The PATTERNS of GANN

By Granville Cooley

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PREFACE

Those of you who read my article in the "Gann and Elliott Wave Magazine" several years ago know that I do not claim to be a mathematician. My background is journalism. Like most of you I had some algebra and geometry in high school and some algebra in college. I went into journalism and the theorems and equations slipped from my mind.

Being reared in a Mom and Pop grocery store since I was 10, I was always pretty good with figures (I finished the bookkeeping course in high school three months before the rest of the class) but when I started studying Gann I realized how much I had forgotten.

One market writer did some interesting work on the markets, but the book was so full of algebra that it was hard to follow. A big trader, well known in the markets, said he too found the book hard to follow.

Magazine articles dealing with systems seem to be written only for advanced mathematicians or for computer programmers.

I will assume that most of you are like me. Some mathematical background, but not a great deal.

This series of books, "The PATTERNS of Gann," is dedicated to you.

When I started studying Gann several years ago it was with calculator in hand and I suggest that you do the same thing. Some believe Gann can be solved without looking at the numbers, but I'm sure that by this time you have learned differently.

The answer has to be in his numbers!

So, with calculator in hand for several years I ran thousands of numbers through it. Adding, subtracting, multiplying and dividing the Gann numbers.

As I did so, PATTERNS emerged.

PATTERNS!

They made no sense at first. I had no background for them.

During my reading of the Gann material I could see that his keys were based on math (specifically that of the ancient systems), astronomy, astrology, Masonic and Biblical material and related writings.

So, I started reading the ancient math, etc. As I did the PATTERNS began to come into focus.

That will be our watchword as you read this series of books. PATTERNS!

I will make reference many times to PATTERNS and you too will learn to recognize them and how to uncover more.

You will also see something else as the PATTERNS emerge. Even though Gann said he used algebra and geometry simple observational arithmetic can be used to solve most Gann problems. No algebra is needed!

This series of books, "The PATTERNS of Gann" were originally to be titled "Exploring the Numbers of Gann," but I thought a better title was "The PATTERNS of Gann" since the exploration of the numbers of Gann is really an exploration for PATTERNS.

Early on in the writing of this series of books I could see that I was really writing about PATTERNS.

After all, isn't that what market analysis, especially technical analysis is all about, a search for PATTERNS?

When Elliott looked at a chart of prices and saw the waves, he was looking for PATTERNS. Followers of Elliott today are still looking for those same PATTERNS.

When a fundamentalist looks at supply and demand figures he is looking for PATTERNS which make prices go up and down.

When financial astrologers look at planet configurations which caused price movement in the past they are looking for PATTERNS.

When market followers look at moving averages they are looking for PATTERNS.

When they look at divergences in the relative strength index or the stochastics they are looking for PATTERNS.

When volume followers look at volume or the rise and fall of the number of contracts outstanding they are looking for PATTERNS.

When the black box makers put together a series of highs, lows and closes, they are looking for PATTERNS.

When the fundamentalists study the various air currents for signs of drought they are looking for PATTERNS.

When the cyclists look at the cycles, whether they be astronomical or Fourier, they are looking for PATTERNS.

When the neuralogist (no not a nerve doctor but a person who studies computer neurals) seeks the right neurals they are looking for PATTERNS.

I don't know about the butcher or the baker, but when the candlestick makers study candlesticks they are looking for PATTERNS.

Again I say. The study of Gann must be a search for PATTERNS!

Introduction to the Series

I once heard someone say that they were looking for something with which to pull the trigger in the commodities market. I'm sure a lot of traders are looking for that something with which to pull the trigger.

But since over 90 per cent of the traders lose in the commodity markets, those who pull the trigger either shoot themselves in the foot or in the head. One is very painful and the other is very deadly.

This set of books in not about pulling the trigger. It is not a system on how to make a million dollars in the market in the morning. It is about certain mathematical and astronomical relationships between numbers and their possible application to the numbers of W. D. Gann.

I say possible because I do not claim to be a market guru.

I know there are those who want to study Gann without studying the numbers, but since the answers to the Gann approach must be in the numerical systems and since all markets are made up of advances and declines of numbers, I can't see how it is possible to study Gann without studying his numbers. For that matter, without studying numbers in general.

It is said of Gann that he was a Christian and a Mason and it is known of his use of astrology and geometry. It is believed that his number system came from those sources.

This series of books, "The PATTERNS of Gann," is an exploration of the above sources (plus a few others). We will see how they apply to the Gann material.

I'm not a mathematician. My field is journalism. So you will not find any x+y=z in this material. I'm sure that the average person will appreciate that approach as most persons are not mathematicians either.

BOOK I

The Cycle of Mars

Chapter 1- The Square of 144 Is Laid Out

Like many of you, when I came to that section in chapter 9 of Gann's commodity course that called for the laying out of the Square of 144 on the soybean chart of that 267-week period from Jan. 15, 1948 to March, 1953, I put the charts on the floor, got down on my hands and knees and checked the places where he said to put the "square."

Needless to say I spent many days and nights down on my hands and knees, at the end of which I said probably what you said. "So what."

I talked to a friend of mine who had started his Gann research months before I started and who had owned the material before turning it over to me to see what I could make of it.

His background was farming. Mine was newspaper work. He thought my curiosity as a newspaper man might lead me down some paths he had never gone.

I asked him if he had ever laid out the Square of 144 on this particular chart and what were his conclusions. He had laid it out. His conclusion was the same as mine. "So what?"

We decided to lay it out together and see if either one of us could discover something the other had missed. We put the square on this top and that top and this bottom and that bottom and put it on the "inner square." The results seemed the same. "So what."

I did notice one interesting number. "68"

It was arrived at by subtracting 144 from another number and then going up the page by 68. I knew that the low on futures had been 67 but there were two or three times in the late 1930's that the low had been at 68.

I also remembered that Gann had said in his discussion of the hexagon (page 113 in the "old" commodity course; section 10, The Hexagon Chart, page 5 in the "new") that we have "angles of 66 degrees, 67 degrees, 67 1/2 degrees and 68 degrees."
The 67 1/2 degree angle was easy enough to figure out since it was one of his divisions of the circle. But the other two were mysteries as far as I was concerned.

So I put up the chart for awhile. But after going through the "private papers" and seeing how Gann had marked the paths of Jupiter and Mars on his 1948 bean chart, I decided to mark all the planets on my chart to see if I could discover anything.

I did!

Chapter 2- The Lines Are Laid Out

About this time I happened to be flipping through a copy of an astrology magazine which showed the position of the planets and their relation to each other by a few lines drawn across a square, which represented that particular month, instead of on a circular zodiac.

(I'm not an astrologer and didn't know such a representation could be made. Since that day and a long time after I had laid out my own chart I found that others had done some similar work.

If I laid out the lines geocentric style (the planets as seen from the earth) the lines would have to dip down at times because of the retrograde action of the planets. Retrograde means that a particular planet seems to move backward in the degrees of the zodiac circle such as when the faster moving earth goes by a slower planet like Jupiter.

When the planet seems to move back its position becomes less in degrees in the circle, like moving from 225 degrees back to 2l9 degrees. If I was representing that movement on a piece of graph paper like Gann's and had the paper numbered from the bottom to the top, 0 to 360 degrees, then I would have to dip my line from 225 down to 2l9 to show the change.

So I decided to lay out the lines heliocentric style. The heliocentric position of a planet is its position that would be seen if you were standing where the sun stands. The planets would go in a circle around you and there would be no retrograde movement.

The lines that are drawn on the chart would be straight lines and would have no dips. The positions of the planets for any particular date can be found in a heliocentric ephemeris.

Using the same style chart paper used by Gann I let one-eighth of an inch equal one cent in price. I also let the one-eighth of an inch equal one degree in the zodiac. Or one degree equaled one cent. Going up the page I went from 0 degrees in Aires, marking each 30 degrees for each sign. Using two sheets of paper, since one was not big enough, I continued on up to the high on soybeans at that time, $4.36 per bushel.

In the zodiac that was 76 cents beyond 360 degrees or 76 cents in the second cycle of the zodiac or at l6 degrees in the sign of

Gemini.

Right under the price of $4.36 on Jan. 15, 1948 I placed a dot for the position of each of the outer planets on that date. Since this is a weekly chart the faster moving planets Mercury and Venus would show up pretty much as straight up and down lines and since my interest was mainly in the planet Mars, I didn't put in the faster moving planets.

Chapter 3-An Immediate Discovery

As stated in chapter 2, I had placed dots to represent the planets' positions on Jan. l5, l948. Instead of listing them in their signs I listed them at their absolute degree in the 360 degree circle:

Mercury--318
Venus--12
Earth--113
Mars--133
Jupiter--251
Saturn--138
Uranus--84
Neptune--191
Pluto--133

In his discussion of the Square of 144 chart Gann never mentioned the planets. In fact he never mentioned the planets in any of the work in the course although there are many hints at their use. It was in his "private papers" that evidence of his use of the planets was found.

However, his use of astrology was public information as far back as the 1920's as shown in his book, "The Tale of the Tape." But he never mentioned it in the course which is now available to the public.

When I extended the line of Mars out it connected with Jupiter at 276, which was also the price of soybeans at that time, $2.76 in the week of 11-26-1948, which shows on his famous "private paper" soybean chart. I extended the line further and found an immediate discovery that I probably would not have known if I had not put on the lines.

Mars crossed Jupiter again in this time period in the week of Feb. 6, 195l. This crossing at 344 degrees was also at the price of soybeans, $3.44, although the price came a short time later.

Chapter 4-Looking at the High

Although both of these crossings of Jupiter by Mars occurred at the exact price of beans, neither one of these crossings was at the real high of this time period. Remember we started this 267-week study as presented in Gann's discussion of the Square of 144 on Jan. 15, 1948 when the high was $4.36.

Did you look at the planetary positions on Jan. 15, 1948 that I listed in chapter 3 and find something interesting?

If you did not, try comparing the number of Mars with the other planets. Now what did you find? Correct. You found Mars and Pluto at conjunction (at the same degree) at:

133

That's an interesting number because of its relationship to a number in "The Tunnel Thru the Air," Gann's novel, and its relationship to the Great Cycle. But that's another work for another time and there is no need to go down that path now.

It is also interesting because of its position on the Square of Nine chart in relationship to a triangle of the Teleois and their relationship to a paragraph in Gann's planetary discussion of resistance lines on soybeans in his "private papers."

But that again is for another work and that path would take us down lots of roads with many forks and the work we have at hand is enough to fill this book.

Chapter 5-Subtracting 360 Degrees

Just like in a single digit numbering system (another path we will explore later) where "you cannot go beyond 9 without starting over" Gann noted that you cannot go more than 360 degrees in a circle without starting over.

(We will discover why later in our study of "Natural Squares.") He illustrates this in his discussion of the price and time chart of 0 to 360 degrees on page 153 of the course.

Actually the high on beans was $4.36 3/4, but Gann often rounded off numbers for convenience sake. So, subtracting 360 from 436 I got 76. As I said in the preface, I ran thousands of numbers through my calculator looking for PATTERNS. Here, I went one better than Gann. Instead of subtracting 360 from 436, I subtracted 76 from 436 and got 360 and kept subtracting 76 until I could not subtract any more in this manner:

436-76=360
360-76=284

284-76=208
208-76=l32
132-76=56

That 56 was very interesting. Why? From the top at 436 on Jan. l5, l948 to the low of 20l on Feb. 14, 1949 was:

56 weeks!

Gann never pointed out this time frame in his discussion of the Square of l44. I would not have known it if I had not laid out the chart. It was confirmed by my layout of the weeks on the 38 columns as suggested in chapter 7 of the course.

Both the numbers 56 and 76 as well as the number 133 are connected with the "Great Cycle." And since Gann seemed to give a clue when he said his 2x1 line coming down would cross at 303 (436-133) and the fact that his 267-weeks was just one more than 2x133, I concentrated a long time on 133.

As I noted earlier, it's position on the Square of Nine chart and its relation to the Teleois angle and for the reasons given above, it was difficult not to concentrate on it.

But that concentration, interesting as it was, led nowhere at that time so I rolled up the chart and it was untouched for several years.

Because of sickness in the family (I'm now the sole caregiver for two elderly parents), I had pretty much put aside my Gann studies for several years, only going through it occasionally.

One night in early 1989 I called my farmer friend and told him not to be long on beans. I had not seen a chart of beans for many years and the only thing I knew about current prices was picked up from the commodity news on TV.

They were somewhere in the middle $8 range. He asked me why he should not be long. I told him Mars and Jupiter would be in conjunction the next day. I told him he needed to buy some puts. Beans would probably be down the next six to eight weeks.
They never went up from that date. Five days later they dropped limit down and went on down 90 cents during the next six to eight weeks and started recovering.

I called my friend a few weeks later and asked him if he had bought the puts. He said no. He thought I was crazy. He had looked up the date in his ephemeris and the conjunction of Mars and Jupiter didn't come up until March. I told him he was looking in the wrong book. The date I had given him was the helio date and he had been looking in his geo book.

A short time later I was visiting a small commodity office where my friend and a few others were present. They were talking about what a good call I had made. One asked me to tell him when I had something

coming up. I called him that night and told him not to be long (the market on the charts looked strong at that point and he and the others at the commodity office thought the direction was up).

I told him the geo Mars and Jupiter conjunction was coming up the next day.

That call was off...by five days. The market moved up another five cents during those five days and then headed down. Not only did it go down for six or eight weeks like a I predicted for another 90 cents, but kept on going down from there for several months. I didn't know where it bottomed as I was still not looking at charts.

I do not relate this to brag about a couple of good calls, but to show that Gann's Mars and Jupiter conjunction still seems to depress the bean market. I checked this out on a weekly chart several years ago for a 10-year period and it was working then.

And it still seems to be working now.

It did not always catch the exact top but from the point where the conjunction was made the market moved down or sideways for at least six to eight weeks if not for longer.

As I told my friend, "you might not want to be short, but you'd better not be long." By the way, the man did not take my advise on the geo because, as I said earlier, the market on the charts looked strong and friendly. Needless to say, he lost. You can confirm those two calls by looking them up on your charts.

The recent (1991) conjunctions with the same results renewed my interest in the 267-week chart under question. And although we will return to the Mars-Jupiter conjunction later in this book, let's look again at the Mars-Pluto conjunction of January, 1948. With some tinkering and running numbers back and forth through the calculator I came up with a most interesting set of numbers.

Chapter 6-133 or 132?

The cycle of Mars is 687 days in its 360 degree circle around the sun. So it goes approximately .524 degrees a day. So two days before its conjunction with Pluto, Mars would be at 132 degrees. Since this is a weekly chart maybe the operative number is 132 and not 133. If so, it sets up a whole list of interesting number combinations.

Remember how we subtracted 76 from 436 several times and got 56 as the final answer? If we add 76 and 56 we get:

132

If we place the Square of 144 on 132 what do we get?

276 (132+144)

That's where Mars later crossed Jupiter (ala Gann) and was one of the highs on beans!

As noted earlier, during this 267-week period there were two crossings of Mars and Jupiter, one at 276 and one at 344. After passing Jupiter at 276 degrees Mars finished its 360 degree circle, then went on to catch the slower moving Jupiter, this time at 344 degrees.

When we subtract the conjunction of 276 from the conjunction of 344 what do we get?

68

So Mars has to go 68 degrees farther in its own orbit to catch Jupiter each time around. Is this the "angle of 68 degrees" Gann mentioned?

On page 152 of the course Gann mentions time being 68 weeks in the second square and in the paragraph below that he mentions the price of 300 being at 68 on the scale.

If we add 76 to 68. what do we get?

144!

If we subtract 56 from 144, what do we get?

88

And 88 is 2x44 which was the cash low on beans in 1932, as anyone who has read the course well knows. And for those who like the number 33, 132 is 4x33.

So, from Mars position at 132 and the number of degrees Mars goes to catch Jupiter after making its cycle, and the subtraction of 360 degrees from 436, and the subtraction of several 76's from the circle to get 56, we come up with a series of numbers which have a relationship to each other and to l44.

We can put down the numbers in this manner:

56, 68, 76, 88

The sum of the end numbers is 144 and the sum of the middle numbers is 144 and the midpoint for each set is 72. Is this what Gann meant when he talked about the "inner square?"

There is an interesting relationship between these numbers as far as squares are concerned and that probably should be left to a discussion on squares, but I will point it out in passing.

If we multiply 56 times 88 and add the square of half of the difference in the numbers we will get the square of the midpoint:

56x88=4928
Add 256 (square of half of 32, 16x16)
Total is 5184 or 72x72

I will let you do the other one to get the idea.

Chapter 7-Combinations of Numbers Compared to Prices

We have seen how subtracting a series of 76's from 436 ended up with 56. Now let's subtract a series of 56's from 436 in the same manner.

436-56=380
380-56=324
324-56=268
268-56=212
212-56=156
156-56=100
100-56=44, the cash low on beans!

(Did you think to count the number of 56's. Try it!)

Look at the course again. Gann says the week ending March 7, 195l (actually 1953) is 2l2 weeks from Feb. 14, l949. Since the time from January, 1948 to Feb. 14, 1949 (as was determined by the 38 columns in his chapter 7) was 56 weeks, then this section is 268 weeks long (212+56) and not 267. (I noted earlier the possibility of a 266-week section).

Note the figures above and we see that 436 minus 3x56 leaves 268 and 56 from 268 is 212. Since he put on the Square of 144 at this point we see that:

56+144+68=268
Also 144+68=212

In his discussion of the 15-day, 24-hour chart Gann notes that it is about 144 from 201 1/2 to 344, so he seems to do a little hedging here. If we make 201 1/2 into 200 we get other interesting combinations.

56+44=100
56+44+44=144
56+44+44+56=200
56+44+44+56+68=268
56+56=112
44+68=112
112+56+44=212
56+144+144=344
132+56+44=232, the low on Oct. l6, l950
144-56=88, one of the times periods Gann mentions in this

section and of course 2x44.
56+76+68=200
56+56+44+44+68=268

Also, 200+110 (a number mentioned several times in "The Tunnel Thru the Air" and also mentioned in the 15-degree, 24-hour chart) equals 3l0 the high on Dec. l5, 195l.

We have seen that 144 plus 68 is 212 or the time from the February, 1949 low to the end of the time period under question.

There is an interesting relationship among the number 212, the square of the range from 44 to 436, and the 2xl angle coming down from 436. Gann notes that this section is 267 weeks long and the 2xl angle (one-half of 267 or 133) makes the angle come out at 436 minus 133 or 303.

Subtracting 44 from 436 we find that the range is 392. By subtracting l80 from 392 we get 212.

Gann squared the range in a certain way and writers have zeroed in on that method. There is no need to explain that method here as most readers of Gann are familiar with it.

From his writings Gann seemed to suggest another way of squaring the range and I will use it here even though it is best left to a discussion on the squares. (Which will be done in a later book.)

If we square 392 in the usual way of squaring a number (and not that certain way mentioned above) we find that 392x392=153,664. We will then proceed to subtract circles of 360 degrees Gann-style. There are lots of short cuts for doing that and I have already done the work for you. By subtracting 426 circles of 360 degrees we end up with the number 304.

If we square 212 we get 212x212=44,944. Subtracting 124 circles of 360 we are left with 304 again. 304 is just one above Gann's number of 303.

Chapter 8-A Coincidence of Numbers

Is the fact that the numbers 56, 68, 76 and 88 seem to play an important part in the other numbers in this 267-week period under study just a coincidence?

A writer once looking over all the claims made by various investigators of the numbers in the Great Pyramid noted that numbers could be manipulated to prove the various theories of the origin of the Great Pyramid and its meaning.

He's probably right. But when so many numbers seem to go together in a PATTERN, is it coincidence? Was our starting point at 132 just a coincidence?

Let's look at Gann's last comment in discussing the weekly section under the Square of 144.

He says to place the calculator on 310 and the price line is on:

132!

Just for fun let's check the position of the planets in the helio circle for Dec. 28, 1932, the date of the 44 low on cash beans.

Mercury-l92
Venus-208
Earth-96
Jupiter-162
Saturn-306
Uranus-22
Neptune-158
Pluto-112

Oh, yes. Mars was at 12 degrees in the sign of Leo or at:

132!

Chapter 9-Mars and Jupiter

Since Gann seemed to zero in on the Mars and Jupiter conjunctions as evidenced in his 1948 chart of soybeans I will devote the rest of this discussion on the conjunctions of those two planets since the beginning of this century to see if we can come up with interesting or enlightening observations.

(I am sure by now that you are quite tired of me using the term "interesting" but I know of no other way of expressing the findings in the Gann material.)

To begin, I will list all the geocentric conjunctions since Jan. 1, 1900. After the date of each of the conjunctions I will list the numbers of years, months and days from one conjunction to the next. I will also list them in blocks of 10 conjunctions each for easier study.

x	Years	Months	Days
1. Dec. 17, 1901	x	x	x
2. Feb. 26, 1904	2	2	9
3. May 19, 1906	2	2	23
4. Aug. 15, 1908	2	2	26
5. Nov 5, 1910	2	2	20
6. Jan. 14, 1913	2	2	9
7. Mar.25, 1915	2	2	11
8. June 9, 1917	2	2	14

x	Years	Months	Days
9. Sept. 2, 1919	2	2	24
10. Nov.27,1921	2	2	25
11.Feb.13,1924	2	2	17
12.April 24,1926	2	2	11
13.July 4,1928	2	2	10
14.Sept.27,1930	2	2	23
15.June 5,1933	2	8	9
16.Aug.27,1935	2	2	22
17. Oc. 30, 1937	2	2	3
18. Jan. 6, 1940	2	2	7
19. April 4, 1942	2	2	28
20. July 4, 1944	2	3	0

x	Years	Months	Days
21.Sept.24,1946	2	2	20
22.Dec.1, 1948	2	2	8
23.Feb7,1951	2	2	6
24.April 26,1953	2	2	19
25.July24,1955	2	2	28
26.Oct.17,1957	2	2	23
27.Dec.29,1959	2	2	12
28.March7,1962	2	3	9
29.May20,1964	2	2	13
30.Aug.13, 1966	2	2	23

x	Years	Months	Days
31.Nov.7,1968	2	2	24
32.Jan.25,1971	2	2	18
33.April6, 1973	2	2	12
34.June17,1975	2	2	11
35.Sept.5,1977	2	2	18
36.Dec.12,1979	2	3	7
37.Feb.25,1980	0	2	13
38.May5,1980	0	2	11
39.Aug7,1982	2	3	2
40.Oct.14,1984	2	2	7

x	Years	Months	Days
41.Dec.19,1986	2	2	5
42.Mar.12,1989	2	2	20
43.June 15,1991	2	3	3
44.Sept.7, l993	2	2	22
45.Nov.17,1995	2	2	10
46.Jan.22,1998	2	7	5

Chapter 10-Gann's Cube

On page 112 of the "old" course (section 10, Master Charts, page 2, Square of Nine in the "new" course), Gann speaks of the 20-year cycle and a division by nine. He also speaks of the Cube of 9 which is 729 or the square of 27. Is it possible that Gann is speaking about the Mars-Jupiter cycle?

There are at least two other possibilities for the cube, one involving the moon and the other involving Venus. But since this is a discussion of Mars, let's follow that line and wait for another time to discuss the other two.

From the list of the conjunctions we can see that they are approximately 27 months apart. The square of the 27 months would be 729 months or the cube of 9x9x9. In years that's 60 years and nine months. That's approximately three cycles of the Jupiter-Saturn conjunctions.

Dividing those 729 months by 3 we get 243 months or as Gann says, three squares of nine (9x9x3). The 243 months divided by 9 is 27 months. But by dropping off three months and getting 240 or 20 years, Gann does a little gear shifting and divides this number by 9 and gets 26.666 degrees or months. He also calls it 40 degrees or one-ninth of a circle so his "circle" at this point must be 20 years.

This "20-year" cycle or Jupiter-Saturn cycle is claimed by some writers to be Gann's "master time factor." They could very well be right but I believe the jury is still out on that one and a discussion on that will be left for another time.

Getting back to our Mars-Jupiter cycles we can see by our list of conjunctions that none of them run to 27 months. They run two years, two months and a fraction of a month. Two years is 24 months. And when we add the other two months we get 26 months and then we are left with several days over.

Gann's division of the 20 years or 240 months by 9 is two years, two months and two-thirds of a month or 20 days.

I divided the conjunctions in blocks of 10 to show that this represents approximately 20 years. We can see from No.1, Dec. l7, 1901 to No. 10, Nov. 27, 1921 is just short of 20 years by 20 days. From No. 1 to No. 10 is 9 cycles.

This then would suggest that the 9 conjunctions of Mars and Jupiter are the "40-degree" periods of the 360-degree 20-year period.

It could be that the Jupiter-Saturn period of almost 20 years forms the major cycle and the Mars-Jupiter conjunctions form the divisions of that cycle.

You can check the cycles by picking a number such as 3 and going down to 12 to get the 9 cycles of approximately 20 years.

You will note that the cycle from No. 14 to No. 15 is rather long running over 32 months. I'm not an astronomer nor an astrologer but I would suspect that the reason was that both planets had retrograde and direct motions at almost the same time.

You will also note that there were conjunctions at No. 37 and No. 38 shortly after the conjunction at No. 36. The faster moving Mars went retrograde (appears to move backwards as seen from earth) after its conjunction on Dec. 12. 1979. In moving backwards it came back to the same degree as Jupiter on Feb. 25, 1980. It moved on back for awhile and then went direct and on May 5, 1980 it caught Jupiter again and moved on.

Chapter 11-Cycles of Other Years

By looking over the various dates and comparing them with similar dates, you can see that there are "close date" cycles other than the 20-year cycles.

I have taken the dates in order and compared them with dates down the list that were within 30 days either side of the date and noted the years. For example I can see that from Dec. 17, 1901 to Dec. 1, 1948 is 47 years. The time is 16 days short of 47 years. I have noted that in the table below with (-16). Where the date was more than an exact time period I noted it with a plus sign. For example from Dec. 17, 1901 to Dec. 29, 1959 is 58 years with 12 days beyond Dec. 17.

So, let's look over those dates and then we will have another comment from Gann and see if we can tie something together. (The numbers before each date correspond to the numbers of the list in Chapter 9).

Near Dates of Mars-Jupiter Conjunctions

1. Dec. 17, 1901-
22. Dec. 1, 1948 (-16 days) 47 years
27. Dec. 29, 1959 (+12) 58
36. Dec. 12, 1979 (-5) 78
41. Dec. 19, 1986 (+2) 85
2. Feb. 26, 1904-
11. Feb. 13, 1924 (-13) 20
23. Feb. 7, 1951 (-19) 47
28. March 7, 1962 (+10) 58
42. March 12, 1989 (+15) 85
3. May 19, 1906-
8. June 9, 1917 (+20) 11
12. April 24, 1926 (-25) 20
15. June 5, 1933 (+16) 27
29. May 20, 1964 (+1) 58
43. June 15, 1991 (+26) 85
4. Aug. 15, 1908-

16. Aug. 27, 1935 (+12) 27
25. July 24, 1955 (-22) 47
30. Aug. 13, 1966 (-2) 58
35. Sept. 5, 1977 (+20) 69
39. Aug. 7, 1982 (-8) 74
44. Sept. 7, 1993 (+22) 85
5. Nov. 5, 1910-
10. Nov. 27, 1921 (+22) 11
14. Sept. 27, 1930 (-38) 20?
17. Oct. 30, 1937 (+6) 27
22. Dec. 1, 1948 (+27) 38
26. Oct. 17, 1957 (-19) 47
31. Nov. 7, 1968 (+2) 58
40. Oct. 14, 1984 (-22) 74
45. Nov. 17, 1995 (+12) 85
6. Jan. 14, 1913-
11. Feb. 13, 1924 (+30) 11
18. Jan. 6, 1940 (-8) 27
23. Feb. 7, 1951 (+24) 38
27. Dec. 29, 1959 (-16) 47
32. Jan. 25, 1971 (+12) 58
46. Jan. 22, 1998 (+8) 85
7. March 25, 1915-
12. April 24, 1926 (+30) 11
19. April 4, 1942 (+10) 27
28. March 7, 1962 (-18) 47
33. April 6, 1973 (+12) 58
42. March 12, 1989 (-13) 74
8. June 9, 1917-
13. July 4, 1928 (+25) 11
15. June 5, 1933 (-4) 16
20. July 4, 1944 (+25) 27
29. May 20, 1964 (-20) 47
34. June 17, 1975 (+8) 58
43. June 15, 1991 (+6) 74
9. Sept. 2, 1919-
14. Sept. 27, 1930 (+25) 11
16. Aug. 27, 1935 (-6) 16
21. Sept. 24, 1946 (+22) 27
30. Aug. 13, 1966 (-20) 47
35. Sept. 5, l977 (+3) 58
39. Aug. 7, 1982 (-26) 63
44. Sept. 7, 1993 (+5) 74
10. Nov. 27, 192l-
14. Oct. 30, 1937 (-28) 16
22. Dec. 1, 1948 (+4) 27
31. Nov 7, 1968 (-20) 47
36. Dec. 12, 1979 (+15) 58
4l. Dec. 19, 1986 (+21) 65
45. Nov. 17, 1995 (-10) 74
11. Feb. 13, 1924-
23. Feb. 7, 1951 (-6) 27
28. March 7, 1962 (+22) 38
32. Jan. 25, 197l (-19) 47
42. March 12, 1989 (+27) 65

46. Jan. 22, 1998 (22) 74
12. April 24, 1926-
19. April 4, 1942 (-20) 16
24. April 26, 1953 (+2) 27
29. May 20, 1964 (+26) 38
33. April 6, 1973 (-18) 47
13. July 4, 1928-
15. June 5, 1933 (-29) 5
20. July 4, 1944 (+0) 16
25. July 24, 1955 (+20) 27
34. June 17, 1975 (-17) 47
43. June 15, 1991 (-17) 63
14. Sept. 27, 1930-
16. Aug. 27, 1935 (-31) 5?
21. Sept. 24, 1946 (-3) 16
26. Oct. 17, 1957 (+20) 27
35. Sept. 5, 1977 (-22) 47
40. Oct. 14, 1984 (+17) 54
44. Sept. 7, 1993 (-20) 63
15. June 5, 1933-
20. July 4, 1944 (+30) 11
29. May 20, 1964 (-16) 3l
34. June 17, 1975 (+12) 42
43. June 15, 199l (+10) 58
16. Aug. 27, 1935-
21. Sept. 24, 1946 (+28) 11
30. Aug. 13, 1966 (-12) 31
35. Sept. 5, 1977 (+9) 42
39. Aug. 7, 1982 (-20) 47
44. Sept. 7, 1993 (+11) 58
17. Oct. 30, 1937-
26. Oct. 17, 1957 (-13) 20
31. Nov. 7, 1968 (+8) 31
40. Oct. 14, 1984 (-16) 47
45. Nov. 17, 1995 (+18) 58
18. Jan. 6, 1940-
27. Dec. 29, 1959 (-8) 20
32. Jan. 25, 1971 (+19) 31
36. Dec. 12, 1979 (-25) 40
46. Jan. 22, 1998 (+14) 58
19. April 4, 1942-
24. April 26, 1953 (+22) 11
28. March 7, 1962 (-28) 20
33. April 6, 1973 (+2) 31
42. March 12, 1989 (-23) 47
20. July 4, 1944-
25. July 24, 1955 (+20) 11
34. June 17, 1975 (-17) 31
43. June 15, 1991 (-19) 47
21. Sept. 24, 1946-
26. Oct. 17, 1957 (+23) 11
35. Sept. 5, 1977 (-19) 31
40. Oct. 14, 1984 (+20) 38
44. Sept. 7, 1993 (-17) 47
22. Dec. 1, 1948-

27. Dec. 29, 1959 (+28) 11
31. Nov. 7, 1968 (-24) 20
36. Dec. 12, 1979 (+11) 31
41. Dec. 19, 1986 (+18) 38
23. Feb. 7, 1951-
28. March 7, 1962 (+28) 11
32. Jan. 25, 197l (-13) 20
46. Jan. 22, 1998 (-16) 47
24. April 26, 1953-
29. May 20, 1964 (+24) 11
33. April 6, 1973 (-20) 20
25. July 24, 1955-
30. Aug. 13, 1966 (+20) 11
39. Aug. 7, 1982 (+14) 27
26. Oct. 17, 1957-
31. Nov. 7, 1968 (+21) 11
40. Oct. 14, 1984 (-3) 27
45. Nov. 17, 1995 (-30) 38
27. Dec. 29, 1959-
32. Jan. 25, 1971 (+27) 11
36. Dec. 12, 1979 (-17) 20
41. Dec. 19, 1986 (-10) 27
28. March 7, 1962-
33. April 6, 1973 (+30) 11
42. March 12, 1989 (+5) 27

Chapter 12-Other Cycles

We can see from the preceding list that Mars-Jupiter form other yearly cycles in addition to the 20-year cycle. You will note that there are a number of 27 and 47-year cycles. Looking at No. 2, Feb. 26, 1904 we can see that going to No. 11 is 20 years and going to No. 23 is 47 years and then under No. 11 we can see that going to 23 is 27 years.

