other matter to consider with this formation. There is a triangle inside Circle 9 ID. The lengths are 16.7 feet, 14.2 feet, and 17.9 feet respectively. Since the legs are not equal we cannot apply Dr. Hawkins Theorem IA (Gragg p.6).

Also, since no **two** legs are equal, we cannot apply Haselhoff's Isosceles Triangle Theorem (Haselhoff p. 6). The meaning of this triangle is a mystery for now.

Appendix A contains a summary of all diatonic frequencies found in the fields to date. Appendix B contains all the computed diatonic and nondiatonic ratios and their exact ratios (Integer=0 to 24). There are separate columns for the diatonic and nondiatonic ratios.

Conclusions

From this formation I conclude that we have added the following to the understanding of crop circles:

- This study strengthens the already existing link between crop circles and musical notes.
- The Madisonville formation is related to the Geneseo formation.
- We again found the note D twice at a frequency of 297 Hz. Its only previous occurrence in USA circles was the Geneseo formation.
- This formation had an unusual computational relationship to the Locust Grove formation. Both sets of concentric circles were noninteger and nondiatonic, yet both had identical calculations.
- The significance of the triangle inside of Circle 9 ID is unknown.

Footnotes:

1. This method is used for circles that are not concentric. With the two concentric circles the ratio was squared to look for the integer.

References:*

1. **Gragg**, Dee, "Analysis of The Locust Grove Crop Circle Formation - A Study To Determine Its Relationship To Musical Notes", Crop Circle News, August 19, 2004. Also, The Circular, Crowes Complete Print, Norwich, Norfolk NR6 6JB, Winter-Spring 2005, p. 67.

2. **Gragg**, Dee, "Analysis of The Miamisburg Crop Circle Formation - A Study To Determine Its Relationship To Musical Notes", Crop Circle News. Also, The Circular, Crowes Complete Print, Norwich, Norfolk NR6 6JB, Winter-Spring 2005, p. 73.

3. **Gragg**, Dee, "Analysis of The Geneseo Crop Circle Formation - A Study To Determine Its Relationship To Musical Notes", 2006.

4. **Hawkins**, Gerald, Phd., D.Sc. "The Diatonic Ratios in Crop Circles", Circles Phenomenon Research International Newsletter, Volume 5, No. 2, Fall/Winter 1996/97. This work has been reprinted in full in the following book.

5. **Andrews**, Colin with Stephen J. Spignesi, "Crop Circles: Signs of Contact", Chapter 12, The Career Press, Inc., Franklin Lakes, NJ, 2003.

6. **Wilson,** Jeffery, "All elements of Locust Grove formation present at Miamisburg formation, E-mail Mon, 20 Sep 2004.

7. **Gragg**, Dee, "SwimOutsideThePool", http://www.netmdc.com/~ngragg/, How To Determine The Winner of a Basketball Game, Statistics, 2000.

