Was John Nelson an Astrologer?

A Geocentric Review of RCA's John H. Nelson's Work:

"Planetary Position Effect on Short-Wave Signal Quality"

By

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April 15, 2018

Abstract

Those of us that learned astrology in the 1960's and 70's certainly will remember legendary John H. Nelson, an employee of the Radio Corporation of America whose job was to find a way around geomagnetic disturbances in the earth's ionosphere that interfered with world-wide short-wave radio communications. Nelson succeeded in his job for twenty-five years by computing certain geometric angles between the planets of the solar system. Despite numerous papers and lectures explaining his methods, even before prestigious organizations such as NATO and NASA, no one has ever repeated his degree of success. The hypothesis of this paper is that there was more to Nelson's methods than he publicly acknowledged.

The Story of John Nelson

In March of 1951 John H. Nelson rocked the world of astronomers and astrologers alike when he began publishing papers describing a method of forecasting disturbances in the Earth's ionosphere, which in turn enhanced or diminished short-wave radio transmission between North America and Europe, by observing sunspots and angular planetary positions relative to the sun.

In those days, short-wave radio was the Radio Corporation of America's means of providing communication service for ships at sea and a worldwide wireless communication system in competition with underseas cables. The fly in the ointment, however, was that, while short wave signals could travel great distances (much beyond 'line of sight'), good reception was dependent upon a stable ionosphere which, periodically and unexpectedly, it was not.

It was radio propagation analyst J.H. Nelson who was tasked to test the theory that sunspots and the consequent space weather were the cause, and in 1946, RCA set him up with an observatory and a good telescope atop their office building in New York city, supported his years long study and observations, and then eventually reaped the benefits of his accurate forecasting service.

Now the short of it is that Nelson began to forecast radio disturbances with sunspot observations alone, making note that "The type of the sunspots, their age and activity, together with their position on the face of the sun, were declared to be the determining factors of disruptive bombardment".[i] However, "After about two years of careful research with both sunspots and magnetic storms Mr. Nelson concluded that sunspots were only a small part of the answer. It was evident to him that some natural force besides sunspots were in some way involved in the phenomena that he was studying."[ii]

Continuing his research, Nelson began to include the planets and their heliocentric angular (0, 90, 180, 270 degree) relationships to one another.[iii] Nelson also considered other points of interest: The nodal points of the planetary orbits, their perihelion and aphelion positions and, later in his work, added divisions of 45, 15, or 7.5 degrees of longitude to his basic 'hard' angles and named them "harmonics".

Including the planetary positions with his sunspot observations significantly improved forecasts, ranging from a few days and weeks to years in advance. Nelson developed a reliable forecasting service that was accurate 85 per cent of the time according press accounts from RCA. ***John Nelson enjoyed nearly two decades of providing practical, usable information to an American for-profit corporation whose business it was to provide a reliable worldwide service. Nelson enjoyed invitations to speak before organizations such as NATO [iv] and was encouraged by NASA to detail his methods in formal papers, which he did in his work "Cosmic Patterns".[v]***

The novelty of Nelson's work waned with the passage of time, however, as the advance of technology and satellites in space took up the earthly communications work load, relegating the prominence of short-wave signals to ham radio enthusiasts. And in the academic community, there was no excitement for replicating Nelson's work. The astrologers had long seized on Nelson's findings as proof of their belief system, and the academics (I presume) had no desire to add fuel to that fire.

As for me, the area of my greatest astrological interest has been severe weather analysis, tropical cyclones in particular. I had been aware of Nelson's work, but when I finally found his papers online and gave them a good read, I was heartened to learn that his methods were very similar to my own.

That was over fifteen years ago. Recently I have had occasion to refamiliarize myself with Nelson's work in preparation for experimental forecasting of hurricanes during this 2018 season. Since I had always been puzzled by Nelson's use of ***heliocentric aspects*** to forecast events on Earth, I decided to check his examples against my ***geocentric*** ephemeris.

What immediately became apparent stunned me and I was chagrined that I hadn't seen it earlier.

As I began thumbing through my ephemeris to compare the disturbance periods with the Planets and Signs, it was the Eclipse information that stood out right away and when I began tabulating the data, I was amazed to see how many of the disturbance periods had occurred during Eclipse Cycles so that even the Quarter Moons and Inconjuncts in the data were applying to or separating from a Solar or Lunar Eclipse. And then there were the Full Moons, the New Moons, and the actual Solar and Lunar Eclipses.

An Organized Look at Nelson's Examples

From the three publications cited[vi], there can be found 26 qualitatively ranked examples of exceptional Geomagnetic Disturbances and radio blackouts that John Nelson used to illustrate the technique of his method.

The following Table One details each examples' source, the time period of Geomagnetic Disturbance, Nelsons' descriptive rank of the disturbance, the nearest Lunar Aspect and taking note if it was on an Eclipse Cycle. In two cases I included a Quarter Moon that was approaching or departing an Eclipse, due to the Suns' proximity to the lunar nodes.