Subtracting No. 11 from No. 23 we can see that it takes 12 cycles to make 27 years. If it takes 12 cycles to make 27 years then each cycle must be 27 months. So we can say we have 27 cycles of 12 months or 12 cycles of 27 months.

Now let's look at page 112 of the "old" course again under the Square of Nine (Section 10, Master Charts, page 3, Square of 9 in the "new" course). Gann talks about the fourth square of 9 or 9x9x4 which is 324, the square of 18. He mentions that a change in cycles is indicated here. The number 324 is 4 times 81. It is also the square of 18 but if you keep figuring you will see that it is 12 times 27 or 324 months is 27 years.

It could be that the change in cycles here is going from a 27-year cycle to a 20-year cycle and, when added together, becomes the 47-year cycle.

The 325 that he mentions with the 45 degree angle crossing

involves two triangular numbers, the number 9 and the number 1. This will be discussed in another book in this series as a discussion here would take us far afield.
It should be noted that 324 is on the top line in the square of 12 as in Gann's 12x12 chart. It is at the end of the third row in the third square. The first square ends at 144, the second at 288 and 324 is 36 in the third square. Gann also notes that it is 36 less than 360.

Before we leave this I will comment on something that you will probably notice and wonder about. In the later years of the cycles of 27 years, there are more than 12 cycles in those 27 years. Subtract No. 26 from No. 40 and we can see that there are 14 cycles instead of 12 in that series. Here again this is probably caused by the retrograde and direct motions of the planets.
I will also note another thing. Other writers have made lots of comments about the 60-year cycle and I'm sure many expected the market to crash in l989 or 60 years from the l929 crash, but it came in l987 or 58 years after 1929.

I'm sure you have noticed there are many 58-year cycles in the list!

Chapter 13: Heliocentric Conjunctions of M-J

Since I laid out the Square of 144 heliocentric style and since Gann appeared to use both geo and helio, I will list the heliocentric dates:

1. Nov. 25, 1901
2. Feb. 4, 1904
3. April 29, 1906
4. Aug. 12, l908
5. Nov. l7, 1910
6. Feb. 3, 1913
7. April 13, 1915
8. June 29, 1917
9. Oct. 9, 1919
10. Jan 17, 1922

11. April 12, 1924
12. June 21, 1926
13. Sept. 3, 1928
14. Dec. 5, 1930
15. Mar. 19, 1933
16. June 19, 1935
17. Aug. 28, 1937
18. Nov. 8, 1939
19. Feb. 2, 1942
20. May 18, 1944

21. Aug. 23, 1946
22. Nov. 6, 1948

23. Jan. 16, 1951
24. April 6, 1953
25. July 16, 1955
26. Oct. 25, 1957
27. Jan. 15, 1960
28. March 26, 1962
29. June 8, 1964
30. Sept. 11, 1966

31. Dec. 26, 1968
32. March 25, 1971
33. June 4, 1973
34. Aug. 15, 1975
35. Nov. 11, 1977

36. Feb. 24, 1980
37. May 28, 1982
38. Aug. 12, 1984
39. Oct. 20, 1986
40. Jan. 10. 1989

41. April 24, 199l
42. Aug. 2, 1993
43. Oct. 2l, l995
44. Dec. 27, 1997

By studying the two listings we can see that at times the heliocentric comes a few months before the geocentric and at other times after the geocentric.

Looking at No. 1 in both listings we can see that the helio conjunction occurred on Nov. 25, 1901 and the geo on Dec. 17, 1901.

The helio occurs first at No. 2, 3 and 4. Then at No. 5 the geo occurs first at Nov. 5 followed by the helio on Nov. 17. Then the geo always comes first for about 23 years where the helio comes first at No. 15. Then at No. 25 and 26 you can see that they change again about 23 years later. (If there is a significance to the number 23 I have not found it yet, but I'll keep searching.)

When Gann marked the planets on his well known soybean chart the helio occurred on Nov. 6, 1948 and the geo on Dec. 1, 1948, a 25-day difference or the square of 5.

Did Gann favor one method over the other? That's difficult to say based on his writings known thus far.

Chapter 14-"Mars Alone" Method

There is at least one piece of evidence that Gann used a single planet method. In his "private papers" he applies helio Mars to cotton. You might have had the same difficulty I had recognizing this sheet. I went over it a number of times thinking it referred to

coffee as I had misread his handwriting.

It finally dawned on me that the first date, June 9, 1932, represented the low in cotton. It refers to cotton, not coffee!

On the sheet Gann notes that on June 9, 1932 Mars helio was at 1 degree in the sign of Taurus or 31 degrees from the zero point of Aries. Those checking this sheet should note that there are a few errors.

(Yes, Gann did make mistakes!)

He goes on to number the cycles when Mars returns to the same degree in Taurus. He might have been just doing some calculations in his head instead of checking a helio ephemeris.

When he notes that Mars returned to the same place in the cycle, he marks the month and year. But in checking the information I found that the months are not always right. At the fourth cycle even the year is wrong.

He calls it December, 1940.

To be exact, it was Dec. 18, 1939, not 1940, when Mars helio was at the first degree in Taurus.

After 10 cycles are made he notes that this is 10 times 360 degrees or 3600. On May 3, 1952 he gets exact again noting that Mars is at 11 degrees Scorpio or 22l degrees in absolute degrees.

This is 190 degrees from 1 degree Taurus or 31 degrees. So, on May 3, 1952 Mars is at 3790 as we add the 3600 degrees of the 10 cycles to its present position from 1 degree in Taurus.

Why he took this particular date to note that, I don't know. As a cotton price it would seem that he expected cotton to be at 37.90 cents per pound on that date.

On the same page he does a workout in the same manner from the low of Dec. 10, 1938. There are some minor errors here too, but the idea is the same. He also brings this workout up to May 3, 1952 which is 7 cycles of 360 degrees plus 40 degrees or 2560.

From June 9, 1932 he also brings the workout up to March 8, 1951 and to Nov. 9, 1951. Not knowing the prices from those dates I can't tell you if he was successful or not but it does show he used a single planet helio system.

Did he really have something here or was he just doodling? Only a close check of cotton prices at that time would provide us with an answer.

Chapter 15-Mars Left Out?

In his paper "Soy Beans, Price Resistance Levels" Gann says that the average of the planets, both heliocentric and geocentric should be used as they are powerful points for price and time resistance.

Also the average of the five major planets with Mars left out is of great importance and should be watched.

Why leaving out Mars is of great importance, he doesn't say but is a line of study that should be investigated.

Note: On another sheet he terms the "Mars Out" approach as the "Mean of 5."

Gann did apply the cycle of Mars to coffee (as I said earlier the one I thought was coffee turned out to be cotton).

In his paper of March 19, 1954 on coffee he talks about the geocentric cycles of Mars, noting that not only were the complete cycles important such as 9 and 12, but also half cycles such as 7 1/2 cycles.

Seven cycles of Mars heliocentric is approximately 13 years and is possibly where he gets his 13-year cycle. In one paper he combines the 13-year cycle with the number 44 and both 7 and 44 are pyramid numbers (we will look at that in another book.)

Chapter 16-Earth-Mars 47-Year Cycle

We have already noticed that there is a Mars-Jupiter cycle of 47 years, possibly a combination of the 20-year cycle and the 27-year cycle.

There is also an Earth-Mars heliocentric cycle or Sun-Mars geocentric cycle of 47 years. I know it might sound strange to call the Earth-Mars cycle heliocentric but it must be remembered that this is viewing Earth-Mars as if you stand where the sun stands. In the geocentric we are standing on the earth and viewing the Sun-Mars cycle.

I will list one 47-year heliocentric cycle and then we will have a look at it to see if we can discover anything else. I use heliocentric because it is a little easier to work with as there is no retrograde of planets under this system.

This time I will list the signs and the degrees in which the conjunctions are made to see if we can learn something there:

1. Feb. 23, 1901 3 Virgo
2. March 30, 1903 8 Libra
3. May 9, 1905 17 Scorpio

4. July 7, 1907 13 Capricorn
5. Sept. 25, 1909 1 Aires
6. Nov. 26, 1911 2 Gemini
7. Jan. 6, 1914 14 Cancer
8. Feb. 11, 1916 20 Leo
9. March 16,1918 24 Virgo
10. April 22, 1920 1 Scorpio

11. June 11, 1922 19 Sagitarius
12. Aug. 14, 1924 0 Pices
13. Nov. 5, 1926 11 Taurus
14. Dec. 22, 1928 29 Gemini
15. Jan. 28, 1931 7 Leo
16. March 2, 1933 10 Virgo
17. April 7, 1935 16 Libra
18. May 20, 1937 27 Scorpio
19. July 24, 1939 0 Aquarious
20. Oct. 11, 194l 17 Aires

21. Dec. 6, 1943 13 Gemini
22. Jan. 15, 1946 24 Cancer
23. Feb. 18, 1948 28 Leo

The first thing we can see about this series is that it takes 22 conjunctions to make up this 47-year cycle. Unlike the number 23 I do know a few things about the number 22.

It is the number of Robert Gordon's name when figured by a system of numerology. Gordon was the hero of Gann's book "The Tunnel Thru the Air." There are 22 letters in the Hebrew alphabet and there are 22 chapters in the book of "Revelations." It also took 22 years for the initiates of Ancient Egypt to go through the "mysteries" of that country. It is also a pyramid number.

It is one of the master numbers in numerology. It is a Teleois number and its triangle is a Teleois angle.

This is not the place for any further discussion of the number 22, even though Gann did mention its triangle. I just wanted to note it here as a point of interest.

By checking No. 1 and No. 8 we can see that there is a fairly close seven-year cycle. But by checking multiples of seven, going down to No. 15 and then to No. 22, the dates drift farther apart.

By checking No. 5, 12 and 19 though we can see another interesting point. The conjunctions are made 30 degrees apart, one sign earlier each time.

Since 47 years is 564 months, we can divide that by 22 cycles and see that the average length of each conjunction is 25.66 months. I say average because some conjunctions are longer than others.

By looking at the list again we can see that conjunctions are longer as they near Aires, the zero point in the zodiac and shorter

as they near Libra or the 180 degree point.

That's because the planets do not run in exact circles but in an elliptical path and the sun does not sit at the exact center of the paths. This makes the planets run closer to the sun at some points and farther away at others. As they get nearer the sun they run faster and when they get farther away they run slower.

As a result, like the Earth and Mars example, it takes the Earth longer to catch Mars at some points then it does at others.

We have looked at the cycle of Mars, both heliocentric and geocentric. I have shown you how some of the numbers of Mars compare to some of the numbers in the Gann material. I have shown how the heliocentric place of Mars was the same at some of the turning points in the soybean chart.

I also noted how the number 132 seemed to be an operative number. I also noted that the operative number might be 133 for other reasons. We will explore those reasons in an upcoming book. Even with this operative number, 133, the number 56 pops up again in a rather convincing form!

Book II

The Great Cycle

Chapter 1: Quick Review of Book I.

In Book I, "The Cycle of Mars," I noted how I had placed the Square of 144 on Gann's weekly bean chart of the late 1940's and early 1950's and told how I found nothing too interesting until I placed the lines of the planets, figured by the heliocentric method, on it.

We saw that when this chart begins on Jan. 15, 1948 Mars crossed Pluto at 133 degrees. I noted that the figure could be 132 since this is a weekly chart and Mars moves approximately 1 degree in two days.

I showed that by subtracting 360 degrees from the high of 436 in the manner of Gann we arrive at the number 76. I showed that if we start at 436 and keep subtracting 76 we arrive with a remainder of 56 and we made five subtractions.

The number five was important to Gann and its importance is also hinted at in astrological and Biblical material as well as in Masonry. We will look at that number in its appropriate place, but will not go far afield now.

We saw that 56 weeks was the time from the high in January, 1948 to the low in February, 1949. It was noted that 56 plus 76 equals 132. We also saw that if we start with 436 and start subtracting 56 until we subtract it seven times we end up with a remainder of 44.

The number 44 is not just the low on soybeans in 1932, but like the number five it pops up in other ways in the work of Gann, is a pyramid number, etc. I showed how 56, 44, 76 and another number, 68, combined to form other numbers in the chart in question.

Since I did that in Book I, I will not repeat it here.

Before I discovered the relationships of the numbers above I was intrigued by the fact that Mars crossed Pluto at 133. If the length of the chart is 266 weeks and not 267, then 133 forms the inner square of a square which is 266x266.

The number 266 catches our eye as we recognize it from Gann's book "The Tunnel Thru the Air." This number is mentioned on page 82 and he says it is the number of a pope. That I have never figured

out. That's about as elusive (and probably as misleading) as the "number of the beast" in the Book of Revelations.

There are some writers who think the number 266 is a reference to the Galactic Center which is 266 degrees in the zodiac. They could very well be right.

But I believe there is the possibility of another answer. One that deals not only with 266, but also 133 as they are both part and parcel of a "great cycle."

There are a number of "great cycles." On page 115 of the "old"commodity course (section 10, #2 M.C. in the "new "commodity course), Gann uses 90x90 and the square of the 360 degree circle. There is a glaring error here which will be discovered by anyone who carefully studies this section. As I noted earlier even Gann made mistakes. We will look at that error at a later date.

The square of 144x144 or the fourth power of the zodiac could be another great cycle. Take the total square in days and turn the days into years, months, etc.

Some writers believe that the Jupiter-Saturn conjunctions of nearly 20 years or multiples of them are great cycles or master time factors.

I have no quarrel with any of the above.

Chapter 2-An Ancient Book

But I found a "great cycle" in an ancient book and its application to the chart of beans of the late 1940's and early 1950's may not be conclusive, but I think you will agree with me that the findings are highly interesting. (There's that word again.)

One reason that the findings are highly interesting is the fact that Gann hints at this ancient book in "The Tunnel Thru the Air."

Let's look at a quote from that ancient book:

"And it goes through the western gates in the order and number of the eastern, and accomplishes the three hundred and sixty five and a quarter days of the solar year, while the lunar year has three hundred and fifty-four, and there are wanting to it twelve days of the solar circle, which are the lunar epacts of the whole year.

"(Thus, too, the great cycle contains five hundred and thirty-two years.)

"The quarter of a day is omitted for three years, the fourth fulfils it exactly.

"Therefore they are taken outside of heaven for three years and

are not added to the number of days, because they change the time of the years to two new months towards completion, to two others toward dimunition.

"And when the western gates are finished, it returns and goes to the eastern to the lights, and goes thus day and night about the heavenly circles, lower than all circles, swifter than the heavenly winds, and spirits and elements and angels flying; each angel has six wings.

"It has a sevenfold course in 19 years."

We can see that this ancient writer was talking about a "modern day" calendar. In ancient times the calendar had gotten out of kilter when they used 365 days in a year. When it was determined that the solar year was about 1/4 day longer they had to adjust it. This is his reference to taking the quarter day to heaven for three years and fulfilling it in the fourth year.

But what is this "great circle" of 532 years?

And what is this "sevenfold course in 19 years?

If we divide 532 by 19 years we get 28. I had read in this ancient book also about a 28-year sun cycle, but was not sure what it meant.

I mulled over this for quite awhile until it dawned on me to simply look up the word "calendar" in an encyclopedia. For those who do not want to look it up, I will explain it before we get back to the 267-week chart.

Chapter 3-The Cycle of the Sun

First, let's look at the cycle of the sun and why it is called a 28-year cycle.

It takes 28 years for the day of the week and the day of the month to repeat the same PATTERN. This can be seen if you look at a universal calendar, sometimes found in the middle of telephone books, or in your ephemeris.

The sun does not go 360 degrees in 360 days. The solar year of 360 degrees take approximately 365.2422, or as we say, 365 1/4 days. We use 365 days to represent a year and then throw in a day every four years to make up for the 1/4 day as the ancient writer suggested.

That extra day every four years keeps our birthdays from falling exactly on consecutive days each year.

Let's take a birthday and follow it through to see how long it takes to get it back to the same cycle of falling on certain days of

the week.

Let's take for our example the birthday of Robert Gordon, the hero of "The Tunnel Thru the Air." Robert Gordon was born on June 9, 1906, which was on a Saturday.

Since there are 52 weeks in a year and a week is a cycle of 7 days then the same day of the week will repeat at the end of 52x7 or 364 days. Then on the 365th day we will arrive a day following the original day.

So we check June 6, 1907 and find that it is on Sunday, or on a day following the original day. In June of 1908 we find that the 9th falls on Tuesday. Hey, wait a minute! The PATTERN is broken. And you know what I said about watching PATTERNS. First the birthday was on Saturday, then on Sunday and now on Tuesday. What happened to Monday?

Checking back we find that 1908 was a leap year and there was a Feb. 29th and this pushed the cycle of days ahead by one day. Let's go on. The birthday in 1909 was on Wednesday, in 1910 on Thursday, 19ll on Friday. In 1912, another leap year, it skipped Saturday and went to Sunday. Now that we have the idea lets do a workout of not only 28, but 56 years so that we can see how the cycle repeats.

All the dates below are for the birthday of June 9:

(LY) is Leap Year

(l)1906-Saturday -------------------------(29)1934-Saturday
(2)1907-Sunday---------------------------(30)1935-Sunday
(3)l908-Tuesday (LY)-------------------(31)1936-Tuesday (LY)
(4)1909-Wednesday---------------------(32)1937-Wednesday
(5)1910-Thursday------------------------(33)1938-Thursday
(6)1911-Friday----------------------------(34)1939-Friday
(7)1912-Sunday (LY)--------------------(35)1940-Sunday (LY)
(8)1913-Monday-------------------------(36)1941-Monday
(9)1914-Tuesday-------------------------(37)1942-Tuesday
(10)1915-Wednesday-------------------(38)1943-Wednesday
(11)1916-Friday (LY)-------------------(39)1944-Friday (LY)
(12)1917-Saturday----------------------(40)1945-Saturday
(13)1918-Sunday------------------------(41)1946-Sunday
(14)1919-Monday---------------------- (42)1947-Monday
(15)1920-Wednesday(LY)------------ (43)1948-Wednesday (LY)
(16)1921-Thursday--------------------- (44)1949-Thursday
(17)1922-Friday------------------------- (45)1950-Friday
(18)1923-Saturday---------------------- (46)1951-Saturday
(19)1924-Monday (LY)---------------- (47)1952-Monday (LY)
(20)1925-Tuesday---------------------- (48)1953-Tuesday
(21)1926-Wednesday------------------ (49)1954-Wednesday
(22)1927-Thursday--------------------- (50)1955-Thursday
(23)1928-Saturday (LY)--------------- (51)1956-Saturday (LY)
(24)1929-Sunday------------------------ (52)1957-Sunday
(25)1930-Monday----------------------- (53)1958-Monday
(26)1931-Tuesday---------------------- (54)1959-Tuesday
(27)1932-Thursday (LY)-------------- (55)1960-Thursday (LY)

(28)1933-Friday------------------------- (56)1961-Friday

In the preface to this series of books I stated that we must constantly look for PATTERNS. So let's look for the PATTERN here.

Robert Gordon was born on Saturday. His next birthday on a Saturday was in 19l7, 11 years later. The years 1907 and 1918, 11 years later, are both on Sunday. But 1908 and 1919 are not the same, so there is no 11-year PATTERN.

We can check out the other dates in the same manner. It is not until we reach a 28-year cycle that the days repeat the same PATTERN. Go across from any row in column one to the same row in column two, which is a difference of 28 years, and you will have the same day.

Like me, you might have wondered why it takes 28 years to make the cycle. Since there are seven days in a week, it would seem that it would only need 7 years.

The reason it takes 28 years is because of the "leap days." A day is added at Feb. 29 every four years. Since the "leap day" has to occupy each of the days of the week, it will take 4x7 or 28 years to complete the cycle.

There is an interesting observation to be made by checking the days of the week which are occupied or occur on Feb. 29.

Let's look at the first seven leap years listed above and see what day of the week Feb. 29 occupies:

(1) Feb. 29, 1908-Saturday
(2) Feb. 29, 1912-Thursday
(3) Feb. 29, 1916-Tuesday
(4) Feb. 29, 1920-Sunday
(5) Feb. 29, 1924-Friday
(6) Feb. 29, 1928-Wednesday
(7) Feb. 29, 1932-Monday

As we can see, each of the seven days are occupied, but not in order. And here is where we make our interesting observation. The days advance by five days.

From Saturday to Thursday is five days, from Thursday to Tuesday is five days, etc. Checking Robert Gordon's personal leap days we can see that they are Tuesday, Sunday, Friday, Wednesday, Monday, Saturday and Thursday, also advancing by five days each time.

Oh! There's that number five again. But this is not a discussion about five so let's move on.

Chapter 4-The Cycle of the Moon

We have learned what the ancient writer meant about the 28-year cycle of the sun, or the cycle of the days of the week and the day of

the month. Now let us look for the 19-year cycle of the moon.

Checking Robert Gordon's birthday of June 9, 1906, we see that the moon was in the 16th degree of Capricorn. Nineteen years later on June 9, 1925 the moon was in the 17th degree of Capricorn. Nineteen years after that on June 9, 1944, the moon was in the 16th degree of Capricorn.

So in 19 years on the same day of the month, the moon returns to its same place in the zodiac. (Figured from the same hour. In this case from the midnight ephemeris. Have to figure from the same hour as the moon moves approximately 13 degrees a day.)

This works for any day. Your birthday, mine, an anniversary of an event. It works for any degree the moon is in or full moons, new moons, etc.

For instance, let's check a full moon. Three days before Robert Gordon's birthday on June 6, 1906 there was a full moon in the 15th degree of Sagittarius. On June 6, 1925 there was a full moon in the 15th degree of Sagittarius. On June 6, 1944 there was a full moon in the 15th degree of Sagittarius.

So we have found that the 19-year cycle of the moon brings it back to the same degree in the zodiac on the same day of a particular month 19 years later.

Notice I said same day of the month not the same day of the week.

Chapter 5-The 532-Year Cycle

What then is the 532-year cycle?

It is the cycle that brings the moon not only back to the same day of the month but also to the same day of the week.

How does it do that?

The 532-year cycle is both 19 cycles of 28 years and 28 cycles of 19 years. (Cycle of cycles will be explained in more detail in an upcoming book.)

Checking our full moon example we see that June 6, 1906 was on Wednesday. June 6, l925 was on Saturday. June 6, 1944 was on Tuesday. If we figure 532 years from any of those dates, the day of the week, the day of the month and the moon's position will be the same.

Those familiar with World War II will recognize that June 6, 1944 was VE Day, the invasion of Normandy. If that event was recreated 532 years from that date or June 6, 2476 it would be on Tuesday and there would be a full moon in the 15th degree of Sagittarius.

I must add that astronomers will tell you that that figure will be slightly off base. Because of certain astronomical phenomenon, which does not need to the explained here, the moons position could be just a little off, but the idea is right.

Chapter 6: Back to the Bean Chart

All very interesting, you say, but what does this have to do with the soybean chart of the late 1940's and early 1950's. Remember that I said that the number 266 and 133 were part and parcel of a great cycle.

When we divide 532 by 2 we get 266 and when we divide by 4 we get 133!

"Whoa," you say. "This is a 532-year cycle and Gann's chart was weeks."

But we must remember that when Gann referred to his charts, he said they were in days, weeks, months, degrees, prices, difference in prices, etc. To which I might add minutes, hours, years, etc.

With a little figuring we can see that 532 years is also 365.2422 cycles of 532 days and 266 weeks is 3.5 cycles of 532 days.

Since I am now dealing with the number 133 and not 132 and since 132 was the total of 56 and 76 does that negate everything I said about those two numbers in Book I?

No, it doesn't!

We saw that the 532-year cycle is made by multiplying 19 times 28. The number 56 is 2x28. And the number 76 is 4x19.

Try this. Divide 532 by the "sacred" number 7 and see what you get.

Yes, it's 76. Is it merely coincidence that Halley's comet returns every 76 years or at the end of four moon cycles?

The time from the January, 1948 high to the May low was 38 weeks which is one-half of 76 or 2x19. I will not go through all the other relationships between 56 and 76 in the chart as that was covered thoroughly in Book I, "The Cycle of Mars."

Earlier I noted that 436 minus 7x56 is 44. From Gann's 15-hour, 24-day chart we know that the square of 24 is 576 or 4 times 144. When we subtract the "great cycle" of the sun and moon, 532, from the square of 24 or 4 times 144, what do we get?

576-532=44!

Another coincidence? Again, I must note that the number 44 is

more than just the low on cash soybeans in 1932.

If you are still not convinced that the numbers 19 and 28 are important and that their occurrence is more than coincidence, look over Gann's list of the 38 columns in chapter seven of the commodity course.

You should lay out the columns as listed, but until you do, here are a few excerpts, listed according to weeks.

2-15-1920 to 12-28-1932---672 weeks or 24x28 or 12x56
2-15-1920 to 12-20-1939---1036 weeks or 37x28
2-15-1920 to 4-21-1952----1680 weeks or 60x28
12-28-1932 to 4-21-1952---1008 weeks or 36x28 or 7x144
11-26-1948 to 5-8-1950----76 weeks or 4x19
8-24-1949 to 12-28-1949---19 weeks
8-24-1949 to 5-8-1950-----38 weeks or 2x19

I have not done a complete workout on all 703 numbers (the triangle of 37) in these 38 columns, but I'm sure there would be a number of other examples of the multiples of 19 and 28.

Both numbers are Teleois and one is triangular. These topics will be dealt with in an upcoming book.

I have not made mention in either Book I or Book II of the "golden mean" or the Fibonacci numbers, but I will leave you with this one last coincidence.

Let's square 56. 56x56=3136

Let's square 44. 44x44=1936

Now let's divide 3136 by 1936

3136/1936=1.6198347

Do I really have to comment?

Book III

The Book With No Name

Like the song with the line "the horse with no name," I have chosen to call this little book "The Book With No Name."

The reason being that the idea presented here does not fall into any easy category.

Although it might have been presented along with a general discussion of the Square of Nine chart, the Teleois or the triangular numbers, it seems to fit best here following the information presented in Book I-"The Cycle of Mars" and Book II-"The Great Cycle."

In Book I, I showed how I placed the Square of 144 on the weekly chart of soybeans from the late 1940's and early 1950's and did not learn much of anything until I placed the heliocentric positions of the planets on the chart.

I noted in Book I that when soybeans reached their high of 436 in January, 1948, the planet Mars was crossing Pluto. The crossing during that week could have been at either 133 or 132 degrees. In Book I, I explained some of the possible number combinations if the crossing was at 132 and in Book II, regarding the "Great Cycle," I noted other combinations if the crossing was at 133.

In addition to the "Great Cycle" there is another reason why I thought the crossing was more likely at 133.

In Book I, I made the following statement, presented here in parentheses.

(Did you look at the planetary positions on Jan 15, l948 and find something interesting? If you did not, try comparing the number of Mars with the other planets. Now what did you find? Correct. You found Mars and Pluto at conjunction at 133.

(That's an interesting number because of its relationship to a number in "The Tunnel Thru the Air," Gann's novel, and to the "Great Cycle." But that's another work for another time and there is no need to go down that path now.

(It is also interesting because of its position on the Square of Nine chart in relationship to the triangle of the Teleois and their relationship to a paragraph in Gann's discussion of planetary resistance lines on soybeans in his "private papers." In the "new" course see Section 8, Soy Beans, Price Resistance Levels)

It should be noted that I have already discussed the number 133

and its relationship to the "Great Cycle" in Book II of this series, "The PATTERNS of Gann."

It is that last paragraph quoted above that I will deal with now.

First, we must read that paragraph in Gann's discussion of planetary resistance lines on soybeans in his "private papers." In fact you should read the paragraph several times before proceeding with this book to see if you detect a

PATTERN

or a "lack" of one. I had read that paragraph many times before I learned to look for PATTERNS. And if I had not learned to look for them, the paragraph would have had no significance.

So here is your chance to put to work your search for

PATTERN

The paragraph in question is located at the bottom of page one and continues to the top of page two.

Did you read it? Several times? Notice anything unusual? If not give it a good try before moving on.

Got it now?

In this paragraph he is subtracting parts of the circle from the high on soybeans, 436 3/4. All the parts he subtracts are natural numbers (a number without a fraction or decimal) except for one, 236 1/4.

It was this number which caught my eye.

Why did it catch my eye? Why should it have caught yours?

Remember in the introduction to this series and in many other places in this work I said we would be watching for

PATTERN

This number stood out because it was "outside" the PATTERN. It was the only number in the group not a natural number!

It is also the number that Gann subtracts from 436 3/4 and gets the low on soybeans 56 weeks later.

Let's write that number down and put it aside for awhile:

236 1/4 or 236.25

Now look at page 115 of the "old" commodity course (Section 10 #2 M.C. of the "new" course) and read the paragraph on

the divisions of the circle.

Although there are times when Gann divides the circle into smaller parts, here he ends with the division by 64 which give 5.625 or 5 5/8. So let's write that number down with the other number.

236.25, 5.625

Let's also put down our planetary position which was 133.

236.25, 5.625, 133

Now this is the part which intrigued me. The time from the high of 436 to the low was 56 weeks. This can also be read as 13 months. The triangle of 13 is 13x7 or 91.

Check the positions of 133 and 91 on the Square of Nine chart. They are next to each other on the same angle. I will now put down the four numbers discussed above and see if you can make a PATTERN.
236.25, 5.625, 133, 91

Give up? Subtract 91 from 133 and try again.

133-91=42. Now do you have it?

If you said subtracting 91 from 133 gives 42 and 42 times 5.625 equals:

236.25

you are correct!

A coincidence?

Maybe. You have noticed that I made much of the number 56 in Book I and Book II. That was the number of weeks from the high in 1948 to the low in 1949.

If we divide the triangle of 56 by the number of months in a year or the signs in the zodiac we arrive back at

133!

our planetary crossing!

Another coincidence? Again, maybe. But the coincidences noted in Books I, II and III are certainly piling up.

Book IV

On The Square

Chapter 1-How Do You Make a Square?

"Do you know how to make squares?"

This is a question I put to a friend recently, a man who had been studying Gann much longer than I had.

He thought for a few seconds and replied, "No, I don't guess I really do."

I had expected what he would say. My friend is no dummy. His answer showed no lack of intelligence. If you don't know the answer, that does not show a lack of yours. I would have said the same thing a few years ago.

Ask 100 persons in downtown New York and you would probably get the same results. Ask doctors, lawyers, Indian chiefs. You might get a couple of right answers from mathematicians. And again you might not.

Someone might get down on the sidewalk with a piece of chalk and draw a box. You would say to them, "That's a nice picture of a square, but how do you make squares? More specifically, how do you make the "natural squares" in order?

And here we will have to pause to answer a question before we go on. We are going to have to answer the question, "What is a natural square?" before we go on to make them.