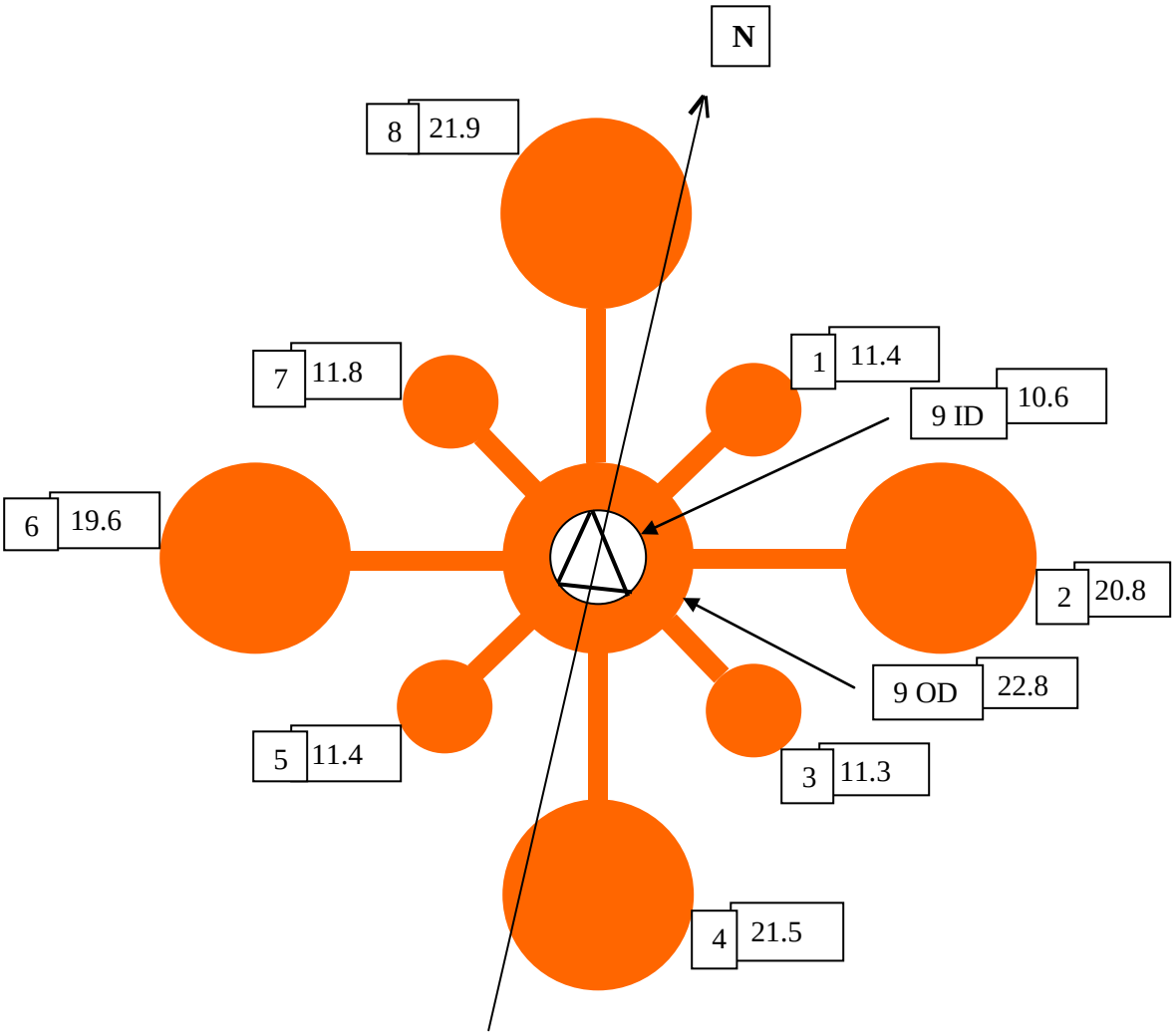
8. **Gragg**, Dee, "Crop Circle Theorems, Their Proofs and Relationship to Musical Notes", The Crop Circle News, 2004.

9. **Haselhoff**, Eltjo H., Ph.D., "The Deepening Complexity of Crop Circles", Frog, Ltd., Berkeley, California, 2001.

* If you have difficulty in obtaining any of my references, send me an Email stating which one and I will return Email it to you.

Madisonville, Tennessee (Monroe County)

May 15, 2007

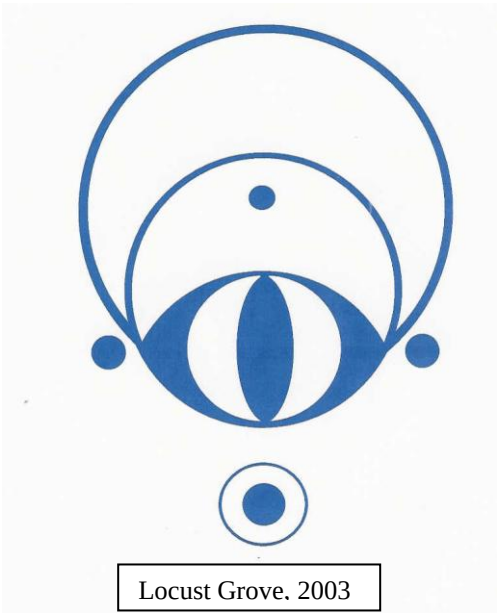


Notes:

1. Dimensions supplied by Jeff Wilson.
2. Measurements by:
   Jeff Wilson
   Ted Robertson
   Sally Boring
   Mark Boring

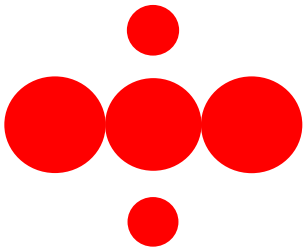
Figure 1

Comparison of the Four Formations Containing Diatonic Ratios

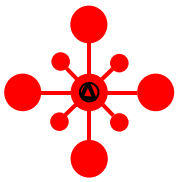


Locust Grove, 2003

Miamisburg, 2004



Geneseo, 2006



Madisonville, 2007

Scale: 1 In = 100 Ft

Figure 2

Appendix A

Diatonic Frequencies In The Fields

Note Name	C	D	E	F	G	A	B	C
Diatonic Ratio	1/4	9/32	5/16	1/3	3/8	5/12	15/32	1/2
Frequency (Hz)	66	74.25	82.5	88	99	110	123.75	132
Note Name	C	D	E	F	G	A	B	C*
Diatonic Ratio	1/2	9/16	5/8	2/3	3/4	5/6	15/16	1
Frequency (Hz)	132	148.5	165	176	198	220	247.5	264
Note Name	C*	D	E	F	G	A	B	C
Diatonic Ratio	1	9/8	5/4	4/3	3/2	5/3	15/8	2
Frequency (Hz)	264	297	330	352	396	440	495	528
Note Name	C	D	E	F	G	A	B	C
Diatonic Ratio	2	9/4	5/2	8/3	3	10/3	15/4	4
Frequency (Hz)	528	594	660	704	792	880	990	1056

