Analysis of the Geneseo 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 first occurrence of the note D in the crop circle formations of the United States. We also found the second occurrence of a nondiatonic integer. This nondiatonic integer gives us a musical note of C# or Db at a frequency of 281 Hz. We have now found two of the black piano keys, C#/Db and G#/Ab. We are only one note away from discovering the Key of A Major.***

The Geneseo crop circle formation was discovered August 17, 2006. It is in soybeans and is located in Henry County near Geneseo, Illinois. The field measurements were made by Ted Robertson and Linda Moulton Howe[1].

My objective was to determine if the United States, 2006 Genesco crop circle formation contained diatonic ratios which could be related to musical notes. If so, can they be related to the Locust Grove and Miamisburg studies (Gragg p.6) and the work of Dr. Gerald Hawkins (Hawkins p.6 and Andrews p.6)? This study and the Locust Grove and Miamisburg 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 and Miamisburg studies. This will strengthen the link between the four 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.[2] 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.

The Miamisburg and the Locust Grove formations had an amazing, almost sister-like resemblance. In fact, Mr. Jeff Wilson made a most convincing comparison in his Comparison of the Basic Elements of the Miamisburg, OH (8-2004) and the Locust Grove, OH, (8-2003) Crop Circles (Wilson p.6). However, the Geneseo formation had no such resemblance and was in the shape of a cross with different diameter circles.

In the Locust Grove paper (Gragg p.6) 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 and the Miamisburg results and I believe that this is what Dr. Hawkins would have done.

In my calculations I computed accuracy to the 0.001 of a foot. This accuracy was created, rather artificially, by the calculations. It should not be implied that a crop circle was measured to 0.001 of a foot in the field.

I began this analysis with Circle E which had the smallest diameter and was deemed to be the satellite circle (Figure 1). I divided its diameter into the diameter of Circle A. This gave an integer of one and a **nondiatonic** ratio of 1.059 with a musical note of C#/Db at a frequency of 281 Hz. See Table 1.

In all of Dr. Hawkins work in southern England and in my Locust Grove work, we found only diatonic ratios. However, in 2004, in the Miamisburg formation I found the first nondiatonic ratio. This is the second nondiatonic ratio. For a complete discussion of this phenomenon see the Analysis and Conclusions Section of this report.

Next I divided Circle B by Circle E which gave an integer 2. Raising 2 to the $2^{2/12}$ gave a diatonic ratio of 1.222. See Table 1. This is 9/8 of Middle C which

is the musical note D at 297 Hz. This note has been seen in the crop formations of southern England, but this is a first for USA crop formations.

I then divided Circle C by Circle E which gave 1.854. This is not an integer therefore, no diatonic nor nondiatonic ratio can be computed from it.

Circle D is the same diameter as Circle B. Therefore it gives the same information as Circle B. See Table 1.

Table 1

Circle	Diameter (Feet)	Satellite Diameter (Feet)	Integer	Diatonic Ratio	Fraction of Middle C	Musical Note	Frequency (Hz)
A	**27.1**	**26.8**	**1**	**1.059***	**17/16**	**C#/Db**	**281**
B	**52.5**	**26.8**	**2**	**1.222**	**9/8**	**D**	**297**
C	**49.7**	**No Integer**					
D	**52.5**	**26.8**	**2**	**1.222**	**9/8**	**D**	**297**

* This is of course nondiatonic, but it is 17/16 of Middle C and is C#/Db which is one of the black keys on the piano.

Appendix A is modified from my Appendix A of the Miamisburg paper (Gragg p.6). I added both of these new notes plus the B#/Ab note from the Miamisburg paper. Again**,** this brings together all of the work using Dr. Hawkins methods.

Appendix B has been modified to contain all the computed diatonic and nondiatonic ratios and their exact ratios (Integer=0 to 24). I have added separate columns for the diatonic and nondiatonic ratios.

Analysis and Conclusions

The musical note D had been found previously by Dr. Hawkins in his classic 1981-88 study. However, this is the first time to find it in a USA crop circle formation. This continues to confirm and strengthen the bond between Dr. Hawkins' work in southern England and my work here in the United States.

The 2004 Miamisburg formation marked the **first** occurrence of a nondiatonic integer. Neither Dr. Hawkins nor I found any integers which were not diatonic in all of our combined work until then. But we now have a **second nondiatonic integer**. What does this mean?

In our work which found only diatonic ratios, we have only the white keys of the piano. This gives us the Key of C Major. So I wondered "what if" we now added one or both of our newly found black keys, have we found a new Major Key?

For help in determining this, I consulted my musical authority, Sheila Harrison. Mrs. Harrison tells me that we have not matched any of the other Keys. What we have found are called "accidentals". They can be quite properly played but they must be individually marked, each time before the note.

Mrs. Harrison did note that we might yet find a new Key if we found more sharps in future crop circles. Indeed, if we are to find a new Key we must first find F# which is used in all Major Keys.

In fact if we find F# in the crop circle formations of 2007 we would have the Key of A Major. So, am I about to predict that we will find F# next year. Never! I will only wait to see what we can learn from the nonhumans[3] who produce the formations.