TABLE ONE

NELSON'S DISTURBANCE EXAMPLES AND LUNATION DATA

DATA SOURCE	DISTURBANCE PERIOD	DAYS	RANK OF DISTURBANCE	LUNAR ASPECT	SAROS CYCLE
1 (b)	6/19-22 1948	*4*	*SLIGHT*	FULL MOON	
2 (b)	8/19-21 1948	3	SLIGHT	FULL MOON	
3 (c)	4/24-30 1960	7	MODERATE	NEW MOON	
4 (c)	4/10-17 1961 PEAK 4/15	8	MODERATE	NEW MOON	
5 (c)	8/4-5 1941	2	SEVERE	INCONJUNCT	
6 (ac)	9/18-21 1941	4	SEVERE	NEW MOON	ECLIPSE
7 (c)	10/2-5 1942	4	SEVERE	QUARTER	
8 (a)	1/3 1946	1	SEVERE	NEW MOON	ECLIPSE
9 (a)	7/27 1946	*1*	*SEVERE*	NEW MOON	
10 (a)	1/23-25 1947	3	SEVERE	NEW MOON	
11 (a)	5/13-17 1947	5	SEVERE	QUARTER	ECLIPSE
12 (ab)	2/23-25 1948	3	SEVERE	FULL MOON	
13 (ab)	4/19-23 1948	5	SEVERE	FULL MOON	ECLIPSE
14 (a)	4/11-13 1949	3	SEVERE	FULL MOON	ECLIPSE
15 (c)	7/15-17 1960	3	SEVERE	QUARTER	
16 (ac)	3/23-27 1940	5	VERY SEVERE	FULL MOON	ECLIPSE
17 (a)	2/7-10 1944	4	VERY SEVERE	FULL MOON	ECLIPSE
18 (c)	3/26-30 1945	5	EXTR SEVERE	FULL MOON	
19 (b)	10/14-15 1948	2	VERY SEVERE	INCONJUNCT	ECLIPSE
20 (b)	10/7-8 1949	2	VERY SEVERE	FULL MOON	ECLIPSE
21 (b)	4/1-6 1950	6	VERY SEVERE	FULL MOON	ECLIPSE
22 (b)	9/30-10/4 1950	5	VERY SEVERE	QUARTER	ECLIPSE
23 (b)	9/20-26 1951	7	VERY SEVERE	QUARTER	ECLIPSE
24 (c)	9/22-23 1957	2	VERY SEVERE	NEW MOON	
25 (c)	8/30-31 1960	2	EXTR SEVERE	QUARTER	ECLIPSE
26 (c)	11/12 1960	1	EXTR SEVERE	QUARTER	
Totals	26 Time Periods	97 Days		8 SOL/LUN ECLIPSES	13 Eclipse Cycles

What the heck is going on here? You don't need to be a professional statistician to see the overwhelming number of Full Moons and Eclipse Cycles in this list of Nelson's examples of his technique. The Full Moon and Eclipse Cycle associations with Disturbance periods are extremely obvious.

Nelson was very straightforward as to his method. I don't think he described it particularly well, but he did write, repeatedly, it was just sunspot observations and ***heliocentric*** planetary angles that he considered, and when the sunspot activity diminished by 1954[vii], it became just the heliocentric aspects, perihelion, aphelion and nodal positions that he used to forecast Geomagnetic Disturbances on our planet.

Is it possible that after all of Nelson's detailed astronomical and radio signal observations that he could have been oblivious as to what was going on with our Moon, the closest astronomical object to that which he was studying so intently, the Earth's ionosphere?

This seems very odd to me and I think it is worth having a close look at Nelson's Data to see if these apparent associations with Lunar activity are something that could have happened merely by chance. So, what I have done is create a control group of 26 randomly generated[viii] time periods (see Table 2 below) to compare with the Nelson Sample.

TABLE 2

RANDOMLY GENERATED TIME PERIODS AND LUNATION DATA

	RANDOM DATES	DAYS	LUNAR ASPECT	SAROS CYCLE
1	3/24 -27 1947	4	SEMI-SEXTILE	
2	3/28-30 1940	3	TRINE	ECLIPSE
3	7/10-16 1940	7	QUARTER	
4	1/17-24 1956	8	QUARTER	
5	4/11-12 1958	2	QUARTER	ECLIPSE
6	7/6-9 1957	4	TRINE	
7	6/17-20 1953	4	QUARTER	
8	12/18 1951	1	TRINE	
9	7/19 1943	1	INCONJUNCT	ECLIPSE
10	3/19-21 1943	3	FULL MOON	
11	11/23-27 1953	5	TRINE	
12	12/18-20 1956	3	INCONJUNCT	
13	11/11-15 1960	5	SEXTILE	
14	1/25-27 1961	3	TRINE	
15	10/28-11/1 1946	5	SEXTILE	
16	4/15-18 1950	4	NEW MOON	
17	2/28-3/4 1958	5	INCONJUNCT	
18	10/19-20 1951	2	TRINE	
19	2/26-28 1956	3	FULL MOON	
20	4/23-24 1944	2	NEW MOON	
21	7/21-26 1940	6	INCONJUNCT	
22	4/25-29 1940	5	TRINE	ECLIPSE
23	9/14-20 1958	7	SEXTILE	
24	12/21-22 1943	2	SEXTILE	
25	2/20-21 1955	2	SEMI-SEXTILE	
26	3/23 1952	1	SEMI-SEXTILE	
TOTALS	26 TIME PERIODS	97 DAYS	0 SOL/LUN ECLP	4 ECLIPSE CYCLES

Obviously, the Random Samples in Table 2 are quite different than the (not random) handpicked data from Nelson's Sample.