When Gann used the term "natural square" I had an inclination to ask out loud, "What is an unnatural square? A square is a square. What is natural or unnatural about it?" I would ask it in the same way that when someone starts talking about a "right angle" I want to ask them about a left angle or a wrong angle.

The answer came when I went through a book on modern math. The "natural numbers" or as some other books put it, the "counting numbers" are simply the series 1, 2, 3, 4, etc. These are numbers that back in my school days the teacher probably called "whole numbers." That is, numbers without fractions or decimals. But in present day modern math terms the name "whole numbers" is applied to the same series with the exception that the series contains the zero and is made thus: 0, 1, 2, 3, 4, etc. More about the number 1 and 0 in the Gann material, but for now we will stick to the "natural numbers."

Since 1, 2, 3, 4, 5, etc. are the "natural numbers" then the "natural squares" are the squares made from these natural numbers. One could build a swimming pool 67.5 by 67.5 feet and have a square swimming pool, but it would not be a swimming pool made of natural squares since the natural numbers do not have fractional numbers. The swimming pool could be 67 by 67 or 68 by 68 or any other non-fractional number and be a natural square.

Although we may be tempted to use the term "whole number" to differentiate from the fractional numbers, remember that we found that the whole number series contains the zero and in Gann's work there is no 0 times 0 as can be seen from his Square of Nine and Square of Four charts. We will find out why later on.

So now we have learned what a natural number is and what a natural square is. (By "we" I mean me and all the non-mathematicians in the crowd.)

Let's go back to our original question: "How do you make the natural squares in order numerically? I am adding that new word "numerically" to let you know we are not drawing squares, we are dealing with them only as numbers.

Well, you might say, we could make them simply by multiplying the natural numbers by themselves (find the second power) in order.

Yes, we could do that and we would have:

1x1 is 1
2x2 is 4
3x3 is 9, etc.

And we would certainly have a PATTERN.

I talked about PATTERNS in the preface and in the other books in this series, but let's pause again for another word about PATTERN.

The PATTERN we seek is one that when established it will be easy to supply the next step in the PATTERN.

For example, if I listed the numbers 100, 99-1/2, 99, 98-1/2, etc. and asked you to supply the next step you probably would say 98.

That's because you noticed that there is a PATTERN that starts with 100 and counts backwards in increments of one-half.

If I gave the series of 1x2, 2x3, 3x4 and asked you for the next step you would say 4x5 because you saw a PATTERN with each natural number multiplying the next in order. (We will learn the meaning of this particular PATTERN in this book and how it stands on the Square of Nine chart.)

Looking back at the multiplication of the natural numbers by themselves to make squares we can see that the next step would be 4x4, 5x5, etc. because we saw the PATTERN.

So we can make the natural squares by multiplication of the natural numbers by themselves in order and have a recognizable PATTERN.

But it does not answer a point made by Gann!

In his discussion of the natural squares, he mentions the "gain of two." Actually he says "this produces a variable in time and price of 2." See page 154 of the commodity course. (For those of you who have newer copies of the course look under "Master Price and Time Chart, Squares 1 to 33 Inclusive, Price and Time 1 to 1089, first paragraph.)

What is this "variable of two" concerning the squares? In all of my books I intend to name chapter and verse when I deal with the numbers of Gann. This is one of those times. Writers who talk about the Gann material in a general way are not being honest with their readers, especially if they are asking for some big money for that general information.
Looking at our multiplication table of the squares we cannot see this "variable of two."

The "variable of two" remained a mystery to me for a long time, as maybe it has for you. Was it possibly a gain of two around the corners of the squares on the Square of Nine chart? I decided to make the squares myself from scratch to see if I could discover something. The following is my workout. It provides "one" of the constructions of the Square of Nine chart.

Chapter 2-Building the Squares

My first step was to take one square and place it in the middle as Gann had done and draw in its two diagonals.

To build the odd squares along the diagonal which would include the 1 and the other odd squares, 9, 25, etc. and go from top right to bottom left would require that the second number be to the immediate left of the first. The two diagonals would be extended and their four points would be 90 degrees apart. So far, so good. Just like Gann. Look at your Square of Nine chart and follow along.

Since the 1 is on the bottom left diagonal (the 315 degree line or angle) it will take us two units to get to the next diagonal or the 45 degree line. (Some might associate the 1 with what is called the March line on the chart, but I believe the 315 angles is correct and will be dealt with later on in this material.)

Instead of numbering in order as the chart is numbered, I numbered the units between the lines so I numbered 2 and 3 as 1, 2. It took two more units to go from that 45 degree diagonal to the next diagonal (135 degree line) so I numbered them 1, 2. To the next diagonal I numbered 1, 2 and back to the original diagonal I

numbered 1, 2.

From the original diagonal (315 degrees) it now took four units to get to the next diagonal (45 degree line) and four to the next (135 degree line) and four to the next (225 degree line) and four back to the starting point again (315 degree line). I numbered these 1 to 4 respectively. On the Square of Nine chart this would end up at 25.

Then it took six units to get to the 45 degree line, 6 to the next diagonal, six to the next and six back to the original line, ending at 49.

A PATTERN emerged. Every odd square built around the square of 1 was four times the even numbers in order. Beginning with 1 we added four 2's to end at 9, then we added four 4's to end at 25 and then we added four 6's to end at 49.

Could this be the "variable of two" or the "gain of two" that Gann mentioned, the gain between the even numbers, 2, 4, 6, 8, 10, etc. which were used to build each side of the squares as they moved outward from the center?

Interesting. But one nagging problem remained.

The Number 1!

There was a PATTERN of each side gaining two. But the 1 itself broke the PATTERN. It was only 1 unit between the angles and going from 1 unit to 2 units was a gain of only one unit.

I was not as PATTERN-minded then as I am now so regardless of that little nagging problem I believed I was on the right track.

I reread the section on the squares many times. I couldn't fit my thinking to what Gann was saying.

He spoke of the even number squares being on a 45 degree line.

Some writers believe he was referring to the 45 degree line which contains the numbers 5, 17, etc. or that line known as the 135 degree line. (I went along with that for quite sometime since that seemed the only explanation, but have since learned how dead wrong that was!)

Putting the idea aside I let it rest for a long time. And then I found the answer.

In the john!

On the floor!

Chapter 3-A Lesson From the John Floor!

The overall title of this set of books is "The PATTERNS of Gann." It's original title was "Exploring the Numbers of Gann" since I take you down paths of places I have already explored and show you what I have found.

But when one leads another on an exploring trip that does not mean that the one following can't look off to the right and to the left and see something for himself.

So here I am going to leave you for awhile and let you do some exploring for yourself.

So while I'm resting you take off down a path and come to a place where a man is building a house. What strikes your eye is a pile of square tiles in the yard. You ask him what he is doing and he says he is going to tile the floor of his new john.

He tells you he is going to take into the house only as many tiles as needed each time to complete a square.

"Great," you think to yourself. "Now I can see how squares are made."

"Can I watch?" you ask and he says sure he wouldn't mind the company.

So he picks up one square and you follow him into the new john where he places it on the floor and labels it 1 and under the bottom, 1x1 as shown below:

1

1x1

He goes outside for more tiles, brings them in and places the first above the 1, labels it 2, puts the next to the right of the 2 and labels it 3 and puts the next under the 3 and labels it 4. And under 4 he writes 2x2 as shown below:

2	3
1	4

2x2

He goes outside again for more tiles. He places one above the 2 and labels it 5 and one above the 3 and labels it 6 and one to the right of 6 and labels it 7 and under the 7 he places one and labels it 8 and under the 8 he places another and numbers it 9 and under the 9 he notes that this is 3x3 as shown below:

5	6	7
2	3	8
1	4	9

3x3

He gets more tiles. He places one above the 5 and labels it 10, the next ll, the next 12 and the next 13 and then under l3, he places three tiles and numbers them 14, 15 and 16 and notes under this that this is 4x4 as shown below:

10	11	12	13
5	6	7	14
2	3	8	15
1	4	9	16

4x4

Then he goes outside and gets another group of tiles. He places one above the 10 and labels this 17 and places more across numbering them 18, 19, 20 and 21. Under 21 he places the rest and numbers them down the column 22, 23, 24, and 25 and notes this is 5x5 as shown below:

17	18	19	20	21
10	11	12	13	22
5	6	7	14	23
2	3	8	15	24
1	4	9	16	25

5x5

He repeats this process several times, always placing the first tile at the top left of the preceding square, placing the rest to the right until he has an open column to go all the way to the bottom and numbers them in the same manner as before and marking the size of the square as shown:

26	27	28	29	30	31
17	18	19	20	21	32
10	11	12	13	22	33
5	6	7	14	23	34
2	3	8	15	24	35
1	4	9	16	25	36

6x6

Again:

37	38	39	40	41	42	43
26	27	28	29	30	31	44
17	18	19	20	21	32	45
10	11	12	13	22	33	46
5	6	7	14	23	34	47
2	3	8	15	24	35	48
1	4	9	16	25	36	49

7x7

Again:

50	51	52	53	54	55	56	57
37	38	39	40	41	42	43	58
26	27	28	29	30	31	44	59
17	18	19	20	21	32	45	60
10	11	12	13	22	33	46	61
5	6	7	14	23	34	47	62
2	3	8	15	24	35	48	63
1	4	9	16	25	36	49	64

8x8

Again:

65	66	67	68	69	70	71	72	73
50	51	52	53	54	55	56	57	74
37	38	39	40	41	42	43	58	75
26	27	28	29	30	31	44	59	76
17	18	19	20	21	32	45	60	77
10	11	12	13	22	33	46	61	78
5	6	7	14	23	34	47	62	79
2	3	8	15	24	35	48	63	80
1	4	9	16	25	36	49	64	81

9x9

You cast your eye along the bottom row and see the figures

1, 4, 9, 16, 25, 36, 49, 64, and 81.

You think you see a PATTERN emerging.

Can I renumber all of those tiles?" you ask.

"Sure, I don't care," he says.

So you number the first square he put down as 1:

1

1x1

Then you number the next group:

1	2
1	3

2x2

And the next:

1	2	3
1	2	4
1	3	5

3x3

And the next:

1	2	3	4
1	2	3	5
1	2	4	6
1	3	5	7

4x4

And the next:

1	2	3	4	5
1	2	3	4	6
1	2	3	5	7
1	2	4	6	8
1	3	5	7	9

5x5

Now you look at the numbers along the bottom, which replaced the original numbers, 1, 3, 5, 7, 9, etc.

"Now I know!" you exclaim. "I really didn't notice how many tiles the man brought in each time to build the squares even though he said he was going to bring in just enough to build each square. Now I can see he brought in 1, then 3, then 5, then 7, etc."

And now you know how to make squares!

TO MAKE THE NATURAL SQUARES IN ORDER YOU SIMPLY ADD THE NATURAL "ODD" NUMBERS IN ORDER!

Gann's "variable of two!" Each time we add an odd number we are adding two more than the last time.

1 is 1x1, the square of one. 1 plus 3 is 4, or 2x2. 4 plus 5 is 9 or 3x3. 9 plus 7 is 16, the square of 4, etc.

Watching all that square laying has you pretty tired out so you go out and use the man's hammock for a couple of hours. But while you are half-way snoozing you are running some ideas in your mind.

Waking up, you see the gentleman huffing and puffing as he carries a rather large armload of tiles and heads for the john.

You ask how many tiles he is carrying. He says 65 tiles. You

say, "Bet I can tell you what square you will be completing when you place those with the others."

"That's a pretty good trick if you can do it," he says.

"You are making the square of 33 or 33x33 (l089)," you reply.

"That's exactly right," he says. (He has a pretty big john.) "How did you do that?"

What did you tell him? You ran those figures through your mind while you were half asleep, but it was easy. What ever amount is being used will match the term in the following manner. The "term" is the number with the period, the square we are making. The amount added to complete the square is next to it.

1. 1
2. 3
3. 5
4. 7
5. 9
6. 11
7. 13
8. 15
9. 17
10. 19
11. 21
12. 23
13. 25
14. 27
15. 29
16. 31
17. 33
18. 35
19. 37
20. 39
21. 41
22. 43
23. 45
24. 47
25. 49
26. 51
27. 53
28. 55
29. 57
30. 59
31. 61
32. 63
33. 65

Select any term and look at the number across from it. Suppose we look at term 9 and then across to 17. This means that if we add all the odd numbers from 1 through l7, we will make the square of 9 or 9x9=81.

"That's fine," you say, "but how do I keep all that in my head? What if the man had been carrying 1,000,00l squares?

Look for a PATTERN or the makings of a PATTERN. Look at each term carefully and at the odd number opposite. Yes, you would have known the answer if the man had been carrying 1,000,001 squares!

Let's pick out a couple of terms at random with their odd numbers opposite.

13. 25 and 25. 49

Got it now? What if I add "1" to each of the odd numbers so that they are 26 and 50. Is that better?

We can see now that 13 is half of 26 and 25 is half of 50.

So how did you know that the man was completing the square of 33 when he was carrying 65 tiles?

You simply added 1 to 65 and got 66 and divided by 2 to make 33 and if you add all the odd numbers from 1 through 65 you will find that they add to 1089 and when you take the square root of that you will have 33!

Try that method with some of the terms listed earlier. Simply add 1 to the odd number opposite and divide by two.

Oh, yes. If the man had been carrying 1,000,001 tiles (and he must be carrying an odd number to complete a square if he is carrying what he needs to complete a square each time), you would simply add 1 to 1,000,001 and get 1,000,002 and divide by 2 to get 500,001 so he would be making the square of 500,001x500,001 for a rather large john!

So, we have learned how to make squares by addition. I'm not forgetting that we can make squares simply by multiplying a number times itself.

But the principle of addition is important in making the other geometrical figures we will be exploring at another date and I'm sure that the ancients knew about addition long before they knew about multiplication.

But let's not go down that path now. Let's stick with the task at hand, studying the squares on the Square of Nine chart.

Chapter 4-The 45-Degree Line

We will now look again at the concept of the "variable of two" or the gain of two and see if we can apply it to the Square of Nine chart.

In order to do that we need to define "45 degree lines" on the chart.

When Gann spoke of the even squares being on a 45 degree line, I, like my friend who had studied Gann longer than I had, and maybe some like you, took him to mean the 135 degree line where the numbers 5, 17, 37, etc. are located since the even square numbers are next to that line.

After all, the chart only shows four 45-degree lines unless you want to count the four cardinal lines going up and down and across as 45-degree lines (which is the basis of what some call an octagon chart and is another concept we will look at in future work).

In discussing the soybean market of the late 1940's and early 1950's and its application to the 1 through 33 chart, Gann mentions the 45-degree line from 310 to 240. Another puzzle.

Could it mean that going around a square of the Square of Nine chart meant a 45-degree angle? Again he mentions a 45-degree angle and seems to be mentioning the number 45 on the chart when he discusses the relationship between December, 1932 and January, 1948. Still hazy.

It finally dawned on me. There are 45-degree angles all over the place!

Let's use our "gain of two" knowledge to help establish that fact. We will use the low cash price on beans of 44 and work toward the high of 436.

As Gann said, the price of 44 is in the square of 7. The square of 6 ends at 36 and the square of 7 at 49. So Gann says that 44 is in the square of 7.

Looking back at the two lines we created earlier, the terms and the odd numbers to make the squares, we see that after the square of 7 is made, we have to add 15 to make the next square and then 17, etc.

So we will start with 44 and add the odd numbers to it, the odd numbers that make the squares after the square of 7. Let us put the results in two rows so they may be more readily understood. So with you looking over my shoulder, let's do it.

44+15=59
59+17=76
76+19=95
95+21=116
116+23=139
139+25=164
164+27=191
191+29=220
220+31=251

251+33=284
284+35=319
319+37=356
356+39=395
395+41=436

Observe the two rows of numbers and see where they fall on the Square of Nine chart. The row 59, 95, etc. falls on a diagonal that is parallel to the even square numbers.

The row 76, 116, etc. down to 436 runs on a parallel with the odd square numbers.

Since the rows are parallel and the squares run on a 45 degree angle then the row running parallel to it is also a 45-degree angle!

If we draw a square on a piece of paper and run a line diagonally from one corner to another, the diagonal line forms a 45-degree angle with the side of the square and any line running parallel to that diagonal is also a 45-degree angle.

One easy way to tell that the rows are parallel is to compare the distance from the numbers in one row to the numbers in the other.

We can see, even without looking at the chart that 44 is 5 less than 49 (the square of 7) and 436 is 5 less than 441 (the square of 21).

Like I said above, there are 45-degree angles all over the place, not just those that are marked as such. They not only run from northeast to southwest in this case, but also run from southeast to northwest.

Chapter 5-The Number 9 and the Squares

The number 9 has many interesting relationships between the squares, triangles and other geometric figures as you will see as we progress through this series. I suspect that is why Gann emphasized the number so much. There is one relationship we can observe right here.

We saw that 44 was in the square of 7 and that 436 was in the square of 21 or 441. If we multiply 9 times 49 we get 441 and if you count seven squares down from 44 you will end up at 436 like this:

44
76-1
116-2
164-3
220-4
284-5
356-6

436-7

Coincidence? Maybe. But you have seen many other coincidences in this work already. I'm not saying that low to high can be figured in the same way each time, but it is another "path to explore" at a later date.

As I showed above when we multiply 9 times an odd square such as 49 and count down its square root of 7 we arrive at the answer of 9x49. Let's look at some others. Let's multiply 9 times 25. 25 is 5x5. So if we count 5 odd squares down we will arrive at the answer:

25 (5x5)
49 (7x7)-1
81 (9x9)-2
121 (11x11)-3
169 (13x13)-4
225 (15x15)-5-The answer. 9x25 is 225.

Now you try one. Try 9 times 121 and count down 11 squares to the answer.

Note: In checking PATTERN it is often easy enough just to start from the lowest number on the ladder, usually 1. 1 is 1x1 and we only have to count down one odd square to get the answer. 9x1 is 9! And 9 is the answer. If it works at the bottom rung chances are it will work any where up from there. You don't have to go up in the hundreds to start looking for your PATTERN.

"What about the even squares?" you ask.

They work the same way:

4 (2x2)
16 (4x4)-1
36 (6x6)-2. Since 2 is the square root of 4 we have to count down only two even squares to get the answer. 9x4 is 36.

Try a few. Go ahead. It only takes a few seconds.

(There are some interesting things you can do with this concept and have the answer without even looking at the chart. For example you can multiply 44 times 9 and then you can do this to get to 436...I'll let you supply the answer. It works every time. After all why should I have all the fun.)

Chapter 6-Adding and Multiplying Squares

A square times a square is always a square, but the addition of one square to another does not always make a square.

When we multiplied 9 (3x3) times one of the squares above, we

always came up with a square. We saw that 9 times 25 (5x5) is 225 or the square of 15.

Why is a square times a square always a square?

We can put down their square roots and find out why.

Above we saw that 9 times 25 is 225 or the square of 15.

We can say 9x25=225 or

We can put down their square roots and multiply them:

3x3x5x5=225

Or we can rearrange the numbers to read:

3x5x3x5=225 or

(15)x(15)=225.

That works for any squares we want to multiply:

25x49=1225 or

5x5x7x7=1225 or

5x7x5x7=1225 or

(35)x(35)=1225.

All we have to remember is to use the square roots of each square.

What is 49 times 81?

Ans: 63 squared or the square root of 49 times the square root of 81 squared.

This book is about squares, but the same method also works for cubes and all the other powers of numbers.

The cube of 9 times the cube of 4 is:

9x9x9 or 729 times 4x4x4 or 64 which is

729x64=46656

Since the cube root of the cube of 9 is 9 and the cube root of the cube of 4 is 4 we can multiply 9x4 and cube it:

36x36x36=46656

Try that with some fourth, fifth and sixth powers of numbers. If only the "adding" of squares was so easy! Then the Gann

material might not be so difficult. But that is an area we must explore so get on your backpack and let's get started.

Let's begin by adding the square of 6 or 36 to the square of 7 or 49. When I use the term "square of" I mean it in the same sense that Gann did. Square of 7 means seven squared or the second power of 7.

So, when we add 36 to 49 we get 85, which is not a natural square. As I said earlier we can often check our PATTERN by starting at the bottom of the ladder. Since the square of 1 is 1 and the square of 2 is 4, they add to 5 which is not a natural square and right away we know that adding squares do not always make another square.

That does not necessarily mean that other squares cannot be added to obtain squares.

By trial and error we can check some of the squares. We find that the square of l2 and the square of 5 will add to another square when we add 144 to 25 and get 169 or the square of 13 (a number that Gann says is important for more reasons than just the way it is on the hexagon chart.)

One nice thing about finding squares that add to other squares is that you can expand the group by using their multiples.

In the example above we used 12 and 5. We can multiply both numbers by 2 and get 24 and 10. Squaring those two and adding we get:

576+100=676 which is the square of 26 and 26 is 2 times 13.

Multiply 12 times 3 to get 36 and 5 times 3 to get 15 and the total of their squares will be the square of 39 or 3 times 13 squared.

This can all be seen from that "principle" which the Masons call "secret." But this in not the place to discuss that "secret" now. We will look at that when we look at the connections between Masonry and Gann's work.

There is a way of knowing which squares will add to squares and which will not. This is not one of my "discoveries" but something I found in a book during my long studies. More on that later.

Chapter 7-Range as a Difference in Squares

Gann mentions and shows how to "square" the range, which is not really a square at all.

Other writers have zeroed in on this so there is no need to go into that if you have read the material closely.

But, there is another relationship between the range and the squares which I discovered.

And that is the range as "the difference in squares."

First, we will look at the concept of the difference in squares and then we will look at least at one example in the Gann material where we can see this concept in action.

If we want to find the difference in squares we could simply square two numbers and subtract the smaller answer from the larger in the following manner:

21x21=441
14x14=196
The difference is 245

Another way to do it, which is easier in dealing with very large numbers, is this:

Subtract the smaller square root from the larger one and then add the smaller square root to the larger one and multiply the answers:

21-14=7
21+14=35 and 7x35=245

The difference in the square of 8 and the square of 9 is (9-8)x(9+8) or 17 as we saw when we were building the squares with the odd numbers.

The difference in the square of 63 and 67 would be 4x130 or 520. Check it out! Much easier than (67x67)-(63x63)! Another little something I discovered on my own. This makes it easy to do this in your head.

The difference in the square of 12 and the square of 13? 1x25 as we have already seen.

To recap, simply take the square roots of the two squares, subtract them and add them, then take your answers and multiply and you will have the difference of the squares.

A table of the difference of the squares can be made up as follows:

x	1	2	3	4	5	6	7	8	9	10	11	12
1	x	3	8	15	24	35	48	63	80	99	120	143
2	x	x	5	12	21	32	45	60	77	96	117	140
3	x	x	x	7	16	27	40	55	72	91	112	135
4	x	x	x	x	9	20	33	48	65	84	105	128
5	x	x	x	x	x	11	24	39	56	75	96	119
6	x	x	x	x	x	x	13	28	45	64	85	108

7	x	x	x	x	x	x	x	15	32	51	72	95
8	x	x	x	x	x	x	x	x	17	36	57	80
9	x	x	x	x	x	x	x	x	x	19	40	63
10	x	x	x	x	x	x	x	x	x	x	21	44
11	x	x	x	x	x	x	x	x	x	x	x	23
12	x	x	x	x	x	x	x	x	x	x	x	x

Here, I have shown just the first 12 squares, but the chart can be extended as far as you like.

You can see how the odd numbers run on a diagonal going from top left to bottom right.

They show the difference in the successive squares. Look down the list of numbers at the left to the number 4 and then go over to the intersection of that row with column 5 and you will see the number 9. So the difference in 4x4 (16) and 5x5 (25) is 9.

Staying on the same row (4) and going on to column 7 we see that the difference is 33. This is made by adding the odd numbers at the bottom of columns 5, 6 and 7, which are 9, 11 and 13.

So, you can figure the differences in the same way and extend this chart as far as you want to go.

Now let's take a look at least at one place where I said I found the range to be a difference in squares.

Let's look back at the cash low of beans at 44 cents and the high of the May contract in 1948 at 436 and we wee that the range was 392.

If we subtract 7 (the square root of 49) from 21 (the square root of 441 we get 14 and when we multiply 14 times (21+7) or 28 we get 392, the difference between the square of 7 and the square of 21.

(Note: This particular range can also be expressed as a double square. You can find double squares simply by multiplying a number times it double, in this case 14x28 which is 2(14x14).)

(Also note: 28 was one of the numbers involved in the "Great Cycle" discussed in Book II of this series.)

(And remember also that the time from the 1948 high to the February, 1949 low was 56 weeks and 56 is 2x28 as shown in Book I of this series, "The Cycle of Mars." There we subtracted 56 seven times from the high and were left with 44!)

There might be many other ranges in the Gann material that are differences in squares, but that is a path I have not gone down as yet.

But in keeping with my promise to you to quote chapter and verse

on the numbers in the Gann material, let's look at his cotton chart of the 1930's and 1940's, the monthly one.

Cotton made bottom on June 9, 1932. (Note Robert Gordon's birth and nickname. More about that in my discussion of "The Tunnel Thru the Air.")

The bottom was made at 515. Gann laid out the chart on a 20-point per month basis. The top on this chart comes out at 172 months so 20x172=3440.

The price did not quite make that level but that is the price based on the monthly increments on the 45-degree line.

The square of 57 ends at 57x57 or 3249. Subtracting that from 3440 or 3440-3249 leaves 191 in the next square.

Now subtract 191 from 515 and see what you have. That's right, you arrived at 324 or the square of 18 and remember what Gann said about a change in cycles here with a 45-degree angle coming down.

We can now prove that the range equals a difference in squares:

3440-515=2925=THE RANGE
57x57=5249
18x18=324
3249-324=2925=The difference in the square of 57 and the square of 18.

Or doing it the easy way. 57-l8=39 and 57+l8=75 and 39x75=2925.

Therefore the RANGE equals the difference of two squares!

There is another interesting twist here. Let's add the bottom to the top. 3440+515. We get 3955. Add 14 and take the square root. It is 63. Add 14 to 515 to get 529. Take the square root and we find it is 23.

Since both numbers are within 14 of an odd square then both numbers are on a 45-degree line with each other, just as 44 and 436 in the case of soybeans were on a 45-degree line from each other. Extend the Square of 33 chart on out and you will find this to be correct.

Coincidental? Maybe. But like I noted in Book III, "The Book With No Name," the coincidences in Books I, II, III and now Book IV, are certainly piling up.

Chapter 8-The Other Leg of the "X"

We have seen how the odd squares run along the 315 degree angle

on the Square of Nine chart and how the even squares run next to the 135 degree line forming a close but not exact diagonal like this:

/

(That's a pretty small diagonal, but the only one I can make with this screen so just look at your Square of Nine Chart to get the idea.)

I noted how the even squares are just a little off that line, but for the sake of this illustration we will say that both the even and odd squares form one leg of an "X".

But that other leg running like this:

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and running from northwest to southeast contains numbers that are closely related to the squares.

Recall that we used the odd numbers added in order to form a PATTERN. That PATTERN was the natural squares in order.

Now just for fun let's do the same thing with the "even" numbers in order to see if we can form another kind of PATTERN.

In one row we will list the even numbers in order and in the other we will keep a running total:

2 2
4 6
6 12
8 20
10 30
12 42
14 56
16 72
18 90
20 110
22 132
24 156
26 182
28 210
30 240
32 272
34 306
36 342

Let's look at the numbers in the right hand column and see if we can find a PATTERN. I noted earlier that although we would be using addition quite a bit we would not forget multiplication so let's look at the first two numbers and think of multiplication.

If we think of the number 2 and think of multiplication and think of the answer which is also 2, there is really only one conclusion.

1x2=2

The number 6 can be made by multiplication in two ways:

1x6 and 2x3. Any PATTERN here?

Let's try another one.

The number 12 can be made in three ways:

1x12, 2x6 and 3x4.

Any PATTERN yet? Let's check our numbers from the three different series:

1x2, 1x6, 1x12. There is certainly a PATTERN here as each is multiplied by 1, but doesn't tell us much of anything. We can see that 2 times 6 is 12, or the third number, but carrying out that PATTERN would have us multiply 6x12 and that certainly does not give us the next number which is 20 so we will drop that PATTERN here and now.

Let's take another look at the multiples.

1x2, 2x3, 2x6 and the next number would be 2x10 to make 20. Still not much. So with some elimination by trial and error we are now down to:

1x2, 2x3, 3x4. A PATTERN. What do you think?

We could make 20 by 1x20, 2x10 or 4x5. Select one of these, place it with the others and see if you can make a PATTERN.

The 1x20 is a PATTERN with the first, 1x2. But not with the others. 2x10 makes a PATTERN with 2x3, but not the other two.

4x5 doesn't seem to make a PATTERN with anything. About time to lay this down and move on to something else.

Whoa! Wait a minute. Let's put it down with the others and have a look at it!

1x2, 2x3, 3x4, 4x5.

Yes, there is a PATTERN! In each case we have used the last number of each pair of numbers as the first number in the next pair and multiplied it by its following number:

1x2=2
2x3=6, we took the 2 from above and multiplied by the number following.

3x4=12, we took the three from above and multiplied it times the number following.

With that reasoning we would have to say then that the next number in the PATTERN would have to be:

4x5=20

And checking our theory with the next it would be:

5x6=30

and the next

6x7=42

PATTERN MADE!!!!

Now, check the numbers 2, 6, 12, 20, 30, 42, etc. and see how they form the other leg of the "X" on the Square of Nine chart. The one that goes like this:

****

Let's look at a portion of the Square of Nine Chart to get the idea.

57	58	59	60	61	62	63	64	65
56	31	32	33	34	35	36	37	66
55	30	13	14	15	16	17	38	67
54	29	12	3	4	5	18	39	68
53	28	11	2	1	6	19	40	69
52	27	10	9	8	7	20	41	70
51	26	25	24	23	22	21	42	71
50	49	48	47	46	45	44	43	72
81	80	79	78	77	76	75	74	73

As you can see the squares are in yellow. The other numbers are in blue.

And the diagonals are not exact, but you get the idea.

"Okay," you say. "Those PATTERN are very nice and the numbers make a nice PATTERN forming the other leg of the "X" on the Square of Nine chart. But this is a discussion on squares. What do these numbers have to do with squares?"

Fair question. And here is the answer. You have now discovered something that Gann hints at, but never quite discusses. You have discovered how to make:

THE GEOMETRIC MEAN!

Gann speaks of the arithmetic mean or half-way point. The others you more or less have to pick out for yourself.

The ancients recognized 10 "means" and that might be why they thought the number 10 was so important. It could also be what is represented by the 10 of the tetraxes of Pythagorus.

But we will be looking at only three of those means, the arithmetic, the geometric and the harmonic.

First, let's define the word "mean." Generally it signifies a middle term in a group of three terms that has a certain mathematical relationship between the first and last term or ties them together.

Gann told us about the "arithmetic mean" or half-way point.

Let's find the half-way point between 6 and 12. Most writers, myself included until I finally started doing it Gann's way, would take the 12 and subtract the 6 for an answer of 6. We would then divide by 2 to get 3 and add that to 6 to get 9.

Gann did it the easy way. I have learned to do the same and you should too. You simply add the two terms, 6+12, to get 18 and then divide by 2 to get 9.

Gann found his half-way point from the low of 44 to the high of 436 in soybeans by adding 44 to 436 and dividing by 2 to get 240.

Of course just looking at 6 and 12 we would have had the answer in our head without doing any calculations, but with very large numbers the latter method is a lot easier, adding 1089 and 1225 for instance and dividing by two to get the arithmetic mean or half-way point.

Putting down the three terms, 6, 9, 12 gives us 9 as the "arithmetic" mean, the half-way point between the two numbers. 9 is 3 more than 6 and 3 less than 12.

Another way to put it is to think of the 3 as an "adder." Add 3 to 6 to get 9 and then add 3 to 9 to get 12 and 9 will be the "arithmetic" mean. Try that with different numbers and different adders.