From this analysis 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 Geneseo formation is not a sister formation to the Locust Grove and Miamisburg formations.

- We found the note D twice at a frequency of 297 Hz. Dr. Hawkins discovered this note in the fields of Southern England. However, this is its first occurrence in the crop circle formations of the United States.

- This is the second occurrence in any of the works of a nondiatonic integer. This gives a musical note of C# or Db at a frequency of 281 Hz. We have now found two of the **black keys**.

- We are only one note away from discovering the Key of A Major.

Footnotes:

1. Mr. Ted Robertson and Ms. Linda Moulton Howe were the team which made the ground measurements. Ted also did the complete construction line drawing showing the relationship of all the circles. I used this to construct Figure 1 which represents the formation as seen in the field. Mr. Robertson supplied this information to me and encouraged me in this research.

2. This method is used for circles that are not concentric. If they are concentric the ratio must be squared to look for the integer. We had no sets of concentric circles in this formation.

3. In various books, the Internet and other literature of the field there are a number of different names in use to describe the makers of the authentic circles. Some of them are the Force, Intelligence, Higher Intelligence, and Circle Makers. I have a bit of a problem with these. Perhaps neither force nor intelligence is even applicable if we really knew how the circles were created. When I read Circle Makers, I sometimes become uncertain if the author is talking about the making of the authentic circles or something that the hoaxers have created. I like the term **nonhuman** because it assumes nothing about the authentic makers except that they are not humans and it is specific that it is not the hoaxers at work.

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. **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.

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

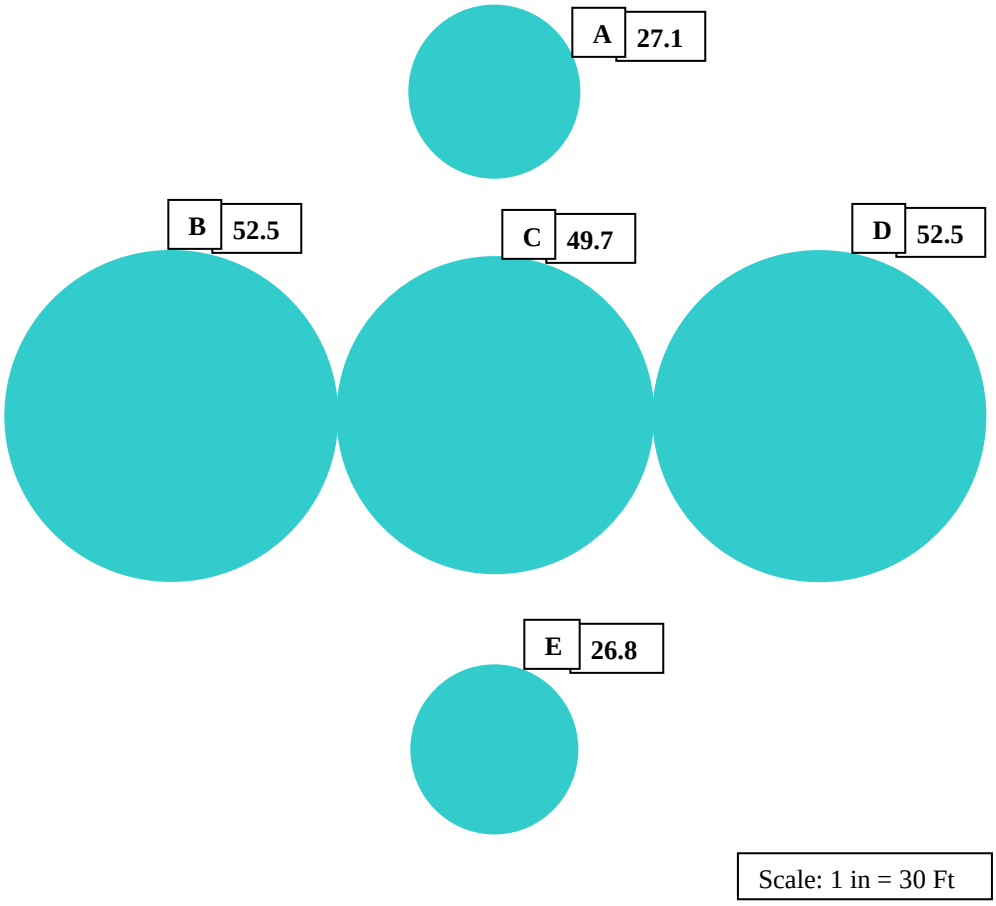
5. **Wilson,** Jeffery, "All elements of Locust Grove formation present at Miamisburg formation, E-mail Mon, 20 Sep 2004.

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

* 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.

Geneseo, Illinois (Henry County)

August 17, 2006



Notes:

1. Originally drawn by Ted Robertson.
2. Computer WORD drawn by Dee Gragg with help from Ted Robertson
3. Measurements by:
   Ted Robertson
   Linda Moulton Howe

Figure 1

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
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