What I propose to do is apply a basic statistical analysis of the data to determine what the probability is that the apparent Lunar associations could have occurred (***or were selected***) simply by chance.
Armed with data from the Nelson examples and the comparable Random Dates Control Group, we can run some experiments, but first, a word about my plan for testing.

Hypotheses Testing with Chi-Square "Goodness of Fit"

A really good statistical tool for astrological work is the Chi-square Test which can be found at numerous places online and also is included in the Microsoft Excel Spreadsheet program.

There are a number of reasons why Chi-square is well suited to astrological work, but we don't need a stats lesson right now. Suffice to say that Chi-square works great for categorical type variables, like planets, signs, aspects, new moons, eclipses, etc. For any numbers' junkies in the audience, I'll include the Chi-square details in a table with each example.

There is one caveat: Nelson's examples are a small data set. I am using Chi-square even though I am pushing the limits on the "Expected" values, which most textbooks suggest a minimum of 5. However, it is acceptable to combine categories to increase the Expected count, which I did and the difference was negligible. Also, I double checked my results with a different test, the Binomial distribution, and came to the same conclusions. I choose to demonstrate with Chi-square on account of its simplicity and applicability to astrological research.

First, we begin with a theory. My theory, my 'research hypothesis', is that Nelson either knowingly picked these examples because of their Lunar Activity, but did not want to reveal it, or, he didn't know, and Lunar Activity is so closely correlated to Geomagnetic Disturbance that any period of disturbance must reveal a correspondence to some emphasized Lunar event.

The bad news is that there isn't enough of Nelson's work available to test the 'research hypothesis'. We only have a 97 day window into Nelson's 25 year research and forecasting career. The good news is there is enough of Nelson's work to test the opposite of the 'research hypothesis' which is the 'null hypothesis' of no difference.

Testing the 'null hypothesis' of no difference is standard statistical practice and simply means that you compare your results against what is normal or expected, and if a difference does exist an assessment can be made to see if that difference could have occurred merely by chance, or if it is so significant as to suggest a factor of association, or of correlation, or even the possibility of causation.

To bring an experiment to a proper conclusion, one must have a point of decision as to whether the test was a success or a failure. In statistical testing, Significance Levels are the deciding 'cut off' points at which the researcher may confidently support or reject the 'null hypothesis', and Significance Levels are expressed as a probability (p), in decimal form, from 0.0 to 1.0, which is the possibility that an event occurred by mere accident, sampling variation, or 'random chance'.

Significance Levels are pretty standard, but they do vary quite a bit, the most common being:

- (p) = .10 which is 10% or 1 chance in 10 (moderate significance)
- (p) = .05 which is 5% or 1 chance in 20 (most commonly accepted level)
- (p) = .01 which is 1% or 1 chance in 100 (very high significance level)

Three Experiments

Specifically, I would like to test three phenomena:

- The coincidence of Disturbances occurring during a 29.5-day Eclipse Cycle
- The coincidence of Disturbances occurring on the day of a Solar or Lunar Eclipse
- The distribution of regular monthly Lunar Aspects occurring during Disturbances

I will lay out the pertinent variables for each test, including the Control Group, illustrate the data graphically, then detail a Chi-square analysis and determine if any differences are Significant.

Experiment One:

The Coincidence of Disturbances occurring during a 29.5-day Eclipse Cycle

There seems to be a lot of Eclipse Cycles in Nelson's examples, so, the question naturally arises: how many 29.5 Day Eclipse Cycles would you expect to be occurring during 26 independent Time Periods, cumulatively totaling 97 days, over a span of 21.3 years?

Looks complicated, but it really isn't.

The series of Nelson's examples range from January 1940 thru April 1961.
This is what I will call the 'Population Space'.

In that Space, from my ephemeris[ix], I count the following:

Full Moons	New Moons	Lunar Eclipses	Solar Eclipses
260	264	48	48

Averaging the New & Full Moons gives us a total of 262 Lunation Cycles.

Doing the same for Lunar & Solar Eclipses gives us a total of 48 Eclipse Cycles

So then, the Frequency of an Eclipse Cycle coinciding with any one Lunation Cycle is
48 Eclipse Cycles ÷ 262 Lunation Cycles = .183 or 18.3%.