With the geometric mean, the middle number is arrived at by multiplying the first number by a multiplier and using the same multiplier to multiply the middle number and get the third number. Starting at 6 like above and using 3 as a "multiplier" instead of an "adder" we would get 18 and then multiplying 18 by 3 we would get 54 so we would have the series:

6, 18, 54 and 18 would be the "geometric" mean.

One way to check a series to find if it is geometric is to do this:

Multiply the two end terms, in this case 6 and 54.

6x54=324

The answer, 324, will be the square of the middle term. Take the square root of 324 and we will have 18. Try that with some other beginning number and some other multiplier to prove it to yourself.

The "multiplier" does not have to be a natural number. That statement leads us back to your question about the squares.

Let's look at the number 16, the square of 4, and multiply it times an unnatural number, 1-1/4 or 1.25

16x1.25=20

and multiply our answer again by 1.25

20x1.25=25

20 is the "geometric" mean between the square of 4 (16) and the square of 5 (25).

We can now go from 25, the square of 5, to 36, the square of 6:

25x1-1/5=30
30x1-1/5=36

30 is the "geometric" mean between 25 and 36.

Did you notice a PATTERN here?

Going from the square of 16 to the geometric mean at 20 to the square of 25 we used a multiplier which has a fraction of 1/4 and going from 25 to 30 to 36 we used a multiplier which has a fraction of 1/5.

Now guess what the fraction of the multiplier would be if we went from 36 to 49 and found the geometric mean between the two.

If you said 1/6 you would be right because you saw the PATTERN 1/4, 1/5. Let's check to see if we are right:

36x1-1/6=42
42x1-1/6=49

and 42 is the "geometric" mean between the square of 6 and the square of 7.

And you will also notice that 4 is the square root of 16, 5 the square root of 25 and 6 is the square root of 36.

What if we wanted to get the geometric mean between 100 and 121, the squares of 10 and 11. The square root of 100 is 10 so we would say:

100x1-1/10=110 (as in "The Tunnel Thru the Air")
110x1-1/10=121

But there is a simpler way and maybe you have seen that already.

We can simply take the square roots of each number and multiply them.

For example the square root of 16 is 4 and the square root of 25 is 5 and 4x5=20, the geometric mean between the squares!

Now look back at the two rows of figures we created earlier and you will note that when we add the "even" numbers in order we form the geometric means of the squares in order.

1x2=2, the geometric mean between the square of 1 and the square of 2.

2x3=6, the geometric mean between the square of 2 and the square of 3, etc.

We can now check to see if we are right by multiplying the squares and taking the square root to get the mean. For example:

16, 20, 25

16x25=400
20x20=400

and we are right.

The row of numbers, 1x2, 2x3, 3x4, etc. give us the geometric means between the squares in order. But the square root method will give us the geometric mean between "any" two squares where they be "successive" squares are not.

To get the geometric mean between 49 and 81 we use the square root of 49 which is 7 and the square root of 81 which is 9 and simply multiply them:

7x9=63

If we want to know the multiplier, simply divide 7 into 9 which is 1-2/7.

49x1-2/7=63
63x1-2/7=81

And 49 times 81 equals 63x63. Use your calculator to prove it. Then pick out a couple of non-successive squares, give it a try and prove your answer.

Chapter 9-More 45-Degree Angles

We have seen that by using the square roots of any two squares we can make the "geometric" mean of the two squares.

We have already seen that the "geometric" means of the successive squares form a leg of the "X" of the Square of Nine chart.

Do the last two paragraphs suggest anything to you along the lines of "exploration?"

How about this. Can we find a PATTERN of "geometric" means that are not the geometric means of successive squares?

The geometric means of the "successive" squares were formed by simply:

1x2=3
2x3=6
3x4=12
4x5=20, etc.

What if we used only the odd numbers so that we get:

1X3
3X5
5X7. Want to check that out before you go any farther?

Here's the work out:

1x3=3
3x5=15
5x7=35
7x9=63
9x11=99 etc.

Do you see the PATTERN now? Check it out on the Square of Nine chart.

Look at the answers above. Each one is 1 less than the even squares in order. 3 is 1 less than 4 (2x2), 15 is one less than 16 (4x4), 35 is 1 less than 36 (6x6), etc.

If you checked them out you found that they run on a 45-degree line parallel to the line which contains the even squares.

Does that suggest another path to explore?

Let's try the same method using the even numbers in order to multiply:

2x4=8
4x6=24

6x8=48
8x10=80
10x12=120

PATTERN?

Yes, you were a little quick with the answers that time. All the answers (the geometric means between the even squares in order) are 1 less than the odd squares in order and the numbers run on a 45-degree line parallel to the line which contains the odd squares.

In the two examples above we have used numbers that are 2 units apart, 1x3, 3x5, 2x4, 4x6, etc.

Now try some that are more than two units apart to see if you can discover some other geometric means which are on other 45-degree lines.

Go ahead! I'm going to rest awhile!

How did you do?

Let's have a look at your work.

Since I showed you how to do those using numbers 2 units apart you probably picked up on that and tried those that are 3 units apart. Let's have a look at them.

First we will start the count from the number 1.

1x4=4
4x7=28
7x10=70
10x13=130
13x16=208
16x19=304
19x22=418
22x25=550
25x28=700

There are nine workouts. If we don't have a PATTERN after nine terms we will probably not get one. Let's check our answers on the Square of Nine chart. Yes, we can see that 28, 130, 304 and 550 run on a 45-degree line by skipping over two terms each time.

Going the other way we can see that 70, 208, 418 and 700 run on a 45-degree angle by skipping over two terms each time.

Skipping "two terms." Gann's "variation of two" again.

Using the same method again we will begin with the number 2 and use numbers that are three units apart:

2x5=10
5x8=40

8x11=88
11x14=154
14x17=238
17x20=340
20x23=460
23x26=598
26x29=754

Looking at the Square of Nine chart we see that 10, 88 and 238, etc. run on a 45-degree angle, also skipping two terms at a time. Checking 40, 154, 340, we see the same PATTERN going the other way.

Now let's use some numbers which are 4 units apart starting with 1.

1x5=5
5x9=45
9x13=117
13x17=221
17x21=357
21x25=525
25x29=725
29x33=957
33x37=1221

I'll let you check them on the Square of Nine chart. After all why should I have all the fun!

Note: In some cases the first number does not always fall into the PATTERN. One of the few times you cannot check your work with the bottom of the ladder.

Now that I have showed you the idea I will let you work out the numbers that are four units apart starting from 2.

Then try the same method using numbers that are 5 units apart, 6 units, etc.

REMEMBER-The numbers being found are the "geometric" means between the squares.

The 221 above is the geometric mean between 13x13 and l7x17 in the series:

169, 221, 289

It can be checked by:

169x289 and then taking the square root which will give you 221.

The multiplier can be found by diving 13 into l7 which is 1-4/13

169x1-4/13=221
221x1-4/13=289

And therefore 221 is the geometric mean between the squares of 13 and 17.

Those of you who read Book I, "The Cycle of Mars," might recall that the time from the January l948 high to the February l949 low was 56 weeks. Also Gann said in his writeup of the Square of 144 to place it on 132. Both numbers are geometric means. I'll leave it up to you as good practice to figure out their squares.

We will deal with the geometric means of cubes and other figures in their proper place and where they are found in the Gann material.

Chapter 10-Other Properties of Squares

Here is another interesting property of squares.

Let's put down three numbers in a row at random:

8, 9, 10

If we multiply the two end terms and add 1 we will always have the square of the middle term:

(8x10)+1=81 (9x9)

Try one.

32, 33, 34 you say.

(32x34)+1=1089 (33x33)

Let's take our original:

8, 9, 10

and decrease the first term by 1 to 7 and increase the last term by 1 to 11 so that we have:

7, 9, 11

and multiplying

7x11=77

We can see that 77 from 81 leaves 4 and that is the difference between 7 and 11. Looks like a PATTERN. But going back to 8, 9, 10 we see that 8 from 10 is 2 and 2 plus 8x10 is 82, not 81, so no PATTERN.

Let's do another one decreasing the first term again by 1 from 7 to 6 and increasing the last term by 1 from 11 to 12 so that we have 6, 9, 12.

6x12=72 and now we are 9 units away from 81 and 6 from 12 is 6 so we know that is not the way to go. So let's see if we can find the PATTERN by checking our differences.

81-(8x10)=1
81-(7x11)=4
81-(6x12)=9

I think we know enough about squares now to see that the differences are squares, the squares of 1, 2 and 3.

Observe the multipliers again. See a PATTERN?

If we subtract the numbers of the multipliers in each case and divide by two and then square the answer we will be on the right track.

(10-8) divided by 2 is 1. We square it and get 1.

(11-7) divided by 2 is 2. We square it and get 4.
(12-6) divided by 2 is 3. We square it and get 9.

So when we multiplied 8x10 and added 1 we were really adding the square of 1. I know what you are thinking. "Why quibble.?"

The square of 1 is 1 and 1 is 1. True, But we must often think of 1 as a square, not merely the number 1, when we look at the single digit system, how the squares work in the circle and the formation of other geometric figures in other books in this series so we might as well establish that fact here.

Thinking of 1 as only 1 and not a square is why a number of commentators on the Square of Nine chart start from a wrong premise.

Another approach we could have used instead of taking the difference of the multipliers and then dividing by 2 is simply to have used the distance between the end terms and the middle. The distance from 8 to 9 is 1, the distance from 7 to 9 is 2 and the distance from 6 to 9 is 3.

So we can take any number, add and subtract any equal amount, multiply those two answers, square half of their difference and add to the answer to find the square of the original number.

I know that's a mouth full but let's look at another example. Take the number 35, subtract 5 to get 30, add 5 to get 40. Multiply 30 times 40 to get 1200. Square 5 to get 25. Add 25 to 1200 to get 1225 and we have the square of 35. It works everytime.

That's what I did in Book I-"The Cycle of Mars" in my discussion of the numbers 56 and 88. I multiplied them and added the square of half of their difference or 16x16 to arrive at the square of 72, Gann's inner square.

There is another interesting relationship between three

successive numbers and the squares.

Remember that we make squares by adding the odd numbers in order. When you add any two successive odd numbers the answer is always divisible by 4. If we add 21 and 23 we get 44 which can be divided by 4 to make 11.

Therefore when we multiply any number by 4 the answer is the sum of two successive odd numbers which we use to make the squares.

What does that suggest to you as a relationship between three successive numbers?

If we multiply the middle number by four and add it to the square of the first number we will have the square of the last.

In the above example we can use the numbers 10, 11, 12. Multiply 11 by 4 and we get 44. Add 44 to 10x10 or 100 and we get 144 or the square of 12. On the odd number basis we looked at on building the squares we would have added 21 to the square of 10 to get the square of 11 and then added 23 to 121 to get 144 or the square of 12.

Try it on a few numbers.

Then look at the Square of Nine chart and follow it on the angles. For example start at 25 and then count "6" units to the next angle and 6 to the next etc. until you reach 49 or the square of 7.

The next time around from 7x7 to get on the angles would require "8" units. There is that old reliable "variable of two" again. So (7x7)+4x8=9x9.

Chapter 11-How To Make the "Unnatural" Squares

We have seen how the natural squares are made in order simply by adding the odd natural numbers in order.

But when we look at the Gann material there are many numbers that are not natural numbers let along natural squares.

When I started thinking about the unnatural squares, those that have a fraction, decimal, etc., I knew that they could be made by multiplication, 67.5x67.5 and 5.625x5.625 etc., but I wondered if they could be made by addition.

That is, could we build squares that always ended with a side that had a fraction like .5.

It took me two days to "discover" it. I don't mean I spent a full two days. I care for elderly parents so the work I give to Gann in recent years is 5 minutes here, 10 minutes there, etc.

It might have taken me a little less time, but I came at the problem from a different viewpoint instead of attacking it headon.

If you want to quit this for a few minutes and give it a shot go ahead and I'll rest awhile.

Did you get it?

Let's have a look. Let's make squares in order that will have .5 as the fractional part of the sides so that we have squares that are:

.5x.5
1.5x1.5
2.5x2.5
3.5x3.5 etc.

Give it another try.

Instead of going around it from another direction which I will explain in the book on the other figures, let's attack it head on.

Since each time we will be adding something to get the next square, as the odd numbers are added to get the natural squares, let's see what has to be added in the examples above.

It would seem possible just to add 1 to go from .5x.5 to 1.5x1.5, but such is not the case. Remember, we are not adding numbers to make the "side" or the square root of the square, but the square itself. In other words we are looking for something to add to .5x.5 so that when we take the square root we will have 1.5.

Let's look at it.

.5x.5=.25
1.5x1.5=2.25
2.5x2.5=6.25
3.5x3.5=12.25

A PATTERN?

To .25 we had to add 2 to get 2.25
To 2.25 we had to add 4 to get 6.25
To 6.25 we had to add 6 to get 12.25

Can you now guess what would have to be added to arrive at the square 4.5x4.5.

If you said 8 you are correct. You saw the PATTERN 2, 4, 6 and the next logical step would be to add 8.

So let's add 8 to 12.25 and take the square root. Yes, the square root of 20.25 is 4.5. Add 10 and take the square root and you will have 5.5, etc.

Let's look at another, this time using 1/4 or .25 as the

fraction for our sides so that we will build the squares with sides of .25, 1.25, 2.25, 3.25 etc.

.25x.25=.0625
1.25x1.25=1.5625
2.25x2.25=5.0625
3.25x3.25=10.5625

Subtracting the answers one from the other we can see that:

.0625 plus 1.5=1.5625 or 1.25x1.25
1.5625 plus 3.5=5.0625 or 2.25x2.25
5.0625 plus 5.5=10.5625 or 3.25x3.25

Now what would we add to get the next square, 4.25x4.25.?

Look for the PATTERN.

You are right if you said 7.5. You saw that the fraction .5 was the same with the natural numbers being 1, 3, 5.

We can check that by adding 7.5 to 10.5625 to get 18.0625 and taking the square root we get 4.25.

Let's try another one, this time we will use .75 as the fraction of each of our squares in order:

.75x.75=.5625
1.75x1.75=3.0625
2.75x2.75=7.5625
3.75x3.75=14.0625

Subtracting the answers one from the other in order we find that their differences are:

2.5
4.5
6.5

The fraction is the same and the natural numbers are the even numbers in order.

In each case we have multiplied the square roots of the squares and then subtracted the results from each other to see what it would take to make the next square by addition.

But is there an easier way of knowing what numbers to add without going through all that? Like I said before it took me about two days because I was coming at it from a different direction. But when the answer came, it was obvious.

Before looking at the answer below, go back and study the examples and then try to make the squares using .618 as the fraction for the sides in order so that you have squares of .618x.618, l.618x1.618, 2.618x2.618 etc. (Remember to make them by addition not

by multiplication).

Remember! PATTERN!

If you said from the square of .6l8 add 2.236, 4.236, 6.236, etc. then you are correct. If you did not, go back and study again before looking at the answer below.

To make the unnatural squares in order so that the sides have the same fraction or decimal point simply:

TAKE THE SQUARE ROOT OF THE SQUARE, DOUBLE IT AND ADD 1.

In the example above we would have taken .618, the square root of .618x.618, and doubled it to get 1.236 and added 1 to get 2.236. Since the natural number part of our answer is 2 then we would use 4.236 for the next adder, 6.236 for the next adder, 8.236 for the next, etc.

If we wanted to use .38 as the decimal in our sides we would double .38 to get .76 and add 1 to get 1.76. Since the natural part of our number is 1 then we would use the odd numbers in order with the .76 for our adders, 1.76, 3.76, 5.76, etc. That old "variable of two" again.

Now go back and check the work we did with .5, .25 and .75 and you will have the idea.

I noted earlier that the answer should have been obvious.

For simplicity sake let's go back to our natural squares.

Say we had a square of 4x4 or 16 and we wanted to add to that to get a square of 5x5 or 25.

Like the man building the john we could place four tiles on the top of our 4x4 and then place 4 tiles along the right hand side. There would be an empty space at the top-right corner where we would have to place another tile. So we place 4 and 4 or 2x4 and then add 1 for a total of 9 . And 9 plus 16 equals 25.

Carrying it further we could then place 5 tiles on top of the 5x5 and 5 on the right hand side and place 1 in the top corner for a total of 11 which would then make the square a 6x6.

In each case we used the square root of the square, doubled it and added 1.

The square root of 16 is 4. Two times 4 is 8. Add 1 and we get 9. 9 plus 16 is 25. Then the square root of 25 is 5 and 2x5 is 10. Add 1 to get 11 and 11 plus 25 is 36 or 6x6.

The square of 2.618 is 6.853924.

Add (2x2.618)+1 or 6.236 and we get 13.089924. We take the

square root of 13.089924 and we get 3.618.

It works every time!

Chapter 12-Regular Squares and the Square of Nine Chart

Now we will look at regular squares and the Square of Nine chart.

To build the Square of Nine chart Gann began with 1 in the center and then put the squares around it.

The man laying tiles in the john would have built his squares in a different way, one in which we would probably build one. We would start at the 90-degree corner of a wall and build them up to the top and to the right in the same way we built them in our example and number them so that the number of the squares would run along the bottom line.

Let's do that now:

197	198	199	200	201	202	203	204	205	206	207	208	209	210	211
170	171	172	173	174	175	176	177	178	179	180	181	182	183	212
145	146	147	148	149	150	151	152	153	154	155	156	157	184	213
122	123	124	125	126	127	128	129	130	131	132	133	158	185	214
101	102	103	104	105	106	107	108	109	110	111	134	159	186	215
82	83	84	85	86	87	88	89	90	91	112	135	160	187	216
65	66	67	68	69	70	71	72	73	92	113	136	161	188	217
50	51	52	53	54	55	56	57	74	93	114	137	162	189	218
37	38	39	40	41	42	43	58	75	94	115	138	163	190	219
26	27	28	29	30	31	44	59	76	95	116	139	164	191	220
17	18	19	20	21	32	45	60	77	96	117	140	165	192	221
10	11	12	13	22	33	46	61	78	97	118	141	166	193	222
5	6	7	14	23	34	47	62	79	98	119	142	167	194	223
2	3	8	15	24	35	48	63	80	99	120	143	168	195	224
1	4	9	16	25	36	49	64	81	100	121	144	169	196	225

Now we can see an interesting relationship between the regular squares and the Square of Nine chart.

Let's start with the number 4 and look at the numbers on the 45-degree line going from bottom left to top right or as some would say from the southwest to the northeast.

Those numbers are 4, 8, 14, 22, 32, etc.

First I must ask you to study that group of numbers to see if you can make a PATTERN. Hint: Look at the differences in numbers.

Did you get it?

Let's look at them.

The difference in 4 and 8 is 4
The difference in 8 and 14 is 6
The difference in 14 and 22 is 8
The difference in 22 and 32 is 10

Now without even looking at the chart do you know what the next number on that 45-degree angle will be?

If you said 44 you would be correct.

Here again you saw that the "variable of 2" or the gain of two was at work again. The differences in our example were 4, 6, 8, 10 and the next difference would be 12 and 32 plus 12 is 44. And the next number would be 44 plus 14 or 58.

Now let's look at the numbers running up on the 45-degree line parallel with those on the line of 4 that begin at 9.

9, 15, 23, 33

Can you see the PATTERN here without the hint? What would be the next number on the line?

That's right. It's 45.

The difference in 9 and 15 is 6
The difference in 15 and 23 is 8
The difference in 23 and 33 is 10

The next difference would be 12 and 33 plus 12 is 45. That old "variable of two" again. Now do a couple for yourself. Try 16, 25 and 36.

Now go to 1, 2, 5 and 10 and check them on the 45-degree angle.

Going up from 2 on the diagonal you will notice that each number is the geometric mean between successive squares.

I noted above that there is an interesting relationship between the usual square and the Square of Nine chart so let's get to it.

Look at the 45 degree angle again that contains the numbers 4, 8, 14, 22, 32.

Now let's multiply 4x8 and get 32. Look at the location of each of those three numbers, 4, 8 and 32 on the usual square. They are on the same 45-degree angle. You will find that when you multiply any two numbers on a 45-degree angle, the answer will also be on the same angle. Take the 5 numbers above and use any two to multiply and then extend the series on out and you will find the answer.

Now try it with some of the numbers on the other 45-degree

angles.

Let's look at the Square of Nine chart. Locate 4, 8 and 32. Notice anything?

We find that 4 and 32 are on a 45-degree angle and that 32 is 2 units away on that angle. If we go the 90-degree route we can go up two units to 34 and the over two units to 32.

Let's try another, multiplying 8 times 14 to get 112. Locate 8, 14 and 112 on the Square of Nine chart. Notice anything?

We find that 8 and 112 are on a 45-degree angle and that 112 is 4 units away from 8 or if we take the 90 degree route we can do down four units to 116 and then four units over to 112.

PATTERN?

In both examples above the answer is on the 45-degree angle with the smaller number.

4x8=32 and 4 and 32 are on the 45-degree angle. 8x14 is 112 and 8 and 112 are on the 45-degree angle.

The second part of the PATTERN is that the distance on the 45-degree angle from the small number to the answer is one-half the small number. The distance between 4 and 32 is half of 4 or two units. The distance between 8 and 112 is 4 units or one-half of eight. And when we go the 90 degree route the distance is the small number itself.

Now try 14 and 22 for yourself.

Before you multiply to get the answer try to find the answer on the Square of Nine chart.

Let's try some from the 9 row on the regular square. We multiply 9 times 15 and get 135. Check those three numbers on the Square of Nine chart. Then check 15 times 23.

Move over to the other side of the regular square and check 5 times 11 and 11 times 19.

PATTERN?

Yes, we have a PATTERN, but not like the one with the other numbers.

You might have noticed that when we were doing 4, 8, 14 and 16, 24, etc. we were using even numbers and now with 9, 15 and 5, 11, etc. we are using odd numbers.

When we use 9 and 15 and 5 and 11, the answer is found on the 45-degree lines running from the larger number. With the even numbers the answer ran on the same 45-degree line as the smaller number.

With the even numbers the answer was half the distance of the smaller number. If the small number was four then the distance was two.

It takes a little while to find the PATTERN with the odd numbers. Give it a try before looking below.

With 9 and 15 the distance is four. With 11 and 19 the distance is five. Got it now?

The distance is half of one less than the smaller number. 9 minus 1 is 8 and half is 4. 11 minus 1 is 10 and half is 5.

If we use the 90-degree method explained earlier we find that the distance is 1 less than the smaller number. With 9 it would be 8 and with 11 it would be 10.

Try 21x31 and check your answer on the Square of Nine chart.

In our discussion of the geometric means between squares we saw that the multiplication of any two numbers made a geometric mean between the squares of the two numbers so all of our answers in the discussion above are geometric means between squares.

When you multiplied 21x31 you found the geometric mean between the square 21x21 and the square 31x31.

You might wonder if a number can serve as a geometric mean between more than just two squares. Think about it a minute and you can probably answer the question yourself.

Let's look once again at the number 30 from our discussion of the successive squares. We found that 30 was the geometric mean between the square of 5 and the square of 6. But 30 has factors other than 5 and 6.

30 is also the product of 2x15 and 3x10 so it can be a geometric mean between those squares like so:

2x2=4
2x15=30
15x15=225

3x3=9
3x10=30
10x10=100

In the first example we would have the series, 4, 30, 225 and the second 9, 30, 100.

And checking our answers we can see that 4 times 225 is 900 and 9 times 100 is 900 and the square root of 900 is 30 so we have a geometric series.

Of course the multiplier for each would be different. The multiplier for the first would be 30 divided by 4 and for the second would be 30 divided by 9.

This sets up another interesting question you might ask. Can a square itself be a geometric mean between two other squares?

Chapter 13-The Square as a Geometric Mean

The answer again is yes. Let's look at a familiar square, 144, which is the square of 12, but it too has many other factors. I will not mention all of them, just a couple to give you the idea.

9x16 is 144. Of course both 9 and 16 are squares, but that is not the point here.

144, the square of 12, is the geometric mean between the square of 9 and the square of 16 as shown below:

9x9=81
9x16=144
16x16=256

8x18 is also 144 so we could have:

8x8=64
8x18=144
18x18=324

If we multiply 81 times 256 or 64 times 324 we will find that they equal 144x144.

Do a few for yourself, 2x72, 3x48, 4x36, etc. to prove to yourself that a square itself can also be a geometric mean between two other squares.

There are other observations to be made about the squares of the Square of Nine chart, but they must be made in connection with the single digit numbering system, the triangle numbers and the TELEOIS.

They will be dealt with in their proper place.

I believe that now when you look at the Square of Nine chart you will be looking at it with a different frame of mind than before.

If I have only taught you one thing in this whole material, I will be satisfied that I have accomplished the mission.

That is, when you read Gann or any other material about numbers, you will look for: PATTERN, PATTERN, PATTERN!

Book V

The Cycle of Venus

Chapter 1-A Star Returns

Welcome back explorer! Are you ready for another journey with me as we explore the numbers of Gann? As I said in my earlier books you can come with me and explore paths I have already been down, but that does not mean you can't turn to the right and to the left to do some exploring on your own.

On this journey we find ourselves back in olden times as we heard that an ancient man went out in the morning and faced a rock in the distance he had faced eight years earlier. And then, as it had eight years ago, a bright star peeped over the rock.

His light had returned. His father had told him it would be so. His grandfather before that said it would be so. They had also stood at the same spot and peered at the same rock.

Their light had returned for them.

So let us return to those ancient days and sit down under the same old tree and look at the same old rock that serves as a pointer toward the sky.

We have been up all night in anticipation of the event and I have nodded off when you awaken me.

"There it is! Just before the sunrise. Just where they said it would be eight years ago!" you exclaim. Yes, I admit. Those ancient men were right.

What was this star?

That's easy, you say. The "star" we saw was not a star at all, but what we call today the planet Venus. But why does it return to the same place every eight years. Was this Gann's eighth square, the "death" zone?

In one sense it could be, but I don't believe so. There is another logical explanation for the eighth square which is called the "death zone," but that will be dealt with in its proper place.

Gann does not mention Venus by name. In fact, he does not mention any planet by name in his regular material although he does in his "private papers."

But he does hint at some possibilities for Venus, including his "cube of nine."

Those of you who have read my earlier books know that unlike other writers I zero in on chapter and verse in the Gann material as I take you on this exploration of the numbers of Gann. So let's get to it.

We will look at the Fibonacci relationships, the cube, the number 144, and the 15-day, 24-hour chart.

So you get out your heliocentric ephemeris and find that the heliocentric (viewed from the sun) cycle of Venus is 225 days, which means that in going its 360 degrees its average movement around the sun is 1.6 degrees a day. Close to the "golden ratio" of 1.618.

You might have read that some writers have tried to associate the movement of Venus with the movement of Uranus and the sun to arrive at a 1.618 ratio.

Uranus' movement is very slow, going 360 degrees in 84 years.

So, let's select a synodic period of Uranus or the conjunction of Uranus with the sun. (A synodic period is the conjunction of the sun with any planet as seen from the earth).

I have picked a date from the time of Robert Gordon, the hero of Gann's novel, "The Tunnel Thru the Air." It's an arbitrary date. You can select any date you like if you have a geocentric ephemeris.

The date I have selected is Dec. 31, l906 when the sun and Uranus were in conjunction at 8 degrees in Capricorn. Since the geocentric (the view from earth) sun takes a year to make its "revolution" and since Uranus has moved a few paces we know it will be more than a year before they come into conjunction again.

So we find that on Jan. 4, 1908, they are in conjunction at 12 degrees in Capricorn or 5 days beyond a year or 370 days.

We can divide the heliocentric cycle of Venus, 225 days, into 370 and get 1.64444.

Since the two planets beyond Uranus (Neptune and Pluto) move at a slower pace around the sun, their synodic periods would be less than 370 days since the sun would make its cycle (actually the earth moves, but the sun seems to move in the zodiac in the geocentric view) and then catch them a little sooner than it catches Uranus.

If we divided 225 into those conjunctions or synodic periods we would have an answer less than 1.64444 and therefore nearer to what is considered the golden ratio of 1.618.

But, let's do this. Let us multiply the golden ratio times 225 and see what number of days we would need to have the ratio.

225x1.618=364.05

What does that suggest?

Yes, you are way ahead of me.

Why use the heliocentric cycle of Venus with the geocentric synodic periods of the outer planets?

We don't need them!

We can simply use the heliocentric cycle of Venus with the heliocentric cycle of the earth and get a ratio much closer to the golden ratio!

Dividing the heliocentric cycle of Venus into the heliocentric cycle of the earth produces:

365.2422 (usually rounded off to 365.25) divided by 225=1.62329
I'm not putting down the work of those writers who want to use Venus with Uranus, etc. They might have a good reason for using them. But as far as the Fibonacci relationship is concerned, I believe we have demonstrated that the Venus and earth relationship makes a better fit.

I will have much more to say on Fibonacci relationships, but that is for another study and would take us far afield to another part of the woods and we need to stick to the work at hand.

Chapter 2-The Square of 144

We have seen that it takes Venus 225 days to go 360 degrees in the circle, or 1.6 degrees a day. If Venus goes 1.6 degrees in one day then how many degrees will it go in 360 days?

Venus goes 1.6 times 360 or 576 degrees.

Does that number look familiar?

Check your 15-day, 24-hour circular chart.

The number 576 can be divided by 4 to get 144! So, in 360 days Venus goes 4 squares of 12 or 12x12x4.

If the earth went exactly 360 degrees in 360 days then 8 cycles of Venus would equal 5 cycles of the earth.

The cycle of Venus at 225 days would be 5/8 of a year.

That 5 and that 8 would look pretty good as Fibonacci numbers.

The division of 225 into 360 was 1.6. When we divide 5 into 8, what do we get?

The same thing, 1.6. And even though it is not the "golden mean," nevertheless it is still the ratio of two successive Fibonacci numbers.

Let's go back and look at the relationship of Venus and the earth again when we divided 225 days into 365.2422 and got 1.6232986.

Now, let's go a step up the Fibonacci ladder. We saw the relationship between 5 and 8 and found it to be 1.6. Now let's look at 8 and 13 by dividing 8 into 13.

We get 1.625.

We can see that 1.625 is a lot closer to the earth-Venus ratio of 1.6232986 than 1.6. So let's give it a whirl.

The ancients had found that the "star" returned every 8 years. Let's find the days in 8 years:

8x365.2422 = 2921.9376

Dividing by the 225 days that Venus needs to complete a cycle we find that:

2921.9376 divided by 225 equals 12.986389, awfully close to 13 cycles that Venus makes to appear over that distant rock every eight years.

To see how the ratio of 8 and 13 works with the cycle of Venus and the cycle of the earth we can simply multiply 225 by 1.625 and get 365.625.

Subtracting the solar year from our answer we have:

365.625-364.224 or .401 of a day difference, or about 9 hours a year difference.

You have now found a Fibonacci relationship between the heliocentric cycles of the earth and Venus. Being students of Gann I'm sure you know what is meant by heliocentric, but for the few of you that have not made that study, the heliocentric cycle of the planets is the view from the sun, thus heliocentric.

The view of Venus from the earth is geocentric and sets up a different set of numbers which we will explore later.

If the cycles of Venus and the earth are Fibonacci related we can check out a few other Fibonacci relationships. So let's check that relationship that seems to be a favorite of most writers.

That of 89 and 144.

To get the days in 89 years we multiply thus:

89x365.2422 and get 32506.555

Dividing the days in 89 years by the 225 days it takes Venus to make 360 degrees we get:

32506.555 divided by 225 equals 144.47357 cycles of Venus in 89 years.

I'll let you work with some of the other Fibonacci numbers in the same way. After all why should I have all the fun!

Chapter 3-The Geo View and the Number 144

In Chapter 2 we saw that Venus goes 1.6 degrees a day and in 360 days it goes 1.6x360 or 576 degrees or 4 times 144 degrees.