* Middle C

Denotes found in the fields

Nondiatonic Frequencies In The Fields

Note Name	C#/Db	D#/Eb	F#/Gb	G#/Ab	A#/Bb
Nondiatonic ratio	17/16	19/16	17/12	19/12	85/48
Frequency (Hz)	281	314	374	418	468

Denotes found in the fields

Theorem/Crop Circle Summary

Frequency (Hz)	Musical Note	Theorem/Crop Circle Used For Discovery
88	F	Theorem IVB, Gragg
176	F	Theorem IB, Gragg
264 to 528	C, D, E, F, G, A, B, C	1981-88 Southern England Study, Hawkins
281	C#/Db	Geneseo, 2006
297	D	Geneseo, 2006, Madisonville, 2007
330	E	Locust Grove, 2003, Miamisburg, 2004
352	F	Theorem IA, Theorem IVA, Hawkins
396	G	Locust Grove, 2003, Miamisburg, 2004
418	G#/Ab	Miamisburg, 2004
440	A	Miamisburg, 2004
528	C	Theorem III, Hawkins, Miamisburg, 2004
594	D	Locust Grove, 2003
704	F	Locust Grove, 2003
1056	C	Theorem II, Hawkins

Appendix B

Diatonic and Nondiatonic Ratios

Integer (n)	Computed Diatonic and Nondiatonic Ratios	Exact Diatonic Ratio	Exact Nondiatonic Ratio	Note	
0	$2^{0/12} = 2^{0} = 1.000$	**1/1 = 1.000**		**C***	
1	$2^{1/12} = 2^{.0833} = 1.060$		**17/16 = 1.0625**		**C#/Db**
2	$2^{2/12} = 2^{.1666} = 1.122$	**9/8 = 1.125**		**D**	
3	$2^{3/12} = 2^{.250} = 1.188$		**19/16 = 1.1875**		**D#/Eb**
4	$2^{4/12} = 2^{.333} = 1.259$	**5/4 = 1.250**		**E**	
5	$2^{5/12} = 2^{.416} = 1.335$	**4/3 = 1.333**		**F**	
6	$2^{6/12} = 2^{.500} = 1.414$		**17/12 = 1.417**		**F#/Gb**
7	$2^{7/12} = 2^{.583} = 1.498$	**3/2 = 1.500**		**G**	
8	$2^{8/12} = 2^{.667} = 1.587$		**19/12 = 1.583**		**G#/Ab**
9	$2^{9/12} = 2^{.750} = 1.682$	**5/3 = 1.666**		**A**	
10	$2^{10/12} = 2^{.833} = 1.782$		**85/48 = 1.771**		**A#/Bb**
11	$2^{11/12} = 2^{.917} = 1.888$	**15/8 = 1.875**		**B**	
12	$2^{12/12} = 2^{1.000} = 2.000$	**2/1 = 2.000**		**C**	
13	$2^{13/12} = 2^{1.083} = 2.119$		**17/8 = 2.125**		**C#/Db**
14	$2^{14/12} = 2^{1.167} = 2.245$	**9/4 = 2.250**		**D**	
15	$2^{15/12} = 2^{1.250} = 2.378$		**19/8 = 2.375**		**D#/Eb**
16	$2^{16/12} = 2^{1.333} = 2.519$	**5/2 = 2.500**		**E**	
17	$2^{17/12} = 2^{1.416} = 2.668$	**8/3 = 2.666**		**F**	
18	$2^{18/12} = 2^{1.500} = 2.828$		**17/6 = 2.833**		**F#/Gb**
19	$2^{19/12} = 2^{1.583} = 2.996$	**3/1 = 3.000**		**G**	
20	$2^{20/12} = 2^{1.666} = 3.175$		**19/6 = 3.167**		**G#/Ab**
21	$2^{21/12} = 2^{1.750} = 3.364$	**10/3 = 3.333**		**A**	
22	$2^{22/12} = 2^{1.833} = 3.563$		**85/24 = 3.542**		**A#/Bb**
23	$2^{23/12} = 2^{1.916} = 3.775$	**15/4 = 3.750**		**B**	
24	$2^{24/12} = 2^{2.000} = 4.000$	**4/1 = 4.000**		**C**	

* Middle C