Therefore, the expectation that any portion of an Eclipse Cycle would be occurring during any of the 26 Disturbance periods in Nelson's Sample, and also in the 26 Random Sample Control Group, is:

26-time periods x .183 = 4.8 (5) Eclipse Cycles expected

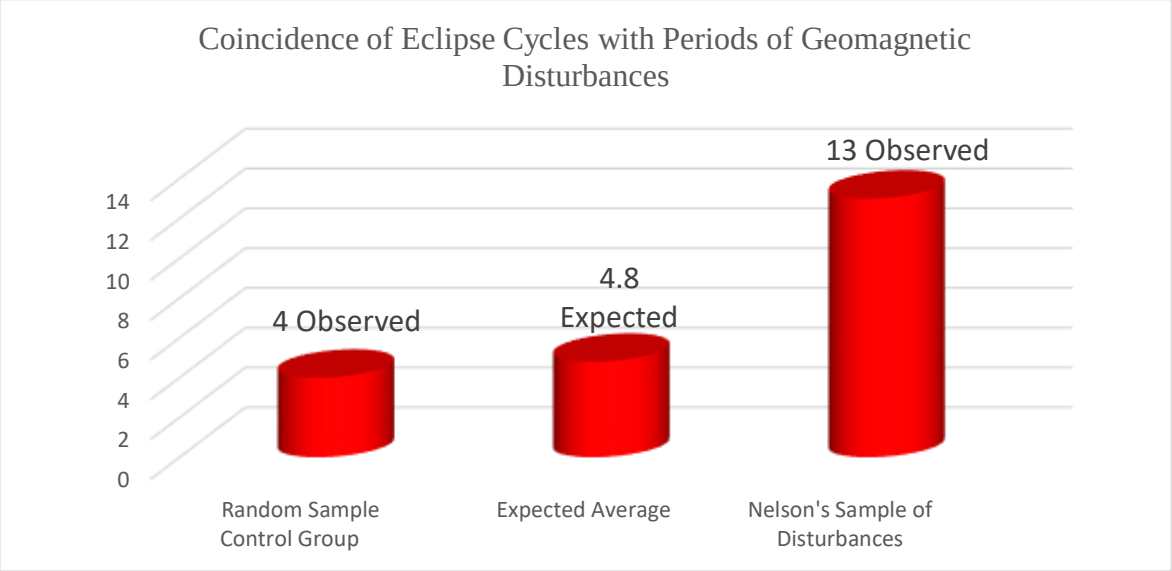
And that means that we should expect about 5 Eclipse Cycles to be in effect in both the Nelson and Random Sample data sets.

And that also means our 'null hypothesis' has as its baseline expectation a score of 4.8 Eclipse Cycles from which to measure any differences.

So then, what does our data tell us?

Chart 1 visually illustrates the number of Eclipse Cycles in the Random Dates Control Group (4), the Expected Average (4.8) and in the Nelson's Sample (13):

CHART 1



What is immediately obvious is that there are more than 3 times as many Eclipse Cycles in Nelson's Sample of Disturbances as in the Control Group of exactly the same size: 26 time periods, totaling 97 days.

A Chi-square Test will quickly determine what is the likelihood of so many Eclipse Cycles occurring during Geomagnetic Disturbances merely by chance:

NELSON SAMPLE	observed	expected	difference	diff^2	(diff^2)÷expected
Eclipse Cycles	13	4.8	8.2	67.24	14
Reg-Lunation Cycles	13	21.2	-8.2	67.24	3.17
Totals	26	26		Chi^2 =	17.17
			degree of freedom =		1
			per Excel	(p)=	0.00003

This test yields a Significance Level of (p) 0.00003

The bottom line is that there is only 1 possibility out of 300,000 that this result could occur merely by chance or normal sample variation.

Therefore, the 'null hypothesis' that there are no significant differences in these samples is REJECTED, and the 'alternative hypothesis' that Lunar Activity may be associated with Geomagnetic Disturbances is SUPPORTED.

Experiment Two:

The Frequency of Disturbances occurring on the day of a Solar or Lunar Eclipse

As is the case of the month-long Eclipse Cycles that permeate Nelson's examples, so also do the actual Solar and Lunar Eclipses appear very often to coincide with Geomagnetic Disturbance periods. In fact, looking again at Table 1, it seems that as the severity of Disturbance increases, so do the number of Eclipses.

How can we go about analyzing this phenomenon?

First, we return to our 'Population Space': January 1940 thru April 1961 contains 7,790 days.

Again, from our ephemeris we find 48 Solar + 48 Lunar = 96 Total Eclipses in that Space.

So then, the Frequency of a Solar or Lunar Eclipse occurring on any one day in the Population Space is 96 Sol/Lunar Eclipses ÷7,790 Days = 0.0123.

The series of Nelson's examples within that Population Space are 26 time periods comprising a cumulative total of 97 Days.