But the earth goes more than 360 degrees in a year. We will drop the fractional part for this discussion and just say that it takes the earth 365 days to go around the sun. While the earth is going those 365 days, Venus is going 1.6 times 365 or 584 degrees.

We saw earlier that Venus would go 576 or 4x144 degrees in 360 days so with the addition of those 5 days, Venus would go 8 degrees more or 584 degrees.

We have to be careful here and not get days and degrees confused although they can sometimes be the same thing.

And here we will switch to the geocentric view, the view of Venus from the earth as noted earlier. Having a shorter period around the sun then the earth, it is one of the two planets inside the earth's orbit, the other being Mercury.

As viewed from the earth the planet does not seem to get too far away from the sun, acting for awhile as the evening star and then as the morning star depending on whether it is east or west of the sun as seen from the earth.

Venus like Mercury has two conjunctions with the sun. Conjunction means that two planets or a planet and the sun are in the same degree of the zodiac at the same time.

One of the conjunctions is when Venus is behind the sun and the other is when it is in front of the sun.

When it is behind the sun it is called a superior conjunction and when between the earth and the sun it is called an inferior conjunction.

I noted above that when the earth goes its 365 days, Venus goes 1.6x365 or 584 degrees and we must not get degrees and days confused,

but sometimes they are the same. An astronomy book will tell you that it takes 584 days to go from a conjunction to the same conjunction or from one superior to another superior or from an inferior back to an inferior.

We can check this by looking at a geocentric ephemeris so let's check some dates.

I have chosen at random a rather recent date when the sun and Venus were at superior conjunction, June 14, l992. You can distinguish a superior conjunction from an inferior one, by its position in the zodiac. If Venus proceeds to gain on the sun in the zodiac, then it is going from west to east or from behind the sun to the east.

We check in the ephemeris and find that on June 14, l992, Venus and the sun were in superior conjunction at 23 degrees in Gemini. As we go forward in time we see that Venus advances further and further along the zodiac as the sun trails behind.
Then on June 11, l993, about a year later, it swings in front of the earth and makes an inferior conjunction. It goes to the west and then swings in back of the sun, making superior conjunction again on Jan. l7, 1994 at 26 degrees in Capricorn.

You recall that Venus comes back to the same point in the sky every 8 years so let's get the number of days in eight years:

8x365.25=2922

Then we divide by 584, the number of days taken to make an inferior or superior conjunction.

2922 divided by 584=5.00342.

So Venus makes 5 conjunctions with the sun in the 8 years it takes to get back to the same place in the sky and the ratio of 5 and 8 is 1.6.

Checking our ephemeris we started at June 14, l992 when the sun and Venus were in superior conjunction at 23 degrees in Gemini.

The next 5 conjunctions after that date are:

Jan. l7, 1994 at 26 degrees Capricorn
Aug. 21, 1995 at 27 degrees Leo
April 3, 1997 at 13 degrees Aires
Oct. 31, l998 at 7 degrees Scorpio
June 12, 2000 at 21 degrees Gemini

That last one put us back where we started.

Here is another relationship between the cycle of Venus and the number 144.

We noted above that it takes 584 days to go from superior

conjunction to superior conjunction.

From superior conjunction Venus emerges to the east of the sun and serves as the evening star. In 220 days it reaches its farthest eastern elongation. Then it takes 144 days to go from eastern elongation to western elongation passing between the earth and the sun.

After reaching western elongation, it takes 220 days to get back to superior conjunction. We add 220 + 144 + 220 and we have the 584 days from conjunction to conjunction.

We can make another interesting observation, 220+144 is 364 days or a year in terms of weeks as 7x52 is 364. Or we can say it takes a year to go from conjunction to eastern elongation to western elongation.

Since it takes 144 days to go from eastern to western elongation then it takes 72 days to go from eastern elongation to an inferior conjunction with Venus between the sun and the earth.

Since we will be looking at some cubes in connection with the cycle of Venus, let's have a look at one here.

If we subtract that 72 from 584 we have 512 days. Or from inferior conjunction to western elongation to superior conjunction to eastern elongation is a total of 512 days.

Divide that by 8 and we get 64 and divide again by 8 and we have 8 or 512 is the cube of 8.

Another interesting point:

In we subtract 144 from 584 we have 440, which is 10 times 44. That number, 44, is more than just the low on beans in 1932 as we will see as we explore more of the Gann material and make some side trips in other material.

And 440 is 4 times 110. From your reading of the geometric means between the squares you know that 110 is the geometric mean between the square of 10 and the square of 11 since it is 10x11.

In his novel, "The Tunnel Thru the Air," we can see that the main character, Robert Gordon, had his offices on the 110th floor of 69 Wall Street!

And that number is not mentioned just once in the book. It is mentioned 4 times! On page 250, 336, 362 and 369.

Can you stand a little more?

440 is 8 times 55, which among other things, is a Fibonacci number. We will be looking at those "other things" in our next book.

Chapter 4-Venus and the Square of Nine Chart

If we started Venus and the earth at the vernal equinox or the first point of Aires or March 2l on the Square of Nine chart, by the time the earth reaches 225 degrees or 225 days Venus would have returned to the starting point since it take 225 days to make its full circle.

Continuing on, earth and Venus or Venus and the sun in eight years would be back at the starting point.

Gann notes is his material that 225 degrees is squared.

Chapter 5-Geometric Means of the Cube

I'm sure that you, like me, have read that second page of Chapter 9 in the commodity course many times and puzzled over it.

Gann makes much of the square, but when it comes down to it he seems to say that the answer is in the cube. His use of a 3-D devise he mentions in his advertising material would seem to indicate that.

For many years I believed that the cube of 9 or 9x9x9=729 was a time period, but didn't know if it was weeks or days or months or years or some other time period.

But I think I finally have the answer. But before we go into that let's look at a concept I explained in Book IV-"On the Square":

--THE GEOMETRIC MEAN--

For those of you who have not read the book I will give a brief, but not complete, recap of the section on the geometric mean.

Gann talks about the arithmetic mean, the half-way point, between two numbers, but only hints at the geometric mean, the evidence of which can be found in many places in the material.

The geometric mean is a number between two other numbers which has a "multiple" principle instead of an "additive" principle.

If we take a number like 6 and add 3 to get 9 and then 3 to get 12, 9 is the arithmetic mean, the halfway point. 9 is 3 more than 6 and 3 less than 12.

To get a "geometric" mean, we multiply instead of add.

Using the same starting point of 6, we multiply by 3 to get 18 and multiply 18 by 3 to get 54 and 18 is the geometric mean of the series of numbers 6, 18, 54.

An easy way to check to see if a number in the middle is a

geometric mean, simply multiply the two end terms, in this case 6 and 54 to get 324, and take the square root which is 18.

To get the geometric mean of two squares you can simply multiply the square roots of each square.

If we multiply 4x5 and get 20 we have the geometric mean between the square of 4 or 16 and the square of 5 or 25. The "multiplier" is 1.25 because 16 times 1.25 is 20 and 20 times 1.25 is 25.

So pick out a couple of your favorite numbers and multiply them. You have found the geometric mean between the squares of those two numbers.

In Book 4-"On the Square" I noted the importance of the geometric mean on the Square of Nine chart.

As I noted at that time, the same method for finding the geometric mean between the squares can be used for finding the geometric mean between numbers of any powers, squares, cubes, numbers to the fourth power, fifth power, etc.
Let's use the geometric mean between two of our squares to kick off this discussion. Let's look for the geometric mean between the square of 6 and the square of 9.

6x6=36
6x9=54
9x9=81

To find the multiplier we simply divide 6 into 9 and get 1.5 or one and a half.

36x1.5=54
54x1.5=81

We can check our answer by:

36x81=2916

And the square root of 2916 is 54.

Therefore 54 is the geometric mean between the square of 6 or 36 and the square of 9 or 81.

If we look at:

6x6
6x9
9x9

we can think of it as dropping one of the sixes from the first line and putting in one of the 9's from the last line.

Let's put down three 6's instead of two and three 9's instead of two like so:

6x6x6
9x9x9

Before I go on you might want to pick up your calculator and see if you can find the geometric means of the cube.

OK, let's give it a whirl.

First, let's spread the lines out so we can drop a 6 and put in a 9.

6x6x6
6x6x9

We have found the first geometric mean between the cube of 6 and the cube of 9.

Then we will spread the lines again and drop another 6 and put in another 9 for the next line.

6x6x6
6x6x9
6x9x9

We have found the second geometric mean between the cubes.

And then in the last line we will drop all 6's and put in all 9's so we will have:

6x6x6
6x6x9
6x9x9
9x9x9

Now let's do our multiplication:

6x6x6=216
6x6x9=324
6x9x9=486
9x9x9=729

Take the four answers and divide the first into the second, the second into the third and the third into the fourth.

324 divided by 216=1.5
486 divided by 324=1.5
729 divided by 486=1.5

PATTERN?

Yes, we have the same multiplier that we had when we were finding the geometric mean between the squares, 6x6 and 9x9.

That's because 9 divided by 6 is 1.5. It works every time!

If we put our four numbers down in this series 216, 324, 486, 729 what does that suggest?

We have "two" geometric means between the cubes whereas with the squares we only had one geometric mean.

With the squares we could prove our answer by multiplying the two end terms and taking the square root.

If we multiply the two end terms of the cubes 216 times 729 we find that they equal the product of the two middle terms 324 times 486.

216x729=157464
324x486=157464

We can see from our box that the top row has three 6's and the bottom three 9's and the two middle rows have three 6's and three 9's and 6x6x6x9x9x9 is the same regardless of the order.

6x6x9x6x9x9 is equal to 6x6x6x9x9x9.

We found that the squares have one mean and the cubes two means.

PATTERN?

What if we wanted to find the geometric means between:

6x6x6x6
9x9x9x9

How many would we have?

Yes, you were a little quick for me that time. You had seen the PATTERN. The number of means will be one less than the powers of the numbers. Since 6x6x6x6 and 9x9x9x9 are 6 to the fourth power and 9 to the fourth power than there must be three means.

We can check that by using the box method and dropping 6's and adding 9's:

6x6x6x6
6x6x6x9
6x6x9x9
6x9x9x9
9x9x9x9

The top line represents 6 to the fourth power and the bottom line represents 9 to the forth power and there are "three" lines in between which represent the geometric means so there must be "three" geometric means between numbers to the "fourth" power.

You can work it out for yourself by the same method we used above with a different set of numbers.

In my example what will the multiplier be?

It's still 1.5 or 9 divided by 6.

Give it a try. Use some other numbers. It's good practice for finding PATTERNS.

I noted in my preface that our method would be simple, observational arithmetic. No algebra involved. And you can see from the above I did just that. Once a PATTERN is established, the rest is easy.

In the above I used the "box" method, dropping one number and adding another. However, we could have just used the multiplier.

Say we were looking for the geometric means between 6 and 9 to the "fifth" power. We now know that we would have "four" geometric means since "four" is one less that the "fifth" power. Using the multiplier we would simply do this:

6x6x6x6x6=7776
7776x1.5=11664
11664x1.5=17496
17496x1.5=26244
26244x1.5=39366
39366x1.5=59049 which is 9x9x9x9x9

That works, but I like the box method better as it is more graphic and lends itself to a better understanding of Gann's work.

In the preceding examples, I used the "natural" numbers. (The natural numbers were explained in Book IV). But the method for finding geometric means can be used for any numbers, even irrational numbers like the square root of 5 (which is involved in the golden mean) or pi. The same box method could be used.

Let's see how that would work. My computer does not have a square root or pi symbol, so I will used SR5 for the square root of 5 and PI for pi. Let's assume we want to find the geometric means of the cube of each.

We would make our "box" thus:

SR5xSR5xSR5
SR5xSR5xPI
SR5XPIxPI
PIxPIxPI

And the multiplier would be PI divided by SR5.

Chapter 6-Venus and the Cube

In light of what you know now, reread the second page of Chapter 9, page 112 in the "old" commodity course (Section 10, Master Charts, page 3, Square of Nine in the "new" course) and see if you can see a PATTERN.

Gann talks about building the cube. He talks about the cube of 9 or 9x9x9. He also mentions 6 times the square of 9 or 6x81. We can always (and we should, to look for PATTERNS) break down our numbers into their component parts.

6x81 can also be read as 6x9x9 or 486. Check the work we did on the cube in Chapter 5 and see if you can find that number.

Yes, we can see that that number is one of the geometric means between the cube of 6 and the cube of 9.

As I mentioned earlier I always thought that the cube, 9x9x9, stood for a time period of days, months, etc. Maybe those were your thoughts, too.

I noted in Book I-"The Cycle of Mars" that Mars and Jupiter make conjunctions approximately every 27 months and a cycle of 27 times 27 months would be 729 since the cube of 9 is also the square of 27. There is another planetary cycle that could be applied here, but we will not go down that path now.

The more I read that section of Gann the more I became convinced that the cube was not a "time period" at all but a "division" of time. In his discussion of the hexagon or six-sided figure he mentions 30 years so I finally decided that maybe 30 years should be divided into 729 parts.

30 years is:

30x365.2422=10957.266 days

10957.266 days divided by 729=15.030543 days

Interesting?

It should be.

15, among other things, is one of the divisions of the circle by Gann.

We will get back to that, but let's have another look at that geometric mean.

We saw that 9 divided by 6 is 1.5. We also know now from our work that 729 divided by 486 is 1.5. If we divide 20 into 30 it is also 1.5.

Gann says we can use 486 or 729. Let's see what he meant by that. If we divided 30 years by 486 what do we get?

10957.266 divided by 486 is 22.545814 or 22.5 days, another division of the circle. Gann says you can go over 22.5 days on your chart and reach 22.5 degrees in the circle.

And 22.5 divided by 15 is 1.5!

Now, let's reverse the process and divide 20 years by 729.

20x365.2422=7304.844

7304.844 divided by 729=10.020362 days and 10 divided into 15 is 1.5

All that is very interesting you say, but what does that have to do with the cycle of Venus?

Then again you might be way ahead of me.

You will recall that the heliocentric period of Venus was 225 days and if we take the square root we find it is 15!

So the 30-year period divided by the cube of 9 equals the square root of the cycle of Venus.

Chapter 7-The 15-Day, 24-Hour Chart

Is there any other clues that the cube could refer to the cycle of Venus?

One could be the 15-day, 24-hour chart discussed on page 153 (in my copy) of the Gann material.

He notes that the time periods of 15 days equal 24 degrees.

Since Venus goes 1.6 degrees in one day then in 15 days it would go 24 degrees.

Gann ends this circular chart at 576 which is 24 squared, but it is also 4x144 as we saw earlier. We found earlier that 360 times 1.6 is 576 and we also found that 225 times 1.6 is 360.

What does that suggest? Let me put down the numbers like this:

225, 360, 576

Got it now?

That's correct!

360 is the geometric mean between the square of 15 and the

square of 24 and we can put down the numbers like this:

15x15=225
15x24=360
24x24=576

What else does it suggest from the three products above?

Remember how to verify a geometric mean?

That's right. We can multiply the two end terms and take their square root and the answer will be the middle term.

Ah, hah. You just saw it! 225 times 576 is 360x360 or the square of the degrees in a circle. 576 cycles of Venus equals 360x360!

This is just one of the examples of squaring the circle as you have noticed from your reading of Gann. It is the only one I will deal with here as the "square of the circle" is a study in itself.

There are also other explanations for the 15-degree, 24-hour chart and again this is not the place for a discussion of those as it would take us far afield and we want to keep to the discussion at hand.

Chapter 8-Venus and the Harmonic Mean

I am going to put down four number and let you have a look at them:

90, 144, 225, 360

Recognize them? The 90 is Gann's 90 degree angle, the 144 is the square of 12, the 225 is his 5/8 of a circle and square and also the cycle of Venus and the 360 is the degrees in a circle.

They have a special relationship and we will look at them a little bit later. But first some background.

In Book IV-"On the Square" I noted that the ancients recognized 10 different "means" and those 10 could be the basis of the tetraxes of Pythagorus. We looked at two those means in that book and I have given a recap in this one, but let's look at them once more.

The arithmetic mean is Gann's halfway point. The usual way used by most writers is to take two numbers like 6 and 12, subtract them to find their difference, take half of the difference and add to the smaller number to find the half-way point.

12 minus 6 is 6 and half of 6 is 3 and 3 added to 6 is 9 and 9 is the arithmetic mean between 6 and 12.

Gann's method was a lot simpler. He added the smaller to the

larger and divided by 2. Six plus 12 is 18 and 18 divided by 2 is 9. Using simple numbers like this, the two methods don't really differ in ease of use, but when using bigger numbers Gann's method is easier.

The low on beans in 1932 was 44 and the high in 1948 was 436. Gann added the two to get 480 and divided by 2 to get 240, the arithmetic mean, which in this case also ended up being the 2/3 point of the circle (240 is 2/3 of 360).

We also saw that the geometric mean was the middle number between two other numbers which was arrived at by multiplying the two end numbers and taking the square root. We used squares to make the task simpler.

We found that the geometric mean between the square of 6 and square of 9 could be found thus:

6x6=36
6x9=54
9x9=81

We could prove the answer by multiplying the end terms and taking the square root to find the middle term.

As I said before, we used squares for simplicity, but multiplying two numbers and taking the square root works for any two numbers. Instead of finding the geometric mean between the "square" of 6 and the "square" of 9 we could find the geometric mean between the number 6 and the number 9.

We could take the square root of each and multiply them or we could simply multiply the two and take the square root which in this case would be the square root of 54 or 7.3484692. When we are using single numbers like this the "multiplier" is the square root of their ratio or the square root of 1.5 or 1.2237448 and 6 times the square root of 1.5 times the square root of 1.5 will be 9.

If we wanted to find the geometric mean between 44 and 436 we could take the square root of 44 and the square root of 436 and multiply the answers or we could simply multiply 44 times 436 and take the square root, which incidently is

44x436=19184
and the square root is 138.50631.

Dividing 44 into 138.50631 we find that the multiplier is 3.1478706. Now multiply 3.1478706 times 138.50631.

Are you surprised that the answer is 436. No, you're not surprised. You knew it would be all along!

The other mean I mentioned in Book IV-"On the Square" was the "harmonic" mean.

The harmonic mean is a little difficult to understand at first glance but easily found, so no worry.

The harmonic mean is that number between two other numbers which is the same percentage greater than the smaller number as it is smaller that the greater.

I know that's a mouthful, but a few examples will make it clearer.

Let's use 6 and 12 again as we did to find the arithmetic mean:

6, 12

Now we want to find a number so that it will be the same percentage greater than the smaller as it is less than the larger and I will insert it here for the illustration:

6, 8, 12

If we take 1/3 of 6 or 2 and add it to 6 we get 8 and if we take 1/3 of 12 which is 4 and subtract it from 12 we get 8 so 8 is the "harmonic" mean between 6 and 12.

You might have done that by trial and error. But there is an easier way to find the harmonic mean. Study the numbers again and see if you can find the answer.

I'll throw in another number to see if it helps:

6, 8, 9, 12

Got it now? Remember earlier we found that 9 was the arithmetic mean between 6 and 12.

Got it?

I'll bet you have if you have looked at very many Gann numbers.

The two end terms multiplied equal the two middle terms multiplied.

What does that suggest?
Try this. Multiply the two end terms and divide by the arithmetic mean.

6x12=72
72 divided by 9 (the arithmetic mean) equals 8, the harmonic mean.

In addition to the percentage method, we can check the harmonic mean in another way.

12 is 2 times 6
6 from 8 is 2

8 from 12 is 4
2 times 2 is 4

or the distance from the harmonic mean to the larger number is 2 times the distance from the smaller number to the harmonic mean.

Any group of numbers you can put down will have ratios to each other. If you multiply all the numbers by another number you will change the numbers but not the ratios.

We can put down

6, 8, 9, 12

and multiply each by 2 so that we have

12, 16, 18, 24

24 is twice 12

18 is the arithmetic mean and 16 is the harmonic mean.

Try a few!

We found that the harmonic mean between two numbers in which one, 12, was twice the other, 6.

Now let's try one where the larger is 3 times the smaller.

Again starting with 6:

6, 18

We will add the arithmetic mean by adding 6 to 18 and dividing by 2.

6, 12, 18

Now can you find the harmonic mean?

By trial and error you could have found that half of 6 is 3 and 3 plus 6 is 9 and that half of 18 is 9 and 18 minus 9 is 9 and therefore you have found the harmonic mean.

But you could have found it the easy way. Did you?

6x18=108
108 divided by 12 is 9

So we have 6, 9, 12, 18

18 is three times 6
The distance from 6 to 9 is 3 and the distance from 9 to 18 is 9 and 3x3 is 9. Just another way to check the harmonic mean.

Now let's try numbers in which the larger is four times the smaller. We could use 6 as the smaller again, but this would lead to some fractions and would still be right, but it looks better using natural numbers.

If we used 6 we would have 6, 15, 24 and 144 divided by 15 would give us a fraction so let's start from 10 instead:

10, 40

10 plus 40 divided by 2 gives 25 for the arithmetic mean:

10, 25, 40

Can you find the "harmonic mean" the easy way?

If you said 400 divided by 25 you are correct. So our four numbers would be:

10, 16, 25, 40

Checking it we find that 16 is 60 percent or .6 more than 10 and 40 minus 60 percent of 40 or 24 equals 16 so 16 is correct as the harmonic mean.

Since 40 is 4 times 10 we find that the distance from 10 to 16 is 6 and 4 times 6 is 24, the distance from 16 to 40. Just another way to prove the harmonic mean.

Earlier I told you to put down these numbers:

90, 144, 225, 360

Now look at 10, 16, 25, 40

PATTERN?

Yes, we simply multiplied the numbers in one series by 9 to get the other series. Remember, we can multiply a series of numbers by the same number and get different numbers, but we will have the same ratio.

So now we have another relationship between 144 and 225 or the cycle of Venus. If we use 90 as the starting point and 360 as the end point then 225 equals the arithmetic mean and 144 the harmonic mean!

You will also note that 144 is 1.6 times 90 and Venus goes 1.6 degrees a day and when the earth goes 90 degrees Venus goes 144.

Those four numbers, 10, 16, 25, 40, can be multiplied by different numbers and you will arrive at other interesting relationships, but I will let you do that.

After all, as I said earlier, why should I have all the fun!

I noted in Book IV-"On the Square" that there is no need to go way up in numbers to prove a PATTERN. If it works at the bottom of the ladder, it works at the top.

For example we could simply start from the number 1, the beginning of all numbers (in more ways than one, and that's no pun!) Let's divide our 10, 16, 25 and 40 by 10 and we get 1, 1.6, 2.5 and 4.

1.6 is the harmonic mean between 1 and 4.

Try that for some other series of numbers, like between 1 and 2, 1 and 3, 1 and 5, etc. and then multiply by some other numbers to get a similar series.

Chapter 9-Gann's 15-day Chart

Market traders use a variety of charts. I have seen charts for 5-minute periods, 30-minute periods, hour-periods and the usual day, week and monthly charts.

What determines a time period for a chart? I suspect that some people use 5-minute charts because others use them. But it seems rather arbitrary. There should be a reason for keeping the type of charts that we do.

Gann kept some unusual charts with some unusual price increments as can be seen from his moon chart. He had a two and a quarter day chart and often a 2 or 3-day chart.

Let's look at one that should be in your possession. It is the 15-day Dow-Jones chart of the early 1940's, one in which his 45-degree lines, etc. and his lines coming up from zero seem to be right on target.

The dates on this chart are awfully hard to figure. Ink blots and what appears to be an attempt to obliterate some of the dates with ink remover makes this a very difficult chart to study.

I have just about ruined my eyes studying some of the Gann material. I even used magnifying glasses several years ago on one chart. Those studies took a large toll on my eyes, but it paid off as I found some Gann markings well hidden and in one search found a faint outline of the Mars line on his cotton chart.

On the Dow-Jones 15-day chart we are now looking at you will notice along the bottom of the chart just above the dates that Gann associated an hour with the 15 days. It appears to start with 8:30 a.m. and the next 15 days is 9:30 a.m. and the next 15 days, 10:30 a.m. etc. This he probably connects to his 15-day, 24-hour chart.

Follow this chart on out to the end. it seems to end sometime in September of 1951.

Along the bottom where he keeps a running total of the weeks from the beginning it seems to end at about 225.

PATTERN?

We now know that the square root of 225 is 15 so if we have 225 cycles of 15 days we must have a cycle of 15x15x15 days which is a cube and we are back to Gann's idea of the cube.

We also know that the cycle of Venus is 225 days.

PATTERN?

Yes, this period would represent 15 cycles of 225 days in the same way that it represents 225 cycles of 15 days.

Chapter 10-Venus and the Square of 45

In Gann's private papers, he has one called "Soy Beans, Price Resistance Levels." Look on page 2, under the heading active angles and degrees. He says that the square of 1 is 1 and 1 is the sun and 1 added to 8 is 9, the square of 3 and completes the first important odd square and is important for time and price.

For many years I thought he meant that the nine planets would represent 9x9, but then I followed another line of thought.

Let's number the planets from the sun starting with the sun as 1. Then Mercury would be 2 and Venus would be 3.

If we square 3 to get 9 and then multiply that times 225, the cycle of Venus, what do we have?

9x225 or

3x3x15x15 or

3x15x3x15 or

45x45!

Need I say more?

Chapter 11-The Eighth Square, The "Death Zone"

Earlier I said I did not believe the 8-year cycle of Gann was the "eighth square, or death zone."

For years I wondered what Gann was talking about when he referred to the "death zone." I have seen some of the works of other

writers on the subject and they seem to have some validity.

I am not an astrologer nor astronomer, but have read several books on both subjects. But, it was when I was reading one particular book that it finally dawned on me what Gann meant.

And it should have been obvious all along!

Let's look at chapter 9 again, page 111 in the "old" course, bottom of the page (Section 10, Master Charts, page 2, Master '12' Chart, in the "new" course). Gann is talking about the square of 12 or 12 times 12 or 144.

Among other things he notes that the eighth and ninth "zone" are hardest to pass because this is the death zone.

Let's first put the square of 12 in perspective to the circle. It appears here that Gann has taken the circle of 360 degrees and divided it into 144 parts and each part would therefore represent 2.5 degrees.

The first 12 parts then would be 30 degrees since 2.5 times 12 equals 30.

The end of the 7th zone then would be 210 degrees and the beginning of the eighth zone would be at 211 degrees. If we look at a diagram of the zodiac we can see that this would be the beginning of the zodiacal sign Scorpio.

There is an expression from the Bible of "Oh death, where is thy sting?" And we all know that scorpions kill with a stinger.

Let's look back again at Gann's private papers on soybeans, this time the third page, third paragraph, where he says that below 304 the price will be in the bear sign Scorpio, a fixed sign and will indicate lower prices.

I believe you will agree with me that a bear market or going down market would be described as a "dying market."

Back to the 12x12 square. We could make a case that the eighth year is the death zone if we base our 12x12 on the movement of Jupiter. Jupiter makes its cycle in approximately 12 years or 144 months or 2.5 degrees per month and through a sign of 30 degrees in one year. Starting from the zero point in Aires, Jupiter would be in Scorpio in the eighth year of its cycle.

Getting back to Venus, we noted that Venus makes its cycle in 225 days. If we started Venus and the earth in a helio circle (as seen from the sun) from 0, when the earth gets at 225, Venus is at 360.

Where is this 225? Looking at a design of the zodiac we find that 225 is in the exact middle of Scorpio since Libra ends at 210. 15 degrees more or 225 would be at 15 degrees Scorpio.

We might say that when the earth is dying in Scorpio Venus is being reborn in a new cycle at 0 degrees in Aires.

And as some would say, without death there is no life.

I mentioned earlier that I found the evidence for this in a book on astrology. It is a book easily found so that you can look it up for yourself without buying a book on astrology.

It is one of the Time-Life books you have seen advertised on TV, but is probably available at your local library as that is when I found mine.

The name of the series is "Mysteries of the Unknown" and the name of the book in the series is "Cosmic Connections." On page 120 it gives the qualities of the different houses of the zodiac and on the opposite page it shows the location of the different houses in the equal house system.

There are many "house systems" in astrology and Gann used at least two of them, as can be seen from his private papers, but for this purpose we will assume equal houses and make signs and houses the same.

You will notice that the eighth house is the house of death and the eighth sign or house is Scorpio! It should have been obvious to me a long time ago. But sometimes it take a long time for things to sink in.

I will venture to say that even those Gann writers who claim to have great knowledge of astrology never made that connection to Gann's death zone!

PATTERN! PATTERN! PATTERN!

We must never stop looking for PATTERNS when we study Gann or any other numbering system. If we do, even the obvious will get by us!

When we looked at the cube, we were looking for the relationship between the cube of 6 and the cube of 9.

Is there any other clue in the Gann material for the use of these two numbers?

In his novel, "The Tunnel Thru the Air," we see that his main character, Robert Gordon, was born in the 6th month (June) on the 9th day in the year 1906. Dropping the 1 and the zero in the year we see that it is 9 and 6.

On page 194 of the novel we see that his office on Wall street was at 69! If we turn that number on its side we see that we have a zodiacal symbol, the crab or cancer.

An astrological writer before the turn of the century made much of the two numbers and noted their "sexual" connotation which I will not go into here, but just note it in passing.

That astrological writer also made much of the numbers 3, 5, and 7, which are Masonic numbers and Gann was a Mason.

If we add the numbers their total is 15. And by now I'm sure I don't have to tell you what that number is.
If we square them and multiply them we will have the square of 105 times 105. And if we divide that by 30 we will have 367.56. Another way to put it is, the square of 105 equals approximately 30 years.

The answer is also the square of a triangle and that number is found in the ratio of the Great Pyramid and contains all the cubes one to 14.

More on that next time.

I hope you have enjoyed reading this as much as I have enjoyed writing it. The search for the PATTERNS in Gann and other mystical number writing is a never ending search for PATTERNS.

You might not agree with all I have had to say and you might think that the relationship between Venus and the cube is coincidental.

But the coincidences in Book I, Book II, Book III, Book IV and Book V are certainly piling up.

And remember. Gann had a square of 90 and a square of 144 and their ratio is 1.6, the same as the heliocentric Venus cycle of 225 and the degrees in a circle, 360, and Venus goes 1.6 degrees a day!

Book VI

The Triangular Numbers

Chapter 1-Foolin' Around

As I told you in my preface, I'm not a mathematician. My background is journalism. I had some algebra in high school and in college, but I have forgotten everything I ever learned.

As they say, if you don't practice it you will forget it.

In my early days of Gann study I often found myself with my calculator in hand, adding numbers, subtracting them, etc. Just doodling you might say or just foolin' around to see if I could come up with some interesting numbers that would coincide with some Gann numbers.

When I came up with an interesting number, I would divide it by Gann's numbers and see if I could come up with some other interesting Gann numbers.

One day I was simply adding the "natural numbers" in order.

I explained "natural numbers" in another book, Book IV-"On the Square." They are simply the "counting numbers" that we use every day, starting with 1, 2, 3, etc. and have no fractions or decimals, etc.

As I was doing this a number popped up in the calculator, 666.

That was a number I was familiar with from my Bible reading and one that I am sure most of you are familiar with.

This is not the place to go into the religious connotations of that number.

My interest in it at that time was how I arrived at it. So I cleared the calculator and started from 1 again, putting in 2, 3, 4, etc. on up to the number 36 at which time the number 666 popped up on the screen again.

So, 666 is arrived at by adding all the natural numbers from 1 through 36.

I picked out some other numbers and added up through them, some squares, some Gann numbers, 144, etc.

Interesting, but I didn't really know what I was doing.

Do you know what I was doing?

If you do, you already have a leg up on this study. If you don't, don't worry, I'll let you learn along with me as we explore some more "PATTERNS of Gann."

I spent lots of time starting from 1 and putting in 2, 3, etc. I might have even gone up to 666 itself. Can't remember now, but if I did I know it would have taken me a long time.

I still have slips of paper showing where I started with 1 and went up to 144, hoping that along the way I did not put in a wrong number as that would have thrown me off the trail of some big number and I would have to start all over again.

A short time later I was foolin' around again. I had multiplied some numbers, etc. and then divided by 2 and I got 666.

Now how did I get that?

I kept playing around with the numbers and finally figured out that if I took half of the number I wanted to find (by adding from 1 up through that number), I could simply take half of the number and multiply it by the next number.

So if I wanted to add from 1 up through 36, I could take half of 36 and multiply it by 37.

36/2=18
18x37=666

I also found that I could take half of the next number and multiply it times the original number and get the same result:

37/2=18.5
18.5x36=666

So, by taking half of one of the numbers and multiplying it times the other I would have my answer.

In doing mental calculations it would be easy (to get rid of the fractions) to do it like this:

If I was looking for the answer to an even number, I would take half of it and multiply by the next. If I was looking for the answer to an odd number I would take half of the next number and multiply it by the original number.

For example, in finding 36, I would take half and multiply by 37. But, if i were looking for 37, I would take half of 38 and multiply by 37.

Try a few numbers for yourself and while you are doing it tell me an easier way of doing it.

Go on, try a few, give it a whirl, they won't bit you. I'll take a breather for awhile.

What? You're back already?

You figured it out faster than I did! I was still a little slow then and looking for PATTERNS was something that was still far down the road for me. I was usually just foolin' around.

Well, let's see what you found.

You figured out that if you took half of one number and multiplied it by another that was the same thing as multiplying the two numbers and then dividing by two.

So instead of taking half of 36 which is 18 and multiplying by 37, you simply multiplied 36 times 37 and got 1332 and then divided by 2 to get 666.

That's probably what I did that day when I said I was multiplying some numbers and divided by 2 and got 666, but had forgotten what I did.

So now we have found an easy way to find our numbers without starting from 1 and adding 2, 3, 4, etc.

If we want to know what 1 plus 2, plus 3, etc. on up through 144 totals all we have to do is:

144x145=20880
and 20880 divided by 2 is 10440.

That's certainly a lot easier than starting from 1 plus 2, etc.

So, if you didn't get it the first time, try a few now.

Years after I made the above "discovery" I read in a math book that a mathematician by the name of Gauss, who lived a few hundred years ago, worked it out at the age of 8.

The teacher asked his class what would the answer be if you added 1 plus 2, plus 3, all the way up to 100. Almost immediately he raised his hand and gave the answer.

Now you and I pretty much know how he did it. But why does it work? Why divide by 2? Gauss probably divided 100 by 2 and got 50 and then multiplied by 101.

Let's see if we can find out why. Let's put down the natural numbers from 1 to 12.

1
2
3

4
5
6
7
8
9
10
11
12

Look at the list. Gauss divided 100 by 2 and multiplied by 101.

We are going to divide by 2 to get 6 and multiply by 13.

Look at the list above.

PATTERN?

Think of pairs.

Got it now?

Let's take the 1 from the top and add it to the 12 at the bottom to get 13 and put it aside.

Now take 2 from the top and add it to 11 at the bottom and put those numbers aside.

PATTERN?

Yes, we are making pairs and when we get done we will have 6 "pairs" of numbers and each pair will have a value of 13 and 6 times 13 is 78 which is what you would get if you added 1 plus 2, etc. up through 12.

And that's what I did when I took half of 36 and got 18. I had 18 pairs of numbers and each pair had a value of 37.

Gauss was doing the same thing. Dividing 100 by 2 gave him 50 pairs and each pair had a value of 10l.

So that tells us why it works.

But, it is much simpler in actual practice to multiply 12 times 13 and divide by 2. The value of this will be seen when we deal with the "unnatural numbers."

Chapter 2-An Ancient Arithmetic Man

We have learned what to do, but what does it mean?

We have found a simple way to add from 1 up through any number, but is there a name we can give to what we are doing?

When I was doing the this work in the early 1980's I was looking through a book on Masonry and saw a picture of something called the "tetraxes."

It was a picture of 10 dots with a triangle drawn around the dots. There was a dot on top, then 2 in the second row, 3 in the third row and 4 in the fourth row.

They added to 10 and suppose to contain a secret.

I noted in Book IV-"On he Square" that the ancients recognized 10 "means" and maybe that was represented by the tetraxes.

But, I thought maybe the tetraxes simply represented what it was, four numbers that added up to 10.

Then I found a book in an office where I had gone to see about a job and in it was a section on an ancient "arithmetic man."

I call him an arithmetic man because he never claimed to be a mathematician. Like my work, he presented it without algebra, just simply observational arithmetic.

And there I found what I suspected all along. A picture of the tetraxes, a triangle with dots inside which represented numbers and I knew then what I had been making for quite sometime without knowing it.

TRIANGULAR NUMBERS

It was a representation of 1 placed on top of 2, placed on top of 3, placed on top of four, etc.

Let's look at that in a graphic representation. But instead of using dots let's use numbers and place them on top of each other. We will use squares to hold the numbers so you can get the idea.

Many years ago grocery stores made floor displays by stacking cans on top of each other, starting with a certain number on the bottom row, putting one less each time on the next row, etc. until they got up to the top row which had only one can.

Standing off and looking at the display you would see something that resembled a triangle or pyramid (we must not confuse triangular numbers with pyramid numbers though so let's call the display a triangle).

So, let's make some floor displays with cans and the squares below will represent the cans and we will number the cans (squares) in each display.
The first triangle:

1

contains one can or the triangle of 1.

The second triangle:

1

2 3

contains three cans or the triangle of 2.
The third triangle:

1

2 3

4 5 6

contains six cans or the triangle of 3.

The fourth triangle:

1

2 3

4 5 6

7 8 9 10

contains 10 cans or the triangle of 4.

The fifth triangle:

1

2 3

4 5 6

7 8 9 10

11 12 13 14 15

contains 15 cans or the triangle of 5.

The sixth triangle:

1

2 3

4 5 6

7 8 9 10

11 12 13 14 15

16 17 18 19 20 21

contains 21 cans or the triangle of 6.

The seventh triangle:

1

2 3

4 5 6

7 8 9 10

11 12 13 14 15

16 17 18 19 20 21

22 23 24 25 26 27 28

contains 28 cans or the triangle of 7.

The eighth triangle:

1

2 3

4 5 6

7 8 9 10

11 12 13 14 15

16 17 18 19 20 21

22 23 24 25 26 27 28

29 30 31 32 33 34 35 36

contains 36 cans or the triangle of 8.

The ninth triangle:

1

2 3

4 5 6

7 8 9 10

11 12 13 14 15

16 17 18 19 20 21

22 23 24 25 26 27 28

29 30 31 32 33 34 35 36

37 38 39 40 41 42 43 44 45

contains 45 cans or the triangle of 9.

My program does not allow me to take the spaces from between the different rows so I could put the rows on top of each other but I think you get the idea.

Looking along the right hand side of the triangle you can see the total from the first to the last can in the triangle.

Now that we have the idea of the triangular numbers, in the next chapter we will use just the numbers themselves.

Chapter 3-Making the Triangular Numbers

To me, the triangular numbers are more interesting than the squares because of their use in making other figures.

Later we will have a look at some triangular numbers in the Gann material and their importance to the Square of Nine chart and the Hexagon chart.

But first, let's make some of the triangular numbers in a list so you don't have to be using your calculator so much.

The first number in the list will be the number we will be adding each time and the second number will be the running total or

the triangular numbers.

(You might think of the numbers on the left as being the root of the triangle in the same way as you think of a number as being a root of a square. For example the root of the square of 16 is 4. The root of the triangle of 10 is 4. That is, when we add up through 4 we will have the number 10. I don't know if there is any such thing in mathematics as the root of a triangle. If not I'm coining that phrase right here! We will say that the triangle of 4 is 10 in the same way that Gann said the square of 9 is 81, meaning 9 squared and not the square root of 9, which is 3.)

For right now we will be making the triangular numbers from 1 through 49:

1	1
2	3
3	6
4	10
5	15
6	21
7	28
8	36
9	45
10	55
11	66
12	78
13	91
14	105
15	120
16	136
17	153
18	171
19	190
20	210
21	231
22	253
23	276
24	300
25	325
26	351
27	378
28	406
29	435
30	465
31	496
32	528
33	561

34	595
35	630
36	666
37	703
38	741
39	780
40	820
41	861
42	903
43	946
44	990
45	1035
46	1081
47	1128
48	1176
49	1225

Have a look at the numbers. You will recognize those we did. The triangle of 12 is 78. The triangle of 36 is 666.

There is another Biblical number by the same writer (of 666) which is also found in the pyramids. But we will deal with that at a later time because we do not want to go far afield, but keep to the work at hand.

You might also recognize some numbers from Gann. There are some in the Gann material that are well hidden, but can be found with some careful digging. Before we start looking for numbers in the Gann material, let's look at some of the properties of the triangular numbers. And always remember to keep your eyes open for

PATTERNS

Look at the numbers again. Play with them a little and see if you can find a

PATTERN

Hint. Think squares.

Found it?

Let's look at the first two numbers, 1 and 3. They add to 4, the square of 2.

Can you take it from there?

Let's take the 3 and add to the next number, 6. We get 9, the square of 3.

Got it now?

Pick out two successive numbers anywhere in the list. Add them and take the square root.

Ok. You say 666 and 703.

666+703=1369
The square root of 1369 is 37.

PATTERN?

Yes, add any successive triangular numbers and your answer will always be a square.
And what is that square?

It is the square of the root of the second triangular number. We added the triangle of 36 or 666 to the triangle of 37 or 703 and the square root was 37.

We can see why that is.

Remember that Pythagoras used a series of 1, 2, 3 and 4 dots to represent the triangle of 4 or 10. Then if we made a triangle of 1, 2, 3, 4 and 5 dots to represent the triangle of 5 or 15 we could push the two triangles together and have a square, the square of 5.

So, put down 5 rows of 5 dots to represent the square of 5 or 5x5=25.

Now if we rotated this square so that the left top corner was straight up and the right bottom corner was straight down we would have something looking like a baseball diamond and there would be a dot on top followed by two under that, then 3, etc.

Turn your head to the side and look at the square made up of dots and you will get the idea. The number of dots going from top to bottom or in our case from top left to bottom right are:

1, 2, 3, 4, 5, 4, 3, 2, 1

They form the square of 5 and the square is made up of two triangles. The apex of the two triangles are at top left and bottom right and the bases run along the two rows that contain the 4 dots and the five dots.

Then we could add them. On the top diagonals we would have 1+2+3+4=10.

Counting from the bottom we would have 1+2+3+4+5=15.

And 10+15=25, the square of 5.

Let's make that a little more graphic. Instead of using dots were will use numbers and put those numbers inside little squares.

And I have numbered the squares 1 and then 1, 2 and then 1, 2, 3

to show how many numbers (dots) are in each row.

And then I have renumbered them to show the total going up to 10 from one corner and up to 15 from the other, representing two triangles, one consisting of 10 dots and the other 15.

And from that we can see that the triangle of 4 or 10 plus the triangle of 5 or 15 is equal to 25 or the square of 5x5.

Look at the numbers again. See another PATTERN?

Since we have 1, 2, 3, 4 from one end and 1, 2, 3, 4 from the other and 5 in the middle, what does that suggest?

If we double the triangle of 4 (2x10) and add the middle number we also have 25. So two times any triangular number plus the addition of the next number (the number itself and not its triangle) equals the square of the next number. Try a few for yourself.

How to make triangles and how to add them to form squares, I learned from the ancient arithmetic man.
But, I also made a lot of my own discoveries. They are probably known by mathematicians. And then again, maybe not!

That's the nice thing about studying PATTERNS, they often lead to other PATTERNS.

Let's put down three triangular numbers in a row. For example the triangles of 4, 5, and 6.

They are 10, 15, 21.

See any PATTERN?

We could add them:

10+15+21 and get 46.

No PATTERN there, at least not one I can see.

We could multiply them.

10x15x21=3150

Can't see anything there either.

Any suggestions?

Let's multiply the two end terms, 10x21 and get 210.

Any PATTERN?

No, but what if we ADDED the middle term, which is 15.

Then we would have 225, the square of the middle term, 15.

As I noted in Book IV-"On the Square," we don't have to go way up in numbers to check for PATTERNS. We can always use the bottom of the ladder and if it works there it probably works anywhere.

So starting from the bottom of the ladder we can put down the triangular numbers of 1, 2, 3 and get:

1, 3, 6

And 1x6=6 and 6+3 is 9, the square of the middle number. So that probably works every time. Try a few and prove it to yourself.

There is another relationship between the triangular numbers and the squares.

Look at the three numbers below:

10, 16, 10

Let's add them. 10+16+10=36

PATTERN?

We know from our triangular list that 10 is the triangle of 4. Sixteen is not a triangle, but it is a square. The square of 4.

PATTERN?

36 is a square, but from our triangular list it is also the triangle of 8.
Let's try three more numbers:

15, 25, 15

We know from our triangular list that 15 is the triangle of 5. 25 is not a triangle, but we know that it is the square of 5. Let's add them:

15+25+15=55

55 is not a square as 36 was, but it is the triangle of 10.

PATTERN?

Yes, I can see the gleam in your eyes.

Two times the triangle of any number plus the square of that number equals the triangle of a number that is double the first number.

In our first example we saw that two triangles of 4 (2x10) plus the square of 4 (4x4) equals 36 and 36 is the triangle of 8 which is 2 times 4.

In our second example we saw that two triangles of 5 (2x15) plus the square of 5 (5x5) equals 55 and 55 is the triangle of 10 which is 2 times 5.

PATTERN made!

It even works with 1:
1, 1, 1

The triangle of 1 is 1 and 2x1=2. The square of 1 is 1 and 1 plus 2 is 3. 3 is the triangle of 2 and 2 is 2x1.

(You will find, as I pointed out in Book IV-"On the Square" that the number 1 represents more than just the single digit 1. It can be a single number, a square, a number to any power and a triangle among other things. That's why the natural numbers begin with 1 and not zero, which has puzzled Gann students for a long time. But now you know!)

Chapter 4-Making Other Numeric Figures

We will get back to the triangular numbers and where they appear in the Gann material later, but let's first go on and make some other "numeric figures."

In Book IV-"On the Square," I said that instead of drawing a square, we would be making squares numerically. And I showed how that was done by adding the odd numbers and noted that other figures could be made by the same method.

We have seen how that method was used to make triangular numbers, but that ancient arithmetic man also showed how to make some other number figures.

The next figure we will make is a 5-sided figure called a pentagon.

We will put down the numbers to make those figures. The first numbers will be the numbers with which to make the pentagon and the running total will be the pentagon numbers themselves.

1	1
4	5
7	12
10	22
13	35
16	51
19	70
22	92
25	117
28	145

31	176
34	210
37	247
40	287
43	330
46	376
49	425

Now, without comment, let's make the hexagon numerically. That is, let's make a 6-sided figure. Again the numbers to make the hexagon will be the first numbers. The hexagon numbers which are a running total of the first will be the numbers in the second row.

1	1
5	6
9	15
13	28
17	45
21	66
25	91
29	120
33	153
37	190
41	231
45	276

I had no comment on the 5-sided figure as I wanted to give you a chance to look for PATTERNS and now I think we have enough material down to give you that chance.

So what about it? PATTERN?

Look at the numbers with which we made the different sided figures. I will remind you that in Book IV-"On the Square" we made the squares using the natural odd numbers starting with 1 and the numbers were 1, 3, 5, 7, etc.

Got it now?

Let's put down the numbers with which we "made" the different figures in the order, triangles, squares, pentagons, hexagons:

Tri	Squ	Pen	Hex
1	1	1	1
2	3	4	5
3	5	7	9
4	7	10	13
5	9	13	17

Give it another try.

Ok. Let's have a look at your work. You saw that in the first row where we have the numbers with which we make the triangles, the numbers are 1 unit apart. Add 1 to any unit and you have the next unit. 1 plus 2 is 3, etc.

Looking under the squares you saw that the numbers were two units apart. Add 2 to any unit and you get the next number. 3 plus 2 is 5, etc. (In our work on the square in Book IV-"On the Square" we saw that this was Gann's variable of two.)

Looking under the pentagons you saw that the numbers were 3 units apart. That is, you can add 3 to any number and get the next number. 3 plus 7 is 10, etc.

Under the hexagons you saw that the numbers used to make the hexagon numbers were four units apart. That is, 1, 5, 9, etc.

I mentioned in my advertising material that I would tell you how to make any sided figure very quickly.

So, quick now, how would you make a 33-sided figure?

Yes, knowing what you know now you could make a 7-sided figure, an 8-sided figure and after a lot of other sided figures you would know what numbers to use to make a 33-sided figure, but that would take a lot of time and would not be very quick.

Have another look at the numbers under the triangle, square, pentagon and hexagon.

PATTERN?

Under the triangle the numbers used to make a 3-sided figure are 1 unit part. Under the square, a 4-sided figure, the numbers used are 2 units apart. Under the pentagon or 5-sided figure the numbers are 3 units apart. Under the hexagon or 6-sided figure the numbers are 4 units apart.

Now how do you make a 33-sided figure?

Did you study the PATTERN?

If you did you noticed that the distance between the numbers used are 2 less than the number of the sides.

Now how do you make a 33-sided figure?

If you said subtract 2 from 33 and get 31 and use numbers that are 31 units apart you are correct and those numbers would be:

1. 1
32. 33

63. 96, etc.

Look under the headings of the triangle, square, etc. again.

A good way to check if you are on the right track is to add the first two numbers and they will add to the side you are making.

Under the triangle the first two numbers are 1 and 2 and that equals 3 and we are making a 3-sided figure. Under the square the first two numbers are 1 and 3 which equals 4 and we are making a square, a 4-sided figure.

In the 33-sided example look at the first two numbers used to make the 33-sided figure. They are 1 and 32 and they add to 33!

Now you know a fast way to make any sided figure you want to.

Quick now, how would you make a 12-sided figure?

That's right, the first two numbers would be 1 and 11 and you would be using numbers which are 10 units apart since 10 is 2 less than 12.

Give it a good try!!!!

I have shown you how to make the other figures for two reasons.

The first is to show you the importance of the number 1 and its many characteristics. We know that the single digit is 1 and we also know that 1 to any power, square, cube, whatever is still 1.

Now, in making the figures you have seen that it has other characteristics. It is a triangular number, a square, a pentagon number, a hexagon number and the first number of any sided figure, 33 or otherwise.

The second reason for looking at the other figures is to show you the importance of the triangular numbers.

We have seen that any two successive triangles equal a square.

I am now going to put down the other sided figures and see if you can make a PATTERN. I will simply put down the figures themselves, not the numbers with which we make them. But in the first row I will put the "terms."

Term	Tri	Squ	Pen	Hex
1	1	1	1	1
2	3	4	5	6
3	6	9	12	15
4	10	16	22	28
5	15	25	35	45
6	21	36	51	66

7	28	49	70	91
8	36	64	92	120
9	45	81	117	153

PATTERN?

We have used the terms to make the triangular numbers and when we add any two successive triangles we get a square. Can you take it form there?

You are correct if you said that when you keep adding the triangular number after making the square you can make the other figures.

3 (the triangle of 2) plus 6 (the triangle of 3) equals 9 the square of 3. Add the triangular number 3 (the triangle of 2) to 9 and we get the pentagon number 12. Add 3 to that and we get the hexagon number 15.

Add 28 to 36 gives 64. Add 28 to 64 gives 92. Add 28 to 92 gives 120.

So triangular numbers can be used to make any sided figure. We could use this method without ever knowing the numbers it takes to make up the various sided figures.

The names triangles, squares, pentagons and hexagons are rather common, but the larger numbers really have no names so when we are expressing them we can simply say that they are a certain-sided figure to a certain term.

We usually say the square of 4 instead of a square to the fourth term. We could say the pentagon of 4 and the hexagon of 4 or simply a pentagon to the fourth term, etc.

With the other sided figures we could say 33-sided to the fourth term, etc.

Chapter 5-Gann's Triangular Numbers

I know this is the part you have been waiting to get to. In my advertising material I said that unlike other Gann writers I zero in on the numbers in the Gann material, citing chapter and verse. No theories here.

I spent the first part of this book detailing the triangular numbers because of their connection to the squares, etc. and because of the part they play on the Square of Nine chart, etc.

Gann speaks of the triangles. I believe most writers think he is referring to the large triangle within the circle, the one that divides the circle into three equal parts of 120 degrees each. I'm

sure Gann had that in mind, too.

But, I think his reference to triangles goes much deeper than that. Although he does not refer to the triangular numbers, there seems to be a lot of evidence for them in his material.

Under the heading "Time and Resistance Points According to Squares of Numbers" on page 125 of the commodity course (in my copy, maybe a different page in yours,) he says that stocks work out to the square of some number or the triangle point of some number.

Some might believe he is referring to the large triangle in the circle. But he doesn't seem to be talking about circles at this point. It's squares and triangles.

I believe the best evidence for this is found on page 132 of the "old" commodity course (Section 9, page 11, in the "new" course).

He talks about the 9 mathematical points for price culminations.

And then he adds:

"There are nine digits which equal 45, another reason why the 45-degree angle is so important."

You already know from your study now that the triangle of 9 (adding 1 through 9) equals 45!

Also on page 126 when he talks about the numbers for resistance he notes that 45 is the "master of all numbers because it contains all the digits from 1 to 9."

On page 112 of the "old" course (Section 10, Master Charts, Square of 9, page 3, in the "new " course) under his discussion of the Square of Nine chart, Gann says, "note the angles of 45 degrees cross at 325, indicating a change in cycles here."

I have not figured out his 45 degree angles coming down, nor his change of cycles, but from your triangular list you know that 325 is the triangle of 25, a triangle of a square in the same way that 666 is the triangle of 36, also a square.

We don't have to go very far to find some more examples.

On the next page, page 113 in the "old course" (Section 10, Master Charts, Hexagon Chart, page 4, in the "new "course). Talking about the hexagon cycles, he says the sixth cycle is completed at 91. We now know this to be the triangle of 13.

And then on down a few paragraphs he mentions 66 several times and we now know this is the triangle of 11.

He even notes that we have an angle of 66 degrees. We noted above that he talked about an angle of 45 degrees coming down from 325, the triangle of 25.

There are many more triangular numbers in his material, but I will let you do the searching for now. As I said in my earlier material, why should I have all the fun!

Chapter 6-Triangles and the Square of Nine Chart

Get out your Square of Nine chart. Please!

Look at the line that starts at 8 and runs parallel to the line containing the odd squares.

The numbers are:

8
24
48
80
120
168
224
etc.

PATTERN?

Study it closely in light of what you know about the triangular numbers.

Got it now?

Maybe I can help:

1x8=8
3x8=24
6x8=48
10x8=80
15x8=120
21x8=168

Can you supply the next line to the help I have just given you?

If you said :

28x8=224

You are correct.

What does it mean? Look at the PATTERN again.

Got it now?

Yes, in each case we multiplied 8 times a triangular number. In fact we multiplied 8 by the triangular numbers in order.

Does that suggest anything?

I had known about the 8's for a long time, but it did not dawn on me until recently about the possibility here.

Maybe you have already seen it.

See that 1 right there in the center. That is the number that can be anything. If we add it to 8 what do we get?

8+1=9 the square of 3.
Want to do one?

How about 168+1=169 the square of 13?

PATTERN?

Yes, that's right. If you multiply 8 times any triangular number and add 1, you will have a square.

More specifically, you will have an odd square. So, let's try one at random. One we have not looked at yet.

We know from our previous work and noted in the Gann material that 91 is the triangle of 13.

We multiply 8 times 91 and get 728. We add 1 and get 729 and we also know from earlier work that 729 is the square of 27.

So now we know that if we multiply the triangular numbers by 8 in order and add 1 we will get the odd squares in order.

Is there a name we can give to this phenomenon?

You start with 1 and put 8 around it, then two 8's and then three 8's. Gann did something similar with the hexagon chart or the cycle of six (we will look at that later).

Then maybe we could call this the "cycle of eight." Is there any evidence in the Gann material for this?.

Get out your "private papers" material and look for the sheet which has a lot of the soybean prices with zodiacal signs. It starts with 44.

Note at the bottom he has a circle drawn and by it he has "of 8- Cycle of Eight."

Then on the sheet where he has marked the average of 6 helio planets, he has a circle followed by "6 gains 6 (meaning the cycle of 6 gains 6) and under that he has drawn a square and put a 9 beside it, a check mark or ditto mark, and the number 8. This seems to imply that the Square of 9 gains 8 as I pointed out earlier.

So, he seems to be saying that the Square of Nine chart and the cycle of 8 chart are one and the same thing.

Chapter 7-Triangular Numbers and the Number 9

Doing Gann work is a continuous check for PATTERNS. As I noted earlier I have spent hundred of hours just foolin' around with numbers, especially those that seem to have any thing to do with the Gann work.

Often a check for one PATTERN leads to another.

We have seen that multiplying 8 times a triangular number and adding 1 established the PATTERN of odd squares.

Does that suggest anything?

I also stated that we can often start at the bottom of the ladder to find a PATTERN.

In the above chapter heading I noted "the triangular numbers and the number 9." Can you take it from there?

What if we multiplied 9 times 1 and added 1.

We would get 10.

What if we multiplied 9 times 3 and added 1.

We would get 28.

PATTERN?

There seems to be one. When we multiply a triangular number by 9 and add 1 we get another triangular number.

Let's go up the ladder quite a ways and see if it still works.

9 times 28 plus 1 is 253

And 253 is the triangle of 22.

Most calculators have square root keys and some computer calculators have cube root and other root keys, but there is none that I know of which will tell you the root of a triangular number or any of the other sided-figures.

About the only way is to make up a long list of such numbers. Hope to have a computer program soon which will do the work.

There is one way to find the root of some (but not all) triangular numbers. We noted above that 9 times a triangular number

plus 1 is also a triangular number.

We can reverse that to find some roots. If we suspect a number is a triangular number, simply subtract 1 and divide by 9 and repeat the process again until you get to a number that you know is a triangular number.

Say we suspected that 820 was a triangular number. We would subtract 1 and divide by 9. The answer would be 91, the triangle of 13 and 820 would be a triangular number since 9 times a triangular number plus 1 is another triangular number.
Another problem I found was how to determine the root of the triangle after I had multiplied my original triangular number by 9 and added 1.

But I finally figure it out.

By trial and error I found that 820 was the triangle of 40. But after some study I found an easier way than trial and error and know how to do any number.

Want to give it a shot?

We have seen that multiplying 91, the triangle of 13, by 9 and adding 1 gives us 820 the triangle of 40.

PATTERN?

Let's go to the bottom of that ladder again.

1 is a triangular number.

Nine times 1 is 9. Adding 1 gives us 10, the triangle of 4.

Compare that to 13 and 40.

Got it now?

3x1 is 3 and 3+1 is 4
3x13 is 39 and 39+1 is 40

Why does it work? I suspect it is because 3 is the square root of 9. It works, but requires a little more study.

There is another way in which the triangular numbers are related to 8 and 9. Here again I found this through a continuing search for PATTERNS.

We know that 8x9=72 and that 72 plus 9 equals 81, the square of 9.

Can you take it from there?

We can also say 72x1 plus 9 equals 8l.

Take it now?

How about 72 times the next triangular number 3 (the triangle of 2).

72x3=216
216+9=225, the square of 15

Got it now?

72 times any triangular number plus 9 equals a square.

Let's try the next triangular number which is 6 (the triangle of 3).

72x6=432
432+9=441, the square of 21

So, it works.

Any other PATTERN?
We saw that the squares made were:

9x9
15x15
21x21

PATTERN now?

Yes, we can see that the difference in the square roots of the squares is 6.

Can you guess which square would be made if we multiplied 72 times the next triangular number and added 9.

That's right. You would have the square of 27.

The next triangular number after 6 is 10 (the triangle of 4) and 72 times 10 is 720 and when we add 9 we get 729 and from previous work we know that is the square of 27.

How would the square of 33 be made?

That's right.

We would take 15 (the triangle of 5), multiply it times 72 and add 9.

As I have said many time, it works every time!

Chapter 8-Triangular Numbers and the Hexagon Chart

On page 113 in the "old course" (Section 10, Master Charts, Hexagon

Chart, page 4, in the "new course") Gann tells how to make a hexagon chart. It starts with one in the center and a circle of six numbers is placed around it. Twelve numbers are added to that, then 18, then 24, etc., gaining six each time.

I'm sure you know by now that here Gann is doing the same thing as on the Square of Nine chart. On the Square of Nine he put 1 in the middle, put 8 numbers around that, then 16, etc.

Only here he is putting "circles" of 6's.

PATTERN?

Sure. We can see now that he is including the triangular numbers.

We can take any triangular number, multiply it by 6 and add 1 and come up with the numbers on the line which he says runs from 1, 7, etc.

Give it a try!

We know from our previous work and from the triangular list, if you want to look back at it, that 91 is a triangular number. The triangle of 13. If we multiply by six we get:

6x91=546

and

546+1=547

Now look on the hexagon chart and see where that number is located.

If we don't add the 1, the numbers run along the line from the 6, his 0 or 360 degree line. There is a good reason for adding the 1, but that would take us down another path so let's stick to the work at hand.

I have already pointed out earlier some of the other triangular numbers Gann mentions in connection with the chart so there is no reason to repeat them here.

Although Gann has not left us a cycle of 7 or heptegon chart he does suggest the possibility.

Look at the "private papers" sheet again. The one on which he has the cycle of 6 and the square of 9 or the cycle of 8.

He notes that 7 is the balance. Of course when we add 8 to 6 and divide by 2, 7 is the halfway point which he seems to be indicating here.

So how would we make a cycle of 7 chart without seeing one?

We would use the same method!

We would start with 1, add 1x7, add 2x7, 3x7, etc.

To find a number on the same line as the 1, we would do the same as we did with the cycle of 6 and the cycle of 8. Simply take any triangular number, multiply it by 7 and add 1.

Using 91 again, the triangle of 13, we find:

91x7=637
637+1=638

And 729 ((8x91)+1) plus 547 ((6x91)+1)=1276

1276 divided by 2 is 638

Using the same method we could create any cycle of any number we care to choose.

Here is an interesting point. You might have checked it out already.

We know that the cycle of 8 or Square of Nine runs on the line which contains the odd squares.

Take the numbers which make up the line on the cycle of 6 or hexagon chart, 1, 7, 19, etc. and check them on the Square of Nine chart.

You will note that they run counter clockwise, going out one square and landing each time on a 45-degree angle.

Let's look at another point.

Dividing 8 by 6 we get 1 1/3.

Dividing the triangle of 7 or 28 by the triangle of 6 or 21 is also 1 1/3.

Therefore when we multiply 21 by 8 and add 1 and when we multiply 6 times 28 and add 1 we arrive at:

169

And in his comments on the hexagon, Gann notes that 169 or the square of 13 is important for more reasons than one. We will see another important reason at a later date.

Chapter 9-Other Clues

I noted earlier that there are many other triangular numbers in

the Gann material, but that I would let you search for them.

But I will note two just to show that Gann did zero on triangular numbers without ever mentioning them.

Knowing what you know now, you could probably find one which is very apparent. The other is extremely well hidden.

Let's look at the one that is very apparent.

Look on page 155 where Gann is discussing soybean prices on the 1 to 33 square chart (the chart that most of us refer to as the Square of Nine chart).

He notes that the time period is in the 253rd month from Dec. 28, 1932 (January, 1954).

Got it now?

Look on the list I made up of the triangular numbers. You will find 253 opposite the number 22 so 253 is the triangle of 22. Nowhere here does Gann say that 253 is a triangular number.

But you and I now know that it is!

Why he chose the triangle of 22, or the time period of 253 months, I'm not sure, but I know it is the number of Robert Gordon, Gann's fictional character in his novel (The Tunnel Thru the Air). There are 22 letters in the Hebrew alphabet and there are 22 chapters in the Book of Revelations It is also a pyramid number, something we will look at a little closer at a later date.

We will look at that number, 253, again when we look at the single digit numbering system and the TELEOIS of the triangle.