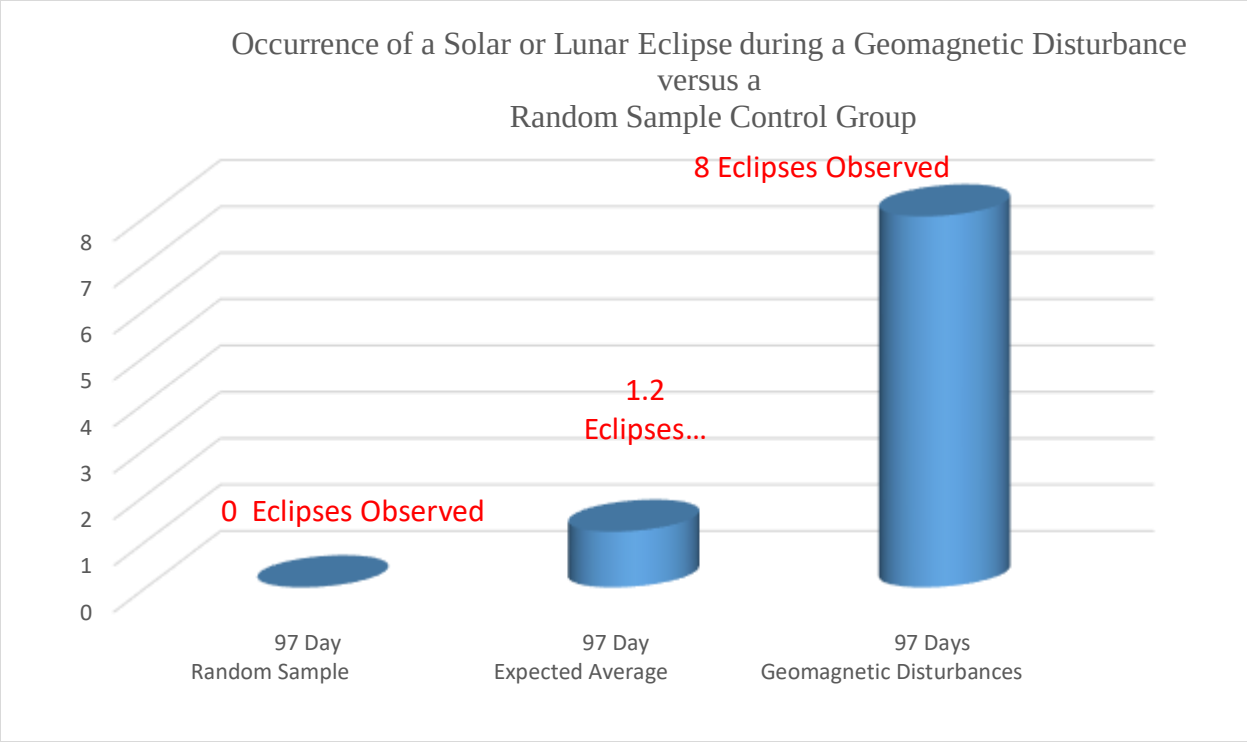
How many Eclipses, either Solar or Lunar, may we expect in a 97 Day period of time?

Simple: 0.0123 x 97 Days = 1.2 Eclipses should be expected in both Nelson's Samples and the Random 97 Day Control Group detailed in Table 2.

And similar to the previous experiment, we may use the expected average of 1.2 Eclipses as a baseline score from which to measure any differences in the data.

Chart 2 graphically demonstrates the rather extreme difference in the number of Sol/Lunar Eclipses in the Random Dates Control Group and Nelson's Sample: 0 versus 8.

CHART 2



So what can Chi-square tell us about these differences?

NELSON SAMPLE	observed	expected	difference	diff^2	(diff^)÷expected
Sol or Lunar Eclipse	8	1.2	6.8	46.24	38.53
Other Lunar Aspect	18	24.8	-6.8	46.24	1.86
Totals	26	26		Chi^2 =	40.39
			degree of freedom =		1
				(p)=	0.0000000002

The Significance Level is (p) 0.0000000002. That's huge. In more familiar terms, the likelihood of this result occurring by chance is 1 in 20,000,000,000, or <u>One chance in 20 Billion!</u>

This result is so extreme that it has to be suspicious, so let's check it another way. Let's do the Chi-square Test on the Random Sample result of 0 Eclipses in the Control Group.

RANDOM SAMPLE	observed	expected	difference	diff^2	(diff^2)÷expected
Sol or Lunar Eclipse	0	1.2	-1.2	1.44	1.2
Other Lunar Aspect	26	24.8	1.2	1.44	0.058
Totals	26	26		Chi^2 =	1.258
			degree of freedom =		1
				(p)=	0.2620177695

This result tells us that the likelihood of no eclipses occurring in any 97-day period of time is (p)=0.262 or 26%. This makes sense as 97 days is 26% of a full calendar year, a little over 3 months, and Eclipses occur in approximate 6-month intervals.

There is no choice here: the 'null hypothesis" of no difference must be REJECTED (again) and the alternative hypothesis that Nelson either picked these examples because of the Lunar associations, or perhaps Lunar activity may actually cause Disturbances in the ionosphere.