Now about that number which is well hidden.

In Book I-"The Cycle of Mars" I came up with the number 133 in connection with some planetary work.

In Book III-"The Book With No Name," I noted that Gann had subtracted some parts of the circle from 436. That work was on page 2 of his workout on "Soybeans, Price Resistance Levels."

What was interesting about that paragraph was that all the figures were natural numbers, except for one, the number 236.25, but when that number is subtracted from 436 we get the approximate low on soybeans in February, 1949.

Actually the high on soybeans in 1948 was 436.75, but Gann rounded off his prices when placing those prices on his Square of Nine chart, etc. which only shows natural numbers.

When subtracting 236.25 from 436.75 we get 200.5. The actual low on beans was 201.5.

**In Book III I put down the numbers:
133, 91, 236.25**

and asked for a PATTERN.

Can you make it?

(The 133 is from planetary work in connection with the high and there is no need to explain that here as it was explained in Book I- "The Cycle of Mars.")

I noted that Gann had divided the circle by 64 so that 360 divided by 64 is 5.625.

So let's add that number to the list:

133, 91, 5.625, 236.25

PATTERN now?

Subtract 91 from 133.

How about now?

133 minus 91 is 42 and 42 times 5.625 is 236.25 and that is the number Gann subtracted from 436 to get his low!

Look at the Square of Nine chart. Both 133 (the planetary point) and 91 are on the same angle.

I noted that 91 was a triangular number and TELEOIS and that 91 was 13 times 7. I did not go into details of how to make triangular numbers as it would have taken me far afield.

After reading this book you can see how far afield it would have taken me!

But, you ask, why did you use the triangle of 13?

From the high of 436 to the low of 201.5 was 56 weeks, but that can also be read as 13 months and the triangle of 13 is 91.

As I noted above, this was very well hidden. We will see another hidden number during that time period at a later date. But for now that would take us far afield.

Chapter 10-The Double Triangle

Some writers believe that the double triangle of Solomon as mentioned in Gann's book, "The Tunnel Thru the Air," is two actual triangles, the apex of one at the top and the apex of the other at the bottom.

When a circle is drawn around them the six points of the two triangles touch the circle so that the circle is divided into 6 parts of 60 degrees each.

That can be done, but no explanation is given to its meaning. We can divide a circle into six parts by using the radius of the circle so that each side of the hexagon equals the radius.

And that's interesting and maybe it has some meaning, but I can't see any evidence of it in the Gann material, except maybe in the hexagon itself. But, I believe there is another meaning to the "double triangle."

There is another mention of the triangular number 666 in the Bible besides the one in the Book of Revelations. It is found in I Kings, Chapter 10, Verse 14:

"Now the weight of gold that came to Solomon in one year was six hundred three score and six talents of gold."

A score is 20 so we can add the above and see that it is 666.

Now let's just list a few triangles and their doubles:

Tri	Db
1	2
3	6
6	12
10	20
15	30

Do you recognize the numbers in the second row? If you read my Book IV-"On the Square," you probably do.

They are the geometric means between the successive squares.

They are made by multiplying the square roots of those squares. For instance, 20 is the geometric mean between the square of 4 (16) and the square of 5 (25).

We made the geometric mean by simply multiplying the square roots, in this case 4x5=20.

Remember that we discovered an easy way to find triangular numbers by simply multiplying the root of the triangle we are trying to find by the next number and dividing by 2. To get the triangle of 4 we multiply 4 times 5 and divide by 2 to get 10.

PATTERN?

Yes, the double triangles equal the geometric means between the squares!

If we multiply two successive numbers and divide by 2 we find a

triangle.

If we multiply two successive numbers and don't divide by 2 we have found the geometric mean between two successive squares.

Solomon's double triangle of 666 is:

666x2=1332

We know that 666 is the triangle of 36 and we know that we can find it by multiplying 36 times 37 and dividing by 2. So 1332 must be 36 times 37.

We also know from our work on the squares that 36 times 37 equals the geometric mean between the square of 36 and the square of 37 so that we have the series:

36x36=1296
36x37=1332
37x37=1369

We can prove that 1332 is the geometric mean by multiplying 1296 times 1369. When we take the square root we will have 1332.

I noted earlier that the distance in weeks from the January, 1948 high on beans of 436 to the February, 1949 low at 201.5 was 56 weeks.

That can be read as the geometric mean between the square of 7 and the square of 8 for good reasons, reasons which I will not go into now.

But I will note that 56 is also 2 times 28 or the double triangle of 7.

Chapter 11-The Unnatural Triangles

In Book IV-"On the Square" I showed how in addition to natural squares we could make "unnatural squares" with the sides of the squares having the same fraction or decimal point. We did it with addition instead of the usual multiplication.

As I noted earlier, looking for PATTERNS often leads to other PATTERNS or other discoveries.

While doing some work on the TELEOIS, I came up with the number 12.375.

As the result of that work, which I will not describe here, I suspected that it might be the triangle of 4.5, a triangle of an unnatural number, that is, a triangle of a number with a fraction or decimal point.

Before I came upon that number, it never dawned om me that fractional numbers could be triangular as I had worked only with natural numbers.

But how could it be made? I couldn't simply add .5 to the triangle of 4. The triangle of 4 is 10 and 10 plus .5 is 10.5 and I thought the answer must be 12.375.

It should have been obvious. Put this work aside and see if you can figure it out.

Got the answer already? Yes, you are quicker than I am. As I noted before I'm a little dense and it takes me several whacks to figure something out.

Let's see now. We can take 4.5 and multiply it times the next number and divide by 2. (That's the way we made the triangular numbers from the natural numbers.)

But what is the next number?

It took a little experimentation until I came across the obvious.

I multiplied 4.5x5.5 and divided by 2 and got 12.375.

So the "next" number we use is simply 1 added to the number (the root) for which we are looking for the triangle.

That's really what we did when we were making the triangles from the natural numbers. The next number was simply 1 plus our original number.

If we wanted to find the triangle of 5.5 we would multiply it times 5.5+1 or 6.5 and then divide by 2.

Why would we want to know about the unnatural triangles? As I noted in Book IV-"On the Square" very little of Gann's material ended up on natural numbers, squares or otherwise. Most ended in fractions and the more we know about those fractions, maybe the closer we will be to the answers about his work.
So let's make a short list of the triangles of numbers which end with the fraction of one-half or .5. Where do we start from?

From .5 itself.

As in our earlier work the first set of numbers will be the numbers (roots) for which we are looking to find the triangle and the second will be the answers.

.5 .375
1.5 1.875
2.5 4.375
3.5 7.875
4.5 12.375

5.5 17.875
6.5 24.375
7.5 31.875
8.5 40.375
9.5 49.875

Can we prove our work? Are we on the right track?

Do these numbers follow the same PATTERNS as the ones with the natural numbers? Let's check.

You will recall from our work with the natural numbers that the triangles were made simply by adding 1 to 2 to 3, etc.

But actually we were adding the "triangle" of 1, which is 1, to the natural numbers in order.

So here we do not add .5 to 1.5. We add the triangle of .5 to 1.5. So we add:

.375+1.5=1.875

and to 1.875 we add 2.5 and get 4.375.

It works!

Let's give it the acid test by using some other characteristics of the natural triangles.

You will recall that with the natural triangles we could add the triangle of one number to the triangle of the next and get the square of the next:

The triangle of 13 is 91 and the triangle of 14 is 105.

91+105=196 which is the square of 14.

Let's try it with our unnatural numbers.

Using the bottom of the ladder again we add .375 to 1.875 which is 2.25. Taking the square root we find it is 1.5. So the triangle of .5 plus the triangle of 1.5 equals the square of 1.5.

PATTERN made!

Let's check some of the other qualities the natural triangles have.

Remember that we took three successive triangular numbers, multiplied the two end terms and added the middle term and the answer was the square of the middle term.
Let's try that.

.375, 1.875, 4.375

.375x4.375=1.l64065

1.64065+1.875=3.515625

And the square root of 3.515625 is 1.875

PATTERN made!

We also found that we could take any natural triangular number, multiply it by 8 and add 1 and we would end up with a square, actually an odd square every time.

So, let's apply that characteristic:

8x.375=3
3+1=4, the square of 2.

PATTERN made and we see that when we multiply 8 times the triangular number which have one-half as a fraction in its root and add 1 we end up with the "even" squares.

Try a few and prove it to yourself.

Another characteristic of the natural triangular numbers is that when we multiply any by 9 and add 1 we get another triangular number.

So, let's try that. Again from the bottom of the ladder.

.375x9=3.373.375+1=4.375

That's the triangle of 2.5

Remember now we could find out what triangle we would be making with this method. We multiplied the root of the original triangle by 3 and added 1

The root of .375 is .5. And 3x.5 is 1.5 and when we add 1 we get 2.5.

PATTERN made!

Try a few and prove it to yourself.

Even the 72 times a triangular number plus 9 works.

.375x72=27
27+9=36, the square of 6.

1.875x72=135
135+9=144

Note that the square roots of 36 and 144 have a difference of 6.

What do you think the next square will be?

4.375x72=315
315+9=324, the square of 18.

Try making some triangular numbers with other unnatural numbers like the triangle of 4.25, 5.25, etc. You would start with the triangle of .25 if you wanted to make a list and the first would be .25x1.25=.3125. Then divide by two to get your first triangular number. Take if from there. Then check with some of the characteristics found above.

Chapter 12-More Evidence

Can we find some numbers in the Gann material which are triangles of unnatural numbers?

I have not studied them all and an index of Gann numbers will be along later, but let's see if we can find at least one.

Let's find the triangle number of 22.5:

22.5x23.5=525.75
525.75 divided by 2=264.375

Let's check another one:

21.5x22.5=483.75
483.75 divided by 2=241.875

Now check your answers in the private papers "Time Periods and Price Resistance," the table of 1/64th of the circle.

Chapter 13-Gann's Hexagon and the Ancient Hexagon

Gann's hexagon and the hexagon we made, the ancient 6-sided figure, must not be confused. They are made in two different ways.

The ancient is made by adding numbers which are four units apart.

Gann's is made by placing 6 around 1 and 12 around that, and 18 around that, etc.

The octagon of the ancients and Gann's cycle of 8 or Square of Nine (also called an octagon by some writers) should not be confused either. All the "cycle of" work based on Gann"s method and the ancient way of making sided figures are two different things.

Chapter 14-The Triangle of the Zodiac

The study of the triangles presents many interesting observations about other things.

When you are going through other material you will be able to spot them a little better.

Case in point in the Time-Life book "Visions and Prophecies" in the series "Myteries of the Unknown" on page 122 is a discussion of the tarot cards. It did not surprise me that there were 78 cards in the tarot deck.

Why 78? That number is the triangle of 12. There are 12 signs of the zodiac, 12 months in the year, 12 tribes of Israel, etc.

You can form a triangle with them by placing 1 card at the top, 2 under that, etc. The last row will have 12 and the 78 cards will form a large triangle.

And of course that is why the numbers we have been looking at are called triangular. Each row or number counts one more than the one before it.

Check the drawing in the Time-Life Book series, Mysteries of the Unknown, "Ancient Wisdom and Secret Sects," page 147. Look at the triangle in the middle and the 10 bars inside of it and notice how the triangle points to the fourth sign of the zodiac signifying the number 10.

At the top there are some figures which look like faces and some points of what appear to be crowns. Count the points and then count the ribbons that flow from the neck.

I'll let you make the connection. As I said before, why should I have all the fun.

If I had never learned about triangles, this drawing would have had no meaning to me at all.

Let's now take the triangle of each of the signs in the zodiac.

1	1
2	3
3	6
4	10
5	15
6	21
7	28
8	36
9	45
10	55

11	66
12	78

Now add them.

The total is 364 or days in the year as figured in weeks or 7x52.

Coincidence? Maybe. And then again, maybe not.

Since we can make squares by adding any two successive triangles, let's do that:

1+3=4
6+10=16
15+21=36
28+36=64
45+55=100
66+78=144

PATTERN?

Yes, adding the even squares from the square of 2 through the square of 12 also equals the year when figured in weeks.

Chapter 15-The Triangles and the Cubes

We have seen the relationship between the triangles and the squares, but there is also an interesting relationship between the triangles and the cubes.

In Book V-"The Cycle of Venus," I noted that the heliocentric cycle of Venus is 225 days and when multiplied by the square of 3 or 9 we get:

3x3x15x15 since 225 is the square of 15.

This can also be read as:

3x15x3x15 or

45x45

which equals 2025.

Now let's put down some cubes:

1x1x1=1
2x2x2=8
3x3x3=27
4x4x4=64
5x5x5=125

6x6x6=216
7x7x7=343
8x8x8=512
9x9x9=729

Now, let's add our answers and we find that they equal

2025!

PATTERN?

Think hard. Think of the cubes. Think of the square. Think of the triangles!

Got it now?

The square 45x45 equals the sum of the cubes. And the cubes are 1 through 9.

Got it now?

The triangle of 9 is 45.

How about now?

That's right. The square of any triangular number equals the sum of the cubes up through the number (root) for which we find triangle.

Example again.

We know from our work that the triangle of 7 is 28. So if we square 28 which is 28x28=784, then 784 will be the total of all the cubes from 1 through 7.
Pick out a number, find its triangle, square the triangle and work out the cubes.

Those familiar with Masonry might know of something called the cubic stone.

A representation of this cubic stone can be found in A. E. Waites's book, "A New Encyclopedia of Masonry," Book I, page 405.

You can find numbers around this stone, the cubes of 9, 7, 5, 3 and I believe the cube of 1 is to be understood.

The cubes are:
1x1x1=1
3x3x3=27
5x5x5=125
7x7x7=343
9x9x9=729

When we add them we find that they total 1225.

Look at your triangular number list. You will find 1225 opposite

the number 49 so 1225 is the triangle of 49.

Note that the cubes we listed are the odd cubes from 1 through 9. The same list as we had before except this time we left out all the even cubes.

Is it possible that all odd cubes add to a triangular number?

Let's go to the bottom of the ladder again.

1x1x1=1

And the cube of 1 is in the triangle of 1.

1x1x1=1
3x3x3=27

Add them and we find that 28 is indeed a triangular number, the triangle of 7.

1x1x1=1
3x3x3=27
5x5x5=125

The total is 153 and from our triangular list we know that number is the triangle of 17.

That should be enough of PATTERN search to tell us we are right.

There is a couple of ways of knowing what triangular number contains the odd cubes.

Let's look at the cubes above, 1, 3, and 5.

Can you make a PATTERN?

Try this. Add 1 to 5 and get 6 and then multiply 6 by half of 6. Now can you make it?

That's right. Subtract 1 from 18 and we have our answer.

Now try the ones where we are trying to find the total of the odd cubes 1 through 9 which we know to be the triangle of 49.

First, add 1 to 9 and get 10. multiply 10 by half of 10 or 5 and get 50. Now subtract 1 and we will have 49. From our work above we know that the triangle of 49 is 1225 and 1225 contains all the odd cubes from 1 through 9.

That's the way for doing it from scratch, but if you know the triangle of one set of odd cubes, it is easy to know how to get the next triangle.

Through trial and error I found that the triangle which contains the odd cubes from 1 through 11 is the triangle of 71.

PATTERN?

1 through 9 was 49. 71-49=22.

Got it now?

22 is two times 11.

Knowing that the triangle of 71 contains all the odd cubes from 1 through 11, how would we know what number to find the triangle of which would equal the odd cubes 1 through 13.

That's right. 2x13=26. Add 26 to 71 and get 97. Now if we found the triangle of 97, it would contain all the odd cubes from 1 through 13. Want to find the triangle which would contain the odd cubes from 1 through 15. Add 30 to 97 and get 127.

Quick now. How would we find the triangular number which would contain all the odd cubes from 1 through 49?

Right again. Multiply 50 times 25 and subtract 1. Then find the triangle of your answer and you'll have the right number.

50x25=1250
1250-1=1249

Then 1249x1250 and divide by 2.

We have found the triangular numbers that include the odd cubes and we have seen how the square of triangular numbers include both the odd and even cubes.

The search for the even cubes is a little different. It took me several minutes to figure it out.

Let's look once again at all the cubes contained in the square of the triangular number 45.

We found that the square of 45 was 2025. We also found that all the cubes 1 through 9 would be contained in the square.

We know now that the total of the odd cubes from 1 through 9 equal 1225.

That leaves the even cubes, 2, 4, 6 and 8. By subtracting 1225 from 2025 we can find that the even cubes total 800.

PATTERN?

If we added the cube of 10 to the even cubes they would total 1800 since the cube of 10 is 1000.

PATTERN now?

Let's put down the numbers for both situations:

The cubes of 2, 4, 6, 8 equal 800

The cubes of 2, 4, 6, 8, 10 equal 1800

The Masons have something called the double square. Does that help?

Lets add the cube roots in both situations:

2+4+6+8=20

2+4+6+8+10=30

Got it now?

Let's square 20. 20x20=400

Let's square 30. 30x30=900

How about now?

Double each:

2x400=800
2x900=1800

PATTERN made!

So, to find the total of all the even cubes simply add the cube roots, square your answer and then double it.

There is an easy way to find the total of the cube roots without adding them. Simply take half of the largest cube root and multiply by the next number.

Above we found that 2+4+6+8=20. That can be found by taking half of 8 and multiplying by the next number (4x5=20). Then find the square of 20 and double it. For the even cubes up through 10 the answer would be 5x6=30. Square it and double it.

If we wanted to find the total of the even cubes up through 24, we would divide 24 by 2 and get 12 and then multiply that by 13. Then square that answer and double it.

We will see that cubic stone number, 1225, again when we look at the single digit numbering system and the TELEOIS.

Chapter 16-Triangles and the Cardinal Numbers

The triangular numbers also have a close relationship to the

cardinal numbers in the cube.

Look at your Square of Nine chart again. Count the numbers between the heavy lines that make up the cardinal points.

Since this is the square of 33 then there are 33 numbers across and counting down there are 32 since the one in the middle was counted when going across, for a total of 65 numbers .

Now imagine that this is not a square but a cube and we are going to bring in a crane and lift out all the numbers in the cardinal lines.

Since there are 65 numbers involved and since the numbers are 33 deep then we are removing 33x65 and from our previous work we know that the answer is a triangular number, the triangle of 65 since one way of finding triangles is to take half of the next number (66) and multiply times the original number (65).

That works for any odd cube.

If we wanted to remove the cardinal numbers, the center numbers or the core, in the cube of 9 we would be removing 9x17 since the cube is 9 deep and there are 9 numbers across and 8 numbers down.

We know from our work that 9x17=153 or the triangle of 17.

The numbers that remain are also interesting, but I'll let you play with that. After all why should I be the only one rowing the boat!

I know you are asking yourself what does all this business about extracting the cardinal numbers have to do with Gann. As I said earlier, I believe that we have to explore every avenue in order to uncover his methods. They are very well hidden in spite of what some other writers might claim.

We will look at some well hidden relationships among just three numbers in his soybean chart at a later date.

We will see more of the triangles in the work on the single digit number system and the TELEOIS of the triangles.

Book VII

The Cycle of Mercury

Chapter 1-The Search For "17"

My interest in the cycle of Mercury, as far as the works of W. D. Gann is concerned, probably started when I read Gann's novel "The Tunnel Thru the Air." Especially that part which tells the birthdate of Robert Gordon, the hero of the novel.

But, to explain why that interested me, I will have to back up a little.

We all know (most Gann followers anyway) that Gann was a Mason. So when I got interested in the Gann material I also got interested in any material on Masonry.

I was able to get my hands on a Masonry book called "Morals and Dogma" by Albert Pike. He was an Arkansas judge who lived sometime in the middle or late 1800's.

It was an extremely large book, running close to 900 large pages. Being new to Masonry I had never seen another Masonry book and I assumed this was the "main book" of Masonry. I have since learned that there are many other Masonry books, but Pike's book seems to be one of those held in highest regard by Masons.

The book is full of philosophy, but there are some parts on numbers (some of which we will look at another time) and some parts deal with mythology, etc.

Pike tells the story of Osiris and Isis, the mythological gods of Egypt. You might have heard of these two if you have read books on ancient history, etc. They were mentioned in a l995 program on the A&E Cable TV channel about the pyramids.

Let's have a look at that story as related by Pike beginning on page 375 (Note: The punctuation in this quote follows that in the book and is not necessarily the way a writer would punctuate today):

"Osiris, said to have been an ancient King of Egypt, was the Sun; and Isis, his wife, the Moon: and his history recounts, in poetical and figurative style, the annual journey of the Great Luminary of Heaven through the diffeent Signs of the Zodiac.

"In the absence of Osiris, Typhon, his brother, filled with envy and malice, sought to usurp his throne; but his plans were frustrated by Isis. Then he resolved to kill Osiris. This he did, by persuading

him to enter a coffin or sarcophagus, which he then flung into the Nile.

"After a long search, Isis found the body, and concealed it in the depths of a forest; but Typhon, finding it there, cut it into fourteen pieces, and scatterd them hither and thither. After tedious search, Isis found thirteen pieces, the fishes having eaten the other (the privates), which she replaced of wood, and buried the body at Philae; where a temple of surpassing mangificence was erected in honor of Osiris.

"Isis, aided by her son Orus, Horus or Har-oeri, warred against Typhon, slew him, reigned gloriously, and at her death was reunited to her husband, in the same tomb...

"In the legend of Osiris and Isis, as given by Plutarch, are many details and circumstances other than those that we have briefly mentioned; and all of which we need not repeat here. Osiris married his sister Isis; and labored publicly with her to ameliorate the lot of men. He taught them agriculture, while Isis invented laws. He built temples to the Gods, and established their worship. Both were the patrons of artists and their useful inventions; and introduced the use of iron for defensive weapons and implements of agriculture, and of gold to adorn the temples of the gods. He went forth with an army to conquer men to civiliztion, teaching the people whom he overcame to plant the vine and sow grain for food.

"Typhon, his brother, slew him when the sun was in the sign of the Scorpion, that is to say, at the Autumnal Equinox. They had been rival claimants, says Synesius, for the throne of Egypt, as Light and Darkness contend ever for the empire of the world. Plutarch adds, that at the time when Osiris was slain, the moon was at its full; and therefore it was in the sign opposit the Scorpion, that is, the Bull, the sign of the Vernal Equinox."

Then on page 589:

"Osiris is a being analogous to the Syrian Adoni; and the fable of his history, which we need not here repeat, is a narrative form of the popular religion of Egypt, of which the Sun is the Hero, and the agricultural calendar the moral. The moist valley of the Nile, owing its fertility to the annual inundation appreared, in contrast with the surrounding desert, like life in the midst of death.

"The inundation was in evident dependent on the Sun, and Egypt, enviorned with arid deserts, like a heart within a burning censer, was the the female power, dependent on the influences personified in its God. Typhon his brother, the type of darkness, drought, and sterility, threw his body into the Nile; and thus Osiris, the "good," the "Saviour," perished, in the 28th year of his life or reign, and on the 17th day of the month Athor, or the 13th of November.

"He is also made to die during the heats of the early Summer, when, from March to July, the earth was parched with intolerable heat, vegetation was scorched, and the languid Nile exhausted. From

that death he rises when the Solstitial Sun brings the inundation and Egypt is filled with mirth and acclamation anticipatory of the second harvest. From his Wintry death he rises with the early flower of Spring, and then the joyful festival of Osiris found was celebrated."

Chapter 2-Precession of the Equinoxes

Let's look back at Chapter 1 again. We read there that Osiris was slain at the Autumnal Equinox.

Then we read that he was slain on the "17th" day of Athor or the 13th of November.

I imagine that Athor was an Egyptian month which was November in the calendars of some other countries. And because of differences in calendars the 17th day of Athor in the Egyptian calendar was the l3th of November in other calendars.

But let's stick with the "17th" day of Athor since that is the number which caught my eye.

We also saw that the Autumnal Equinox was in Scorpio. For those that may not have much knowledge of astronomy or astrology some explanation is in order. I an neither an astronomer or astrologer, but have read some books on each. I would suggest that anyone pursuing a Gann study should read a little in these two fields.

Many of you may already know about the precession of the equinoxes and those that don't know can find an explanation in most encyclopedias under the topic "Precession of the Equinoxes."

But for those who don't care to do that search I will offer a brief explanation here.

When the sun crosses the equator each spring going north (I know the sun doesn't really move across the equator, but the path of the earth around the sun makes it seem to do so) we call that the vernal equinox. We are told that the sun's position in the sky against the background of the zodiac is entering the first point of Aires or OO AIRES.

When it goes back south and crosses the equator in the fall, about Sept. 22 we are told that the sun is in the first point of Libra or OO LIBRA (the symbol of which is a balance since it balances night and day).

But both of these positions are incorrect!

Astronomers will tell you that the sun at the Vernal Equinox is somewhere in Pices and headed toward Aquarius. (Remember the song in the late 1960's about the age of Aquarius?)

The use of the first point of Aires and Libra for the equinoxes is a pretty much modern day convenience we now use instead of using

the places where the sun really is on the first day of spring and the first day of autumn.

The idea that the sun is in the first points of Aires and Libra at the equinoxes is a matter of convenience. We use that convenience because the sun at the equinoxes is slowly moving "backwards" in the zodiac. Thus the term "precession of the equinoxes."

The sun is slowly moving "backwards" through the zodiac because it does not come back to the same place in the sky each year because of the wobble of the earth. (Here again I'm saying that the sun does not come back to the same place in the sky, when actually it is the earth, but because the earth does not come back to the same place our view of the sun makes it appear not to come back to the same place.)

There is about 50 seconds of arc difference each year. ("Seconds" here is in terms of degrees and not time. There are 360 degrees in a circle. There are 60 minutes in each degree and there are 60 seconds in each minute of those degrees) It takes over 2,000 years for the sun to "precess" or go "backward" through a sign. So a couple of thousand years ago the sun really was at the first point of Aires at the equinox and a couple of thousand years earlier than that the sun was in Taurus at the Vernal Equinox. And when it was in Taurus at the vernal equinox it was in Scorpio (the opposite sign) at the Autumnal Equinox.

There are some computer programs available which show the position of the sun, moon, planets, stars, etc. for any day of the year. I have a registered program called "Skyglobe."

With it you can run the time forward or backwards. Run it backwards 100 years at a time and you can see the sun move forward in the zodiac at the equinoxes and run it forward and you can see the sun moving backwards in the zodiac at the equinoxes.

So at the time this story of Osiris was told, the Autumnal equinox was in Scorpio. The equinox evidently was on the l7th day of the month Athor. Whether it was in the l7th degree of Scorpio is not indicated in the story.

But, suffice it to say that I was intrigued by the number l7.

Chapter 3--Robert Gordon's Birthday

The number l7 popped up again when I read Gann's novel "The Tunnel Thru the Air."

When I checked the birthday of Gann's main character, Robert Gordon, which was on June 9, 1906, I found that the sun and Mercury were in conjunction at the "l7th" degree of Gemini. There was that number l7 again.

Then to add to this intriguing bit of information I heard a line in a movie. It was an old John Wayne movie on television. One of his early westerns. During a shootout Gabby Hayes said to John Wayne, "They can't kill me until the l7th day of the month because I'm a Gemini."

Then years later in another John Wayne movie on TV, "The Wings of Eagles," the character played by Dan Dailey said, "They can't kill me until the l7th day of the month because I'm a Gemini."

Don't know if this was some kind of inside joke in two John Wayne movies or if this has an astrological significance. Some of you more versed in astrology than I am might know the answer.

All I can say is that it peaked my interest in the number 17.

There are a couple of other things about the number l7 that interests me and maybe you too.

If you take a 12x12 square and figure the diagonal you will be close to l7. To find the diagonal or hypotenuse of a right angle triangle we use the old Pythagoran method. We square each side, add the answers and take the square root. So we square 12 and get 144 and square 12 again and get 144 and add them and get 288. The we take the square root of 288 and get 16.970562. Close to l7. Actually 288 is one unit shy of 289 which is the square of l7.

In the Ohio Archaeologist of April 1987 James A. Marshall tells in his "An Atlas of American Indian Geometry" that many Indian mounds are constructed with 187 feet on each side.

We can also read 187 as 11x17. E1even would be the side of the great pyramid if it was built to a scale model (that's something we will look at in its proper place.)

If we reduced the sides of those Indian mounds to inches we would have 12x11x17 or l32x17. I mentioned in Book I-"The Cycle of Mars" that the number 132 would crop up in an interesting way in a discussion of "The Tunnel Through the Air." We will look at that number later in this book.

So we find that Robert Gordon was born when the Sun and Mercury were in the 17th degree of Gemini.

If we reduce that point in the Zodiac to its place on a 360 degree zodiac wheel we find that it is 77. There are 30 degrees in Aires and 30 in Taurus making 60 and l7 degrees in the next sign which is Gemini gives us 77.

There is a special relationship between those two numbers. 17 and 77, which is not found anywhere else on the Zodiac wheel, so put on your PATTERN cap and see if you can figure what it is. The answer will be given in the last chapter of this book. No don't peek! Give

it a good try before you look at the answer. I will give you a hint. Think triangles and squares.

Chapter 4--Looking for 132

In going through "The Tunnel Thru The Air" we come to that section in which Gann tells about the flight of Charles Lindberg from New York to Paris.

I was curious to see if the date of Lindberg leaving New York coincided in any way with the birth of Robert Gordon. I found that both incidents occurred when the Sun and Mercury were in conjunction.

I was also curious about how many conjunctions Mercury had made with the Sun between the two events. Before I worked it out I had a suspicion what it would be. Why it should be that way, I didn't know. I just had a feeling what it was.