As amazing as these results are, I've saved the most extreme for last: Geomagnetic Disturbances coinciding with any of the 12 Aspects the Moon makes to the Sun every 29.5 days

Experiment Three:

The Distribution of regular monthly Lunar Aspects occurring during Disturbances

Referring again to Table One, there seems to be an emphasis on certain Lunar Aspects in the examples Nelson has provided. My method of determining which Ptolemaic Aspect to choose to represent each of Nelson's examples was to ascertain which aspect was in effect closest to either the start of, or the center of, each of Nelson's Disturbance periods, depending on the length of each time period considered. Of course, this method is arbitrary but seems to be the simplest and most logical. The Lunar Aspects for the Random Sample Control Group were chosen in the same manner.

Our research question has to be: How significant are the numbers of the New, Quarter, and Full Moon Aspects that coincide with the periods of Geomagnetic Disturbances in Nelson's data?

The period of time from one New Moon to the next is 29.5 days, and along the way Luna makes successive 30 degrees angles that we like to call 'aspects': a conjunction (0°), a waxing semi-sextile (30°), waxing sextile (60°), and so on to the opposition (180°) and then a repeat as Luna wanes to her next conjunction.

The number of the seven different types of Ptolemaic Moon to Sun Aspects in any one Lunar Cycle is a total of 12, and the number of each is:

- New Moon (1)
- Semi-Sextile (2)

- Sextile (2)
- Quarter (2)
- Trine (2)
- Inconjunct (2)
- Full Moon (1)

What we need to know is: What is the Relative Frequency of any one of these Aspects occurring during any one particular time period that we may be interested in?

Very simply, we divide 1 Aspect by the total of 12 Aspects (1 ÷ 12), to get a basic Frequency of .083 for a Full or New Moon and twice that for the other Aspects, 2 ÷12 = .166

Applying this formula to a sample size of 26 time periods would give an expected average of the following:

TABLE THREE

Lunar Aspects	Frequency x Sample Size (26)	Expected Number of Each Aspect
New Moon	.083 x 26 =	2.17 Expected Average
Semi-sextiles	.166 x 26 =	4.33 Expected Average
Sextiles	.166 x 26 =	4.33 Expected Average
Quarters	.166 x 26 =	4.34 Expected Average
Trines	.166 x 26 =	4.33 Expected Average
Inconjuncts	.166 x 26 =	4.33 Expected Average
Full Moon	.083 x 26 =	2.17 Expected Average
12 Aspects		26 Total

These are the numbers of each Lunar Aspect we should expect, on average, in either the Nelson data set or the Random Sample Control Group and also we may use these averages to compute the significance of any differences that exist.

Next, we need a summary of the Lunar Aspects found in each of the Nelson and Control Group data sets from Tables One & Two:

TABLE FOUR

Lunar Aspects	Random Dates Control Group	Nelson's Disturbances Examples
New Moon	2	7
Semi-sextile	3	0
Sextile	4	0
Quarter	4	7
Trine	7	0
Inconjunct	4	2
Full Moon	2	10
Totals	26	26

With these data now in hand we can proceed with our analysis.

Chart Three displays the distribution of Lunar Aspects occurring during the 26 dates of the Random Control Group from Table 2 compared to the Expected Average:

CHART THREE

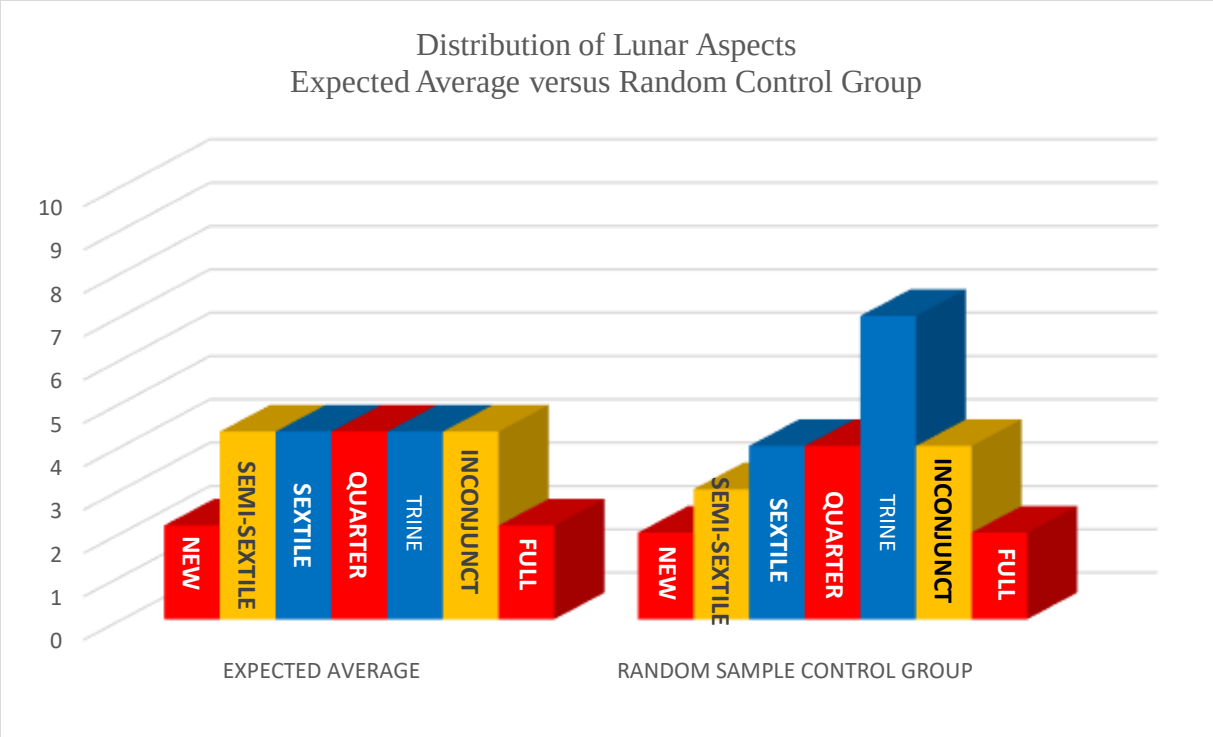


Chart Three graphically illustrates both a similarity and a difference between the Expected Average and the Control Group. The largest difference being the 7 Trines in the Control Group versus 4.33 Expected. How the two graphs are similar is in the general pyramid-like shape of each, giving the impression of 'a normal curve'.

However, even though that one difference sticks out like a 'sore thumb', the reality is that the Random Sample Control Group Distribution is well within the bounds of normal sample variation.

Here is the Chi-square Test of the Random Sample Control Group v. Expected Average:

RANDOM SAMPLE		CHI-SQUARE GOODNESS OF FIT			
	OBSERVED	EXPECTED	DIFFERENCE	DIFF²	DIFF² ÷ expected
NEW MOON	2	2.17	-0.17	0.029	0.013
SEMI-SEXTILE	3	4.33	-1.33	1.769	0.409
SEXTILE	4	4.33	-0.33	0.109	0.025
QUARTER	4	4.34	-0.34	0.116	0.027
TRINE	7	4.33	2.67	7.129	1.646
INCONJUNCT	4	4.33	-0.33	0.109	0.025
FULL MOON	2	2.17	-0.17	0.029	0.013
	26	26		CHI-SQR=	2.158
TOTALS			Degrees of Freedom =		6
			Chi-sq per Excel	(P) =	0.905

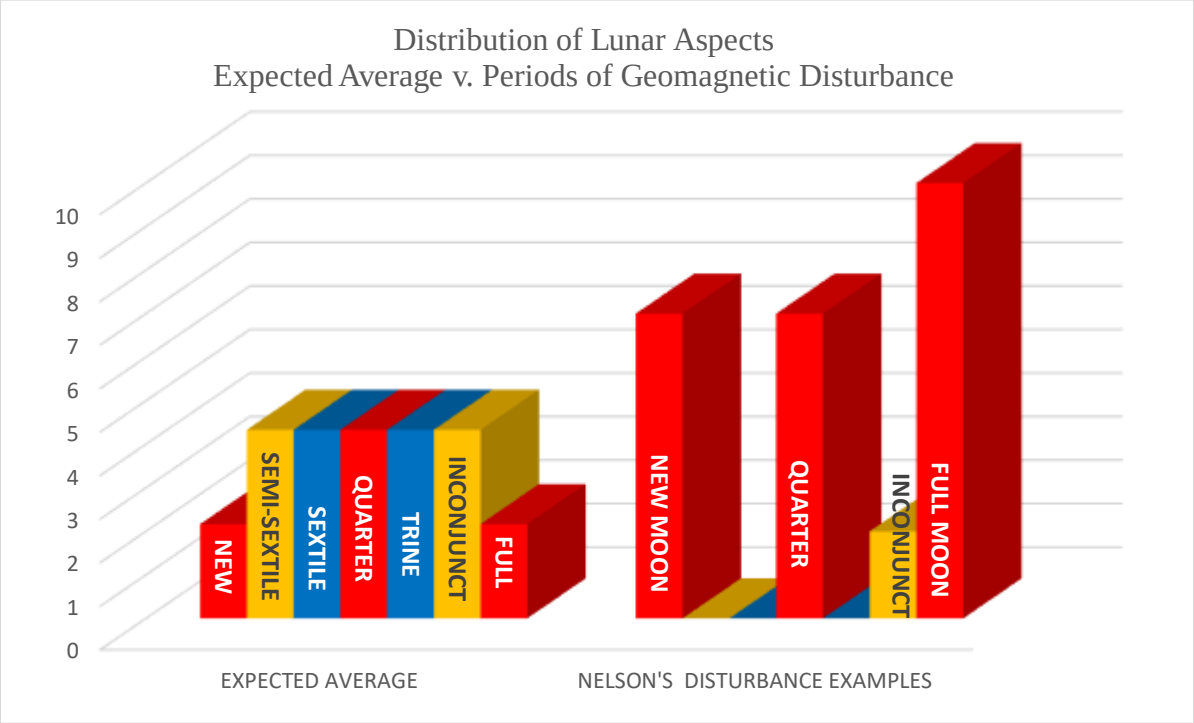
The result is that the likelihood of this distribution of Lunar Aspects in the Random Dates Control Group occurring by normal sample variation is 90.5%, or more than 9 chances out of 10.

Our conclusion must be that there is no significant difference between the Random Sample Control Group and the Expected Average. So, in this case of Control Group v. Expected, the 'null hypothesis' ***cannot*** be rejected.

On the other hand, we have this:

Chart Four compares the Expected Average to the periods of Geomagnetic Disturbances. Please recall that the original planetary 'hard angles' Nelson used to predict disturbances were 0, 90, 180, and 270 degrees, which is exactly what these Lunar Aspects are: New Moons, Quarter Moons, and Full Moons.

CHART FOUR



These differences are EXTREME. The fact is, Excel's Chi-square Test puts the probability of this sample occurring by random chance at an infinitesimally low of (p) = 0.0000000005. That's 1 chance in 50 Billion.

NELSON SAMPLE		**CHI-SQUARE GOODNESS OF FIT**			
	ACTUAL	EXPECTED	DIFFERENCE	DIFF²	DIFF² ÷ EXPECTED
NEW MOON	7	2.17	4.83	23.33	10.75
SEMI-SEXTILE	0	4.33	-4.33	18.75	4.33
SEXTILE	0	4.33	-4.33	18.75	4.33
QUARTER	7	4.34	2.66	7.08	1.63
TRINE	0	4.33	-4.33	18.75	4.33
INCONJUNCT	2	4.33	-2.33	5.43	1.25
FULL MOON	10	2.17	7.83	61.31	28.25
TOTALS	26	26		CHI-SQR =	54.88
			Degrees of Freedom =		6
			Chi² per Excel	(P) =	0.0000000005

Again, as is the case in the first two Experiments, this evidence is more than enough to REJECT the 'null hypotheses' of no difference and SUPPORTS the 'alternative hypothesis' that Nelson either picked these examples knowing of the Lunar associations, or Lunar activity is closely correlated with, and may actually ***cause***, Geomagnetic Disturbances on planet Earth.

Conclusion

Keeping in mind that the most commonly accepted Significance Level for a wide variety of statistical tests is (p) .05, or just 1 chance in 20, compare that to the results of our three experiments.

Probability of Nelson's Geomagnetic Disturbance Periods coinciding with:

- Month long Eclipse Cycles (p) 0.00003 (1 chance in 300,000)
- Solar and Lunar Eclipses (p) 0.0000000002 (1 in 20 Billion)
- New, Quarter and Full Moons (p) 0.0000000005 (1 in 50 Billion)

A simpler way of describing these results: There is a 99.999+ percent certainty that these results are not due to chance.

Even more succinct: ***It is certain these results are not due to chance.***

I think that it is a very curious fact to point out and remember that while ***no one ever refuted the accuracy of Nelson's forecasts***, beginning around 1946 through about 1970, for RCA (and for other organizations such NATO and NASA no less[x]), ***no one has ever been able to replicate his method either.***

How can that be?

For me, the answer is crystal clear. Nelson (and maybe RCA, too) was very aware of the influence of the Moon on the Geomagnetic Disturbances affecting short-wave radio signals, but rather than announce that to the world, he camouflaged his method in a haystack of thousands of heliocentric aspects. I think he (and RCA) chose to solve the physics and business problems of radio transmission without causing other sociological/religious problems. Think about it. We're talking 1940's, 50's and early 60's. Nelson was already experiencing heated criticisms from the astronomers. Can you imagine the outcry from the pulpits and universities if he was forecasting by the Moon? Heresy! Sorcerer! There would be cartoons lampooning Nelson in a pointed hat and wizards' robes prognosticating from atop the RCA building.

Still, Nelson's solution to a difficult problem and his resulting forecasting success generated a lot of curiosity and many invitations to speak. It's just my opinion, but I believe he had to explain in some way that wouldn't rock the boat but not be totally untruthful either.

The reason no one has repeated his success is that no one has ever considered the Moon as a factor. More than that, I suspect that Nelson was really using ***geocentric planetary positions*** (a.k.a. astrology) as well. In the 7,790 day Population Space we have examined, there are 12,239 heliocentric aspects to consider, an average of 1.57 a day. That's so many, something is bound to

coincide with a Geomagnetic Disturbance. In contrast, there are only 5,916 geocentric aspects in the same period of time, (0.76 a day) less than half, and my first glance at those data give me the impression that the geocentric aspects have a lot more directness and potency.

I believe that this information opens the door to a new line research. If Nelson's method could be replicated geocentrically and a forecasting service developed for today's short-wave ham radio enthusiasts, it would be the first scientific, repeatable, and practically applicable method to which classical astrology may be applied.

That's all I have for now. Thank you for your kind attention.

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[ii] (a) p.33, (c) p.2
[iii] (a) p.27
[iv] (c) p.3
[v] (c) p.4
[vi] (a) (b) (c)
[vii] (d) p.22
[viii] www.browserling.com/tools/random-date
[ix] Michelsen, The American Ephemeris for the 20th Century
[x] (c) p.61