So, let's list the conjunctions and see what we can find. We will list the number of the conjunction, the date, the degree and the sign. So starting with Robert Gordon's birthday on June 9, 1906 when the sun and the Mercury were in conjunction we will list conjunctions after that:

1. Aug. 13, l906 (19) Leo
2. Sept. 25, 1906 (01) Libra
3. Dec. 1, 1906 (07) Sagittarius
4. Feb. 3, 1907 (13) Aquarius
5. Mar. l8, l907 (26) Pisces
6. May 24, 1907 (01) Gemini
7. July 26, l907 (01) Leo
8. Sept. 7, l907 (13) Virgo
9. Nov. 15, 1907 (21) Scorpio
10. Jan. 14, 1908 (22) Capricorn
11. Feb. 29, 1908 (09) Pisces
12. May 7, 1908 (16) Taurus
13. July 5, 1908 (12) Cancer
14. Aug. 21, 1908 (27) Leo
15. Oct. 29, 1908 (05) Scorpio
16. Dec. 23, 1908 (00) Capricorn
17. Feb. 12, 1909 (22) Aquarius
18. April 22, 1909 (01) Taurus
19. June 15, 1909 (23) Gemini
20. Aug. 4, 1909 (10) Leo
21. Oct. 13, 1909 (19) Libra
22. Dec. 3, 1909 (10) Sagittarius
23. Jan.27, 1910 (06) Aquarius
24. April 6, 1910 (15) Aires
25. May 26, 1910 (03) Gemini
26. July 20, 1910 (26) Cancer
27. Sept. 26, 1910 (02) Libra
28. Nov. 12, 1910 (18) Scorpio

29. Jan. 11, 1911 (19) Capricorn
30. March 21, 1911 (29) Pisces
31. May 6, 1911 (14) Taurus
32. July 4, 1911 (10) Cancer
33. Sept. 10, 1911 (16) Virgo
34. Oct. 24, 1911 (29) Libra
35. Dec. 26, 1911 (03) Capricorn
36. March 3, 1912 (12) Pisces
37. April 16, 1912 (25) Aires
38. June 18, 1912 (26) Gemini
39. Aug. 23, 1912 (29) Leo
40. Oct. 4, 1912 (10) Libra
41. Dec. 9, 1912 (16) Sagittarius
42. Feb. 13, 1913 (23) Aquarius
43. March 29, 1913 (07) Aires
44. June 2, 1913 (10) Gemini
45. Aug. 5, 1913 (11) Leo
46. Sept. 17, 1913 (23) Virgo
47. Nov. 23, 1913 (00) Sagittarius
48. Jan. 26, 1914 (05) Aquarius
49. March 11, 1914 (19) Pisces
50. May 18, 1914 (26) Taurus
51. July 17, 1914 (23) Cancer
52. Aug. 30, 1914 (05) Virgo
53. Nov. 8, 1914 (14) Scorpio
54. Jan. 5, 1915 (13) Capricorn
55. Feb. 22, 1915 (02) Pisces
56. May 2, 1915 (10) Taurus
57. June 27, 1915 (04) Cancer
58. Aug. 15, 1915 (21) Leo
59. Oct. 23, 1915 (28) Libra
60. Dec. 15, 1915 (21) Sagittarius
61. Feb. 6, 1916 (15) Aquarius
62. April 15, 1916 (24) Aires
63. June 7, 1916 (15) Gemini
64. July 28, 1916 (04) Leo
65. Oct. 6, 1916 (12) Libra
66. Nov. 24, 1916 (01) Sagittarius
67. Jan. 19, 1917 (28) Capricorn
68. March 29, 19l7 (07) Aires
69. May 17, 1917 (25) Taurus
70. July 13, 1917 (20) Cancer
71. Sept. 19, 1917 (25) Virgo
72. Nov. 4, 1917 (11) Scorpio
73. Jan. 4, 1918 (12) Capricorn
74. March 13, 1918 (21) Pisces
75. April 28, 1918 (06) Taurus
76. June 27, 1918 (04) Cancer
77. Sept. 2, 1918 (08) Virgo
78. Oct. 15, 1918 (20) Libra
79. Dec. 19, 1918 (26) Sagittarius
80. Feb. 24, 1919 (04) Pisces
81. April 8, 1919 (17) Aires
82. June 11, 1919 (19) Gemini
83. Aug. 16, 1919 (22) Leo

84. Sept. 27, 1919 (02) Libra
85. Dec. 3, 1919 (09) Sagittarius
86. Feb. 5, 1920 (14) Aquarius
87. March 20, 1920 (29) Pisces
88. May 26, 1920 (04) Gemini
89. July 28, 1920 (04) Leo
90. Sept. 9, 1920 (15) Virgo
91. Nov. 16, 1920 (23) Scorpio
92. Jan. 17, 1921 (26) Capricorn
93. March 4, 1921 (12) Pisces
94. May 10, 1921 (18) Taurus
95. July 8, 1921 (15) Cancer
96. Aug. 24, 1921 (00) Virgo
97. Nov. 1, 1921 (08) Scorpio
98. Dec. 27, 1921 (04) Capricorn
99. Feb. 15, 1922 (25) Aquarius
100. April 25, 1922 (04) Taurus
101. June 19, 1922 (26) Gemini
102. Aug. 7, 1922 (13) Leo
103. Oct. 16, 1922 (21) Libra
104. Dec. 7, 1922 (14) Sagittarius
105. Jan. 29, 1923 (08) Aquarius
106. April 9, 1923 (18) Aires
107. May 29, 1923 (06) Gemini
108. July 23, 1923 (29) Cancer
109. Sept. 30, 1923 (05) Libra
110. Nov. 16, 1923 (22) Scorpio
111. Jan. 13, l924 (21) Capricorn
112. March 23, 1924 (02) Aires
113. May 8, 1924 (17) Taurus
114. July 6, 1924 (13) Cancer
115. Sept. 12, l924 (18) Virgo
116. Oct. 26, 1924 (02) Scorpio
117. Dec. 28, 1924 (05) Capricorn
118. March 5, 1925 (13) Pisces
119. April 19, 1925 (28) Aires
120. June 20, 1925 (28) Gemini
121. Aug. 25, 1925 (01) Virgo
122. Oct. 8, 1925 (14) Libra
123. Dec. 12, 1925 (19) Sagittarius
124. Feb. 16, 1926 (26) Aquarius
125. March 31, 1926 (09) Aires
126. June 5, 1926 (13) Gemini
127. Aug. 8, 1926 (14) Leo
128. Sept. 20, 1926 (26) Virgo
129. Nov. 26, 1926 (02) Sagittarius
130. Jan. 29, 1927 (08) Aquarius
131. March 14, 1927 (22) Pisces
132. May 20, 1927 (27) Taurus

When I started doing this workout several years ago I had a sneaking suspicion that there would be 132 conjunctions from Gordon's birth to the flight of Charles Lindberg.

Why I had that suspicion, I don't know. Maybe it was because the

conjunction of Jupiter and Mars was at 132 when the price of soybeans made 436 in l948 as I explained in Book I-"The Cycle of Mars."

Maybe it is all just coincidental, but I find a lot of coincidences in the Gann material that might not be coincidental at all.

Chapter 5--Mercury and the Square of 7

Gann speaks a number of times about the number 7 and also mentions the square of 7 or 49 and even the cube of 7 or 343.

At first glance the cycle of Mercury would seem to have little to do with the number 7.

In the previous chapters I have talked about the conjunctions of the sun with Mercury and that was from the geocentric view or seeing the sun and Mercury from our point of view on the earth.

But the planets also have what is known as heliocentric positions. This is the view of the planets as seen from the sun.

The time for the planet Mercury to go around the sun is approximately 88 days. And that would seem to have little to do with the number 7, its square, or its cube.

But let's see if we can find something that might fit into a PATTERN.

Several years ago I took each of the planets heliocentric cycles and divided them into each other.

The ones that caught my eye were the cycles of Jupiter and the cycles of Mercury.

The heliocentric cycle of Jupiter (the time it takes to make one complete revolution around the sun) is approximately 11.88 years. (Some believe this is the basis of Gann's square of 12 since this is approximately 12 years and there are 12 months in each year.)

Let's multiply to find the number of days in this 11.88 years cycle.

11.88 times 365.2422 is 4339.0773 days.

We noted earlier that the heliocentric cycle of Mercury is approximately 88 days.

If we divide 88 days into 4339.0773 days we get:

49.307696!

In other words we find that there are 49 cycles of Mercury in

one cycle of Jupiter. Or we can say when Jupiter makes one cycle around the sun, Mercury makes 49 cycles.

Well, that gives us the square of 7, you say, but what about the cube of 7?

Gann mentions the numbers 83 and 84 and some writers have picked up on these numbers as referring to the same thing, the cycle of Uranus which is about 84 years.

But there is another reason for the number 83.

It concerns the "directional" movement of Jupiter.
I have read only a few books on astrology as they seem to pretty much say the same things. But I had never heard of "directional" movement until I picked up a book written in the last century.

In the book "directional" movement is never really explained but by following the examples, it can be figured out.

"Directional movement" is when the sun and a planet come back to their same positions as they had at a previous time.

For example, the sun and Jupiter have a conjunction at some degree and some sign in the zodiac. Their "directional movement" is the time it takes to come back to a conjunction in that same degree and sign.

As for the sun and Jupiter, their directional movement is 83 years.

Let's check the ephemeris. We can see that on June 10, 1906, one day after the birth of Robert Gordon, the sun was in the 18th degree of Gemini and so was the planet Jupiter. Then checking 83 years later we find that on June 9, 1989 the sun and Jupiter are once again in the 18th degree of Gemini.

But what does this have to do with Mercury and the cube of 7, you might ask.

If we check those 83 years you will find that those years contain 7 cycles of Jupiter. Since there are 49 cycles of Mercury in one cycle of Jupiter there must be 7 times 49 or the cube of 7 cycles of Mercury in those 83 years.

Let's check it.

83 times 365.2422 equals 30315.102 days.

30315.102 divided by 88 equals 344.48979.

Ok. So, it's not an exact cube. When we divided the cycle of Mercury into one cycle of Jupiter, we got a little over 49 cycles. So that difference is also reflected here.

The cube of 7 is 343. Rather close, don't you think?

Chapter 6--Mercury and the Number 33

I imagine that many Gann readers are intrigued as I am with the number 33. That's because one of the Gann charts (an extension of the Square of Nine) is the square of 33 chart.

Also, Gann was a Mason and there are 33 degrees in Masonry. There are also other reasons for 33 but since this is a book on Mercury, let's look at the number in that light.

First, let us extend that list of Sun-Mercury conjunctions that we had in Chapter 4.

1. Aug. 13, l906 (19) Leo
2. Sept. 25, 1906 (01) Libra
3. Dec. 1, 1906 (07) Sagittarius
4. Feb. 3, 1907 (13) Aquarius
5. Mar. l8, l907 (26) Pisces
6. May 24, 1907 (01) Gemini
7. July 26, l907 (01) Leo
8. Sept. 7, l907 (13) Virgo
9. Nov. 15, 1907 (21) Scorpio
10. Jan. 14, 1908 (22) Capricorn
11. Feb. 29, 1908 (09) Pices
12. May 7, 1908 (16) Taurus
13. July 5, 1908 (12) Cancer
14. Aug. 21, 1908 (27) Leo
15. Oct. 29, 1908 (05) Scorpio
16. Dec. 23, 1908 (00) Capricorn
17. Feb. 12, 1909 (22) Aquarius
18. April 22, 1909 (01) Taurus
19. June 15, 1909 (23) Gemini
20. Aug. 4, 1909 (10) Leo
21. Oct. 13, 1909 (19) Libra
22. Dec. 3, 1909 (10) Sagittarius
23. Jan.27, 1910 (06) Aquarius
24. April 6, 1910 (15) Aires
25. May 26, 1910 (03) Gemini
26. July 20, 1910 (26) Cancer
27. Sept. 26, 1910 (02) Libra
28. Nov. 12, 1910 (18) Scorpio
29. Jan. 11, 1911 (19) Capricorn
30. March 21, 1911 (29) Pisces
31. May 6, 1911 (14) Taurus
32. July 4, 1911 (10) Cancer
33. Sept. 10, 1911 (16) Virgo
34. Oct. 24, 1911 (29) Libra
35. Dec. 26, 1911 (03) Capricorn
36. March 3, 1912 (12) Pisces
37. April 16, 1912 (25) Aires

38. June 18, 1912 (26) Gemini
39. Aug. 23, 1912 (29) Leo
40. Oct. 4, 1912 (10) Libra
41. Dec. 9, 1912 (16) Sagittarius
42. Feb. 13, 1913 (23) Aquarius
43. March 29, 1913 (07) Aires
44. June 2, 1913 (10) Gemini
45. Aug. 5, 1913 (11) Leo
46. Sept. 17, 1913 (23) Virgo
47. Nov. 23, 1913 (00) Sagittarius
48. Jan. 26, 1914 (05) Aquarius
49. March 11, 1914 (19) Pisces
50. May 18, 1914 (26) Taurus
51. July 17, 1914 (23) Cancer
52. Aug. 30, 1914 (05) Virgo
53. Nov. 8, 1914 (14) Scorpio
54. Jan. 5, 1915 (13) Capricorn
55. Feb. 22, 1915 (02) Pisces
56. May 2, 1915 (10) Taurus
57. June 27, 1915 (04) Cancer
58. Aug. 15, 1915 (21) Leo
59. Oct. 23, 1915 (28) Libra
60. Dec. 15, 1915 (21) Sagittarius
61. Feb. 6, 1916 (15) Aquarius
62. April 15, 1916 (24) Aires
63. June 7, 1916 (15) Gemini
64. July 28, 1916 (04) Leo
65. Oct. 6, 1916 (12) Libra
66. Nov. 24, 1916 (01) Sagittarius
67. Jan. 19, 1917 (28) Capricorn
68. March 29, 19l7 (07) Aires
69. May 17, 1917 (25) Taurus
70. July 13, 1917 (20) Cancer
71. Sept. 19, 1917 (25) Virgo
72. Nov. 4, 1917 (11) Scorpio
73. Jan. 4, 1918 (12) Capricorn
74. March 13, 1918 (21) Pisces
75. April 28, 1918 (06) Taurus
76. June 27, 1918 (04) Cancer
77. Sept. 2, 1918 (08) Virgo
78. Oct. 15, 1918 (20) Libra
79. Dec. 19, 1918 (26) Sagittarius
80. Feb. 24, 1919 (04) Pisces
81. April 8, 1919 (17) Aires
82. June 11, 1919 (19) Gemini
83. Aug. 16, 1919 (22) Leo
84. Sept. 27, 1919 (02) Libra
85. Dec. 3, 1919 (09) Sagittarius
86. Feb. 5, 1920 (14) Aquarius
87. March 20, 1920 (29) Pisces
88. May 26, 1920 (04) Gemini
89. July 28, 1920 (04) Leo
90. Sept. 9, 1920 (15) Virgo
91. Nov. 16, 1920 (23) Scorpio
92. Jan. 17, 1921 (26) Capricorn

93. March 4, 1921 (12) Pisces
94. May 10, 1921 (18) Taurus
95. July 8, 1921 (15) Cancer
96. Aug. 24, 1921 (00) Virgo
97. Nov. 1, 1921 (08) Scorpio
98. Dec. 27, 1921 (04) Capricorn
99. Feb. 15, 1922 (25) Aquarius
100. April 25, 1922 (04) Taurus
101. June 19, 1922 (26) Gemini
102. Aug. 7, 1922 (13) Leo
103. Oct. 16, 1922 (21) Libra
104. Dec. 7, 1922 (14) Sagittarius
105. Jan. 29, 1923 (08) Aquarius
106. April 9, 1923 (18) Aires
107. May 29, 1923 (06) Gemini
108. July 23, 1923 (29) Cancer
109. Sept. 30, 1923 (05) Libra
110. Nov. 16, 1923 (22) Scorpio
111. Jan. 13, l924 (21) Capricorn
112. March 23, 1924 (02) Aires
113. May 8, 1924 (17) Taurus
114. July 6, 1924 (13) Cancer
115. Sept. 12, l924 (18) Virgo
116. Oct. 26, 1924 (02) Scorpio
117. Dec. 28, 1924 (05) Capricorn
118. March 5, 1925 (13) Pisces
119. April 19. 1925 (28) Aires
120. June 20, 1925 (28) Gemini
121. Aug. 25, 1925 (01) Virgo
122. Oct. 8, 1925 (14) Libra
123. Dec. 12, 1925 (19) Sagittarius
124. Feb. 16, 1926 (26) Aquarius
125. March 31, 1926 (09) Aires
126. June 5, 1926 (13) Gemini
127. Aug. 8, 1926 (14) Leo
128. Sept. 20, 1926 (26) Virgo
129. Nov. 26, 1926 (02) Sagittarius
130. Jan. 29, 1927 (08) Aquarius
131. March 14, 1927 (22) Pisces
132. May 20, 1927 (27) Taurus
133. July 20, 1927 (26) Cancer
134. Sept. 3, 1927 (09) Virgo
135. Nov. 11, 1927 (17) Scorpio
136. Jan. 9, 1928 (17) Capricorn
137. Feb. 25, 1928 (05) Pisces
138. May 4, 1928 (13) Taurus
139. June 30, 1928 (07) Cancer
140. Aug. 16, 1928 (22) Leo
141. Oct. 24, 1928 (01) Scorpio
142. Dec. 18, 1928 (25) Sagittarius
143. Feb. 8, 1929 (18) Aquarius
144. April 18, 1929 (27) Aires
145. June 10, 1929 (18) Gemini
146. July 31, 1929 (07) Leo
147. Oct. 8, 1929 (14) Libra

148. Nov. 28, 1929 (05) Sagittarius
149. Jan. 22, 1930 (01) Aquarius
150. April 2, 1930 (11) Aires
151. May 20, 1930 (28) Taurus
152. July 15, 1930 (21) Cancer
153. Sept. 22, 1930 (28) Virgo
154. Nov. 6, 1930 (12) Scorpio
155. Jan.. 7, 1931 (15) Capricorn
156. March 16, 1931 (24) Pisces
157. May 1, 1931 (09) Taurus
158. June 30, 1931 (07) Cancer
159. Sept. 5, 1931 (11) Virgo
160. Oct. 18, 1931 (23) Libra
161. Dec. 22, 1931 (29) Sagittarius
162. Feb. 27, 1932 (07) Aquarius
163. April 11, 1932 (20) Aires
164. June 13, 1932 (21) Gemini
165. Aug. 18, 1932 (24) Leo
166. Sept. 29, 1932 (05) Libra
167. Dec. 5, 1932 (12) Sagittarius
168. Feb. 7, 1933 (17) Aquarius
169. March 24, 1933 (02) Aires
170. May 29, 1933 (07) Gemini
171. July 31, 1933 (07) Leo
172. Sept. 12, 1933 (18) Virgo
173. Nov. 19, 1933 (26) Scorpio
174. Jan. 20, 1934 (29) Capricorn
175. March 6, 1934 (14) Pisces
176. May 13, 1934 (21) Taurus
177. July 11, 1934 (18) Cancer
178. Aug. 27, 1934 (03) Virgo
179. Nov. 4, 1934 (10) Scorpio
180. Dec. 31, 1934 (08) Capricorn
181. Feb. 17, 1935 (27) Aquarius
182. April 27, 1935 (05) Taurus
183. June 22, 1935 (29) Gemini
184. Aug. 10, 1935 (16) Leo
185. Oct. 19, 1935 (24) Libra
186. Dec. 9, 1935 (15) Sagittarius
187. Feb. 1, 1936 (10) Aquarius
188. April 10, 1936 (19) Aires
189. June 1, 1936 (10) Gemini
190. July 24, 1936 (00) Leo
191. Oct. 1, 1936 (07) Libra
192. Nov. 18, 1936 (25) Sagittarius
193. Jan. 15, 1937 (24) Capricorn
194. March 25, 1937 (03) Aires
195. May 12, 1937 (20) Taurus
196. July 9, 1937 (16) Cancer
197. Sept. 15, 1937 (21) Virgo
198. Oct. 30, 1937 (06) Scorpio
199. Dec. 31, 1937 (08) Capricorn
200. March 8, 1938 (16) Pisces
201. April 22, 1938 (01) Taurus
202. June 23, 1938 (00) Cancer

203. Aug. 28, 1938 (04) Virgo
204. Oct. 11, 1938 (17) Libra
205. Dec. 15, 1938 (22) Sagittarius
206. Feb. 19, 1939 (29) Aquarius
207. April 3, 1939 (12) Aires
208. June 8, 1939 (16) Gemini

As you can see we are back where we started. True, it is off one day and one degree, but it is awfully close.

And when we check the dates we can see that it is 33 years.

If we checked dates after our June 8, 1939 date we would find similar results. Let's look at a few dates that are 33 years apart. This time I will leave off the zodiac material.

June 9, 1906 June 8, 1939
Aug. 13, 1906 Aug. ll, 1939
Sept. 25, 1906 Sept. 23, 1939
Dec. 1, l906 Nov. 29, l939

I think that is enough to give you the idea.

In looking over a list of Sun-Mercury conjunction dates it sometimes appears there are other cycles such as a four-year cycle, but the four-year cycle doesn't stay in sync.

Let's look at some dates that I did not list earlier.

1902 1906
Aug. 12 (18) Leo Aug. 13 (19) Leo

That's a four-year period and it would seem that there is a four-year cycle. But now let's put down those two dates again and under those put the dates of the next conjunctions for both years.

1902 1906
Aug. 12 (18) Leo Aug. 13 (19) Leo
Oct 20 (25) Libra Sept. 25 (01) Libra

So, we had a pretty good match between the August dates of 1902 and 1906, but between the October and September dates of 1902 and 1906, it misses by 25 days.
What's going on here?

The problem is that in one August date the conjunction was made when Mercury was going direct and in the other August date the conjunction was made when Mercury was in retrograde (appears to move backward in the zodiac).

So we were trying to compare apples with oranges and it didn't work out. So now, to our samples above, lets put D for direct and R for retrograde.

1902 1906

Aug. 12 (18) Leo (D) Aug. 13 (19) Leo (R)
Oct 20 (25) Libra (R) Sept. 25 (01) Libra (D)

Now let's look at those few dates again that were 33 years apart. And now I will indicate whether the conjunctions were made while Mercury was going direct (D) or retrograde (R).

June 9, 1906 (D) June 8, 1939 (D)
Aug. 13, 1906 (R) Aug. ll, 1939 (R)
Sept. 25, 1906 (D) Sept. 23, 1939 (D)
Dec. 1, l906 (R) Nov. 29, l939 (R)

Now we can see that in the 33 year cycles we are no longer comparing apples to oranges. A direct conjunction compares to another direct conjunction 33 years later and a retrograde conjunction compares to another retrograde conjunction 33 years later.

Chapter 7--Another 33-Year Cycle

While we are on the subject of 33-year cycles we might as well look at another one. The 33-year cycle of the moon.

You may have heard of the 19 year cycle of the moon (which could be the basis of Gann's 19x19 square) and some other moon cycles, but have you ever heard of the 33-year cycle?

This is the cycle of the moon going "backwards" through the seasons.

Since one lunation (conjunction of the moon and sun) is just over 29.5 days, 12 of those lunations are about 11 days short of the solar year. If we use the "12th" moon for marking off our years, it will take 33 years for the calculations to be right. That is, it will take 33 years for the moon to come back to the same day of the year.

Let's look at the month in which Robert Gordon was born. It is June, 1906. The new moon in that month was on June 21 at 29 degrees in Gemini.

Now let's count 12 new moons from that date.

And we end up at June 10, 1907. Then lets put down the dates for the next 12 moons, the next 12, etc. And let's list the dates for when the "12th moon" occurs.

May 30, 1908
May 19, 1909
May 9, l910
April 28, 1911
April 17, 1912
April 6, 1913
March 26, 1914
March 15, 1915

March 4, 1916
Feb. 21, 1917
Feb. 11, 1918
Jan. 31, 1919
Jan. 21, 1920
Jan. 9, 1921
Dec, 29, 1921
Dec. 18, 1922
Dec. 8, 1923
Nov. 26, 1924
Nov. 16, 1925
Nov. 5, 1926
Oct. 25, 1927
Oct. 13, 1928
Oct. 2, 1929
Sept. 22, 1930
Sept. 12, 1931
Aug. 31, 1932
Aug. 21, 1933
Aug. 10, 1934
July 30, 1935
July 18, 1936
July 8, 1937
June 27, 1938
June 17, 1939

So now we have gone backwards through the seasons, not coming out on the exact date, but you can see the idea. The 12th moon arrives approximately 11 days earlier each cycle.

We can see why going backwards through the seasons takes approximately 33 years. Since the cycle of 12 moons is approximately 11 days short of the solar year we can multiply 11 times 33 and get 363 which is approximately one solar year.

Chapter 8--Mercury and the Great Pyramid

Do you know what the measurements of the Great Pyramid are or what those measurements represent?

There have been several television shows in the past few years on the pyramids and speculation on their construction.

In the late 1800's a man by the name of Flanders Petrie did a detailed measurement of the Great Pyramid.

Although the capstone has long been gone (or maybe it was never there in the first place) Petrie determined that the intended height of the Great Pyramid was 5813 inches.

If we use the height of the pyramid as the radius of a circle we find that the circumference of the circle is:

5813 times 2 times Pi (3.14159)=36524.125

If we divide 36524.125 by 100 we get 365.24125

We can see that the last figure above is very close to the number of days in a solar year which is approximately 365.2422 (not the 365.25 that we were taught in school to account for the extra day added every four years. We use 365 for three years and add the extra day every four years to make up the quarter, but astronomy books give the figure as being closer to 365.2422).

So if we use one inch to represent one day, the circumference we arrived at represents 100 years.

(I have mentioned the Time-Life series of books "Mysteries of the Unknown" several times in my books on Gann. In one of those books, "Mystic Places" on page 59 it says the measurements represent 1,000 years, but that is a mistake in their book. Yes, there are mistakes in those books. I have found others and I'm sure there are some that I missed). Time-Life, Gann, myself, etc. We all make mistakes.

When the sides of the base of pyramid were measured Petrie found that they also equaled 36524.125. Therefore the base of the pyramid in terms of its height represented the squaring of the circle, as far as perimeter is concerned.

I say "as far as perimeter is concerned" since there are at least three schools of thought on the "squaring of the circle." The other two examples are not needed as far as the discussion at hand is concerned.

Many years ago I saw the movie "No Highway in the Sky" with James Stewart. In the first part of the movie he is shown with his daughter who mentions studying the pyramid at school and the "squaring of the circle." That movie is shown from time to time on television. American Movie Classics has shown it several times. You might be interested in taking a look at it.

We could make a scale model of the pyramid using a height of 7 inches.
In ancient times the use of fractional numbers were difficult and Pi was expressed as 22/7. The Hebrews used 21/7 or 3 as can be seen in the Bible.

In I Kings, Chapter 7, verse 23, a passage about the building of Solomon's house, we have these words:

"And he made a molten sea, ten cubits from the one brim to the other: it was round all about, and his height was five cubits: and a line of 30 cubits did compass it round about."

From this we gather that the molten sea was circular with a diameter of 10 cubits and a circumference of 30, so the ratio of diameter to circumference was 3.

But the Egyptians seemed to use 22/7 as the ratio of diamter to circumference so using 22/7 for our Pi and 7 inches for our radius of a circle we would get a circumference of:

7 times 2 times 22/7=44

The base of our model pyramid would also be 44 and the sides would therefore be 11.

(I noted in some of my other work that the number 44 was more than just the cash low on soybeans in 1932. I noted that it was also a pyramid number. So now you can see that from this discussion.)

The triangle of 11 is 66. (Triangular numbers were discussed in Book IV of this series.)

(Gann said we have angles of 66, 67 and 68).

If we divide the height of the Great Pyramid by 66 we get:

88.075757, the approximate time it takes Mercury to go around the sun.

Coincidental?

Maybe.

But remember that the pyramid represents 100 solar years. So maybe the planet Mercury was represented by these calculations.

Chapter 9-The Answer

I noted something in Chapter 3. I asked you to try to figure it out before turning to this chapter for the answer. Did you figure it out?

The birth of Robert Gordon was in the "17th" degree of Gemini. If we reduce that degree to its absolute number in the zodiac we find it is 77. There are 30 degrees in Aires, 30 in Taurus and we have 17 in Gemini, for a total of 77.

I noted there was an interesting relationship between these two numbers, 17 and 77. I asked for you to think triangle and square.

The triangle of 17 is 153.

Do you have it now?

Remember that the natural squares are made by adding the natural odd numbers in order.

Got it now?

In my Book IV-"On the Square" I noted that we could find what square was being completed with any odd number by simply adding 1 to the odd number and dividing by 2.

So if we add 1 to 153 we get 154 and 154 divided by 2 is 77!

In other words, if we add 153 to 76x76 we get 77x77. So there is the interesting relationship between 17 and 77.

Is this just another coincidence in the Gann material or another clue to his methods?

Chapter 10--Gann's Use of "17"

I have shown you how the number 17 is possibly pointed at by Gann in his novel, "The Tunnel Thru the Air."

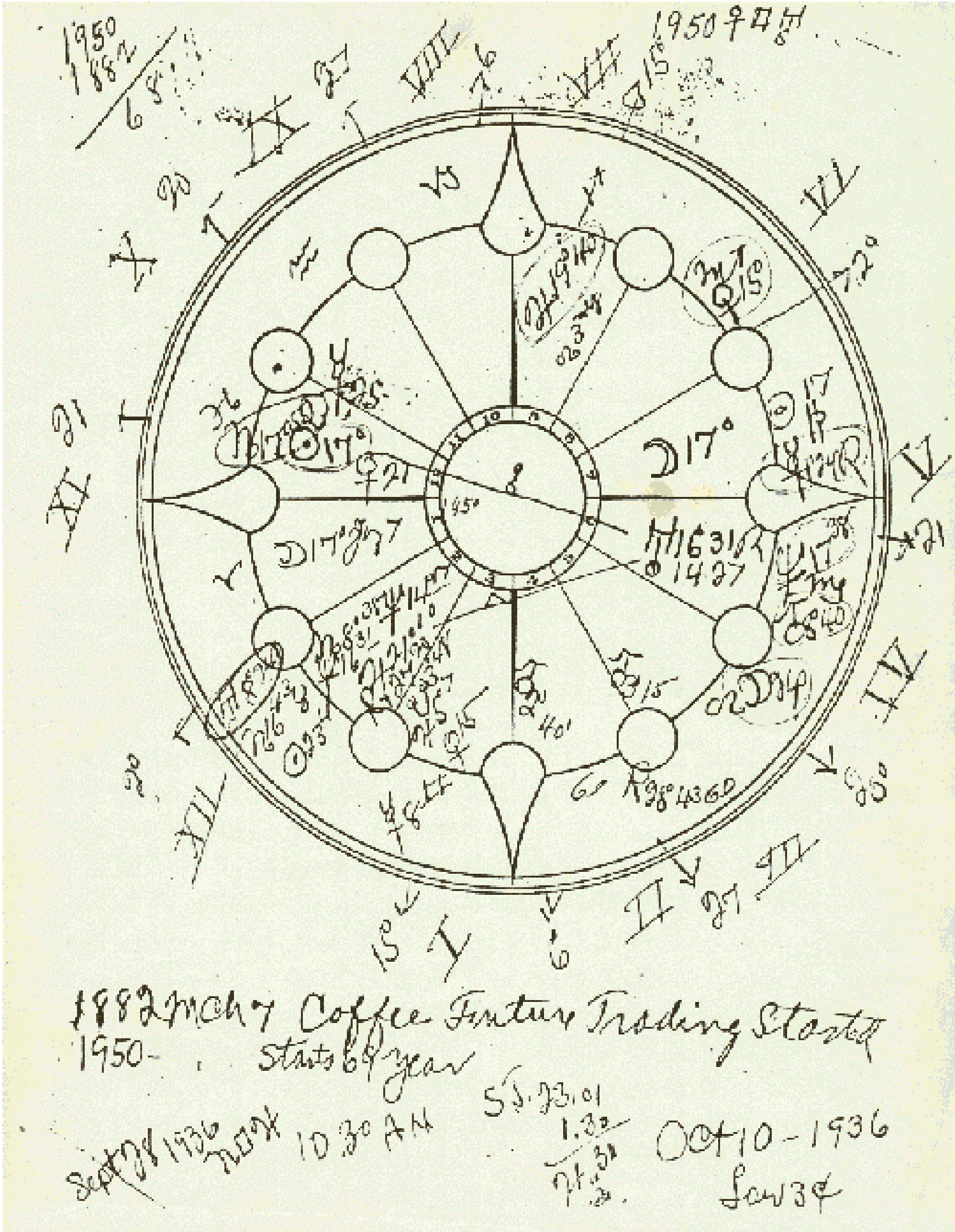
Is there any other evidence of the use of the number l7 in his other material?

I believe there is.

The number appears quite a bit in some of his astrological work, which you should check.

But just to show you at least one of those pieces of astrological material, I have included a sheet from his "private papers." I think it speaks for itself.

Study carefully the enclosed graphic below.


1950
1882
68
1882 Mch 7 Coffee Futur Trading Started
1950 starts 69 year
10 30 AM
Oct 10 - 1936

Book VIII

The Single Digit Numbering System

Chapter 1-Figuring in Bed in My Head

One night as I was in bed I wanted to know where I would end up on the Square of Nine chart if I went out one square and up to the next 22.5 degree line, out another square and up to the next 22.5 degree angle, etc. and on around until I came back to the line which contains the odd squares, the 315 degree line.

In a few minutes I knew the answer. The next morning I checked it out on my calculator and I was right!

How did I accomplish that mental feat?

I did it through the use of the single digit numbering system I had worked out over the years. And after studying this book you will be able to do the same thing! If you cannot, I will show you how at the end of this book.

Why should we be interested in a single digit numbering system? Gann seems to have used it, at least to some extent. We find that on page 112 of the "old" commodity course (Section 10, Master Charts, Square of Nine, page 2 in the "new" course) he says that you cannot go beyond nine without starting over.

I have read a few numerology books and as a student of Gann you probably have too. What they all have in common is the fact all numbers are reduced to single digits. That is accomplished by adding the numbers until you end up with a single digit.

For example we could use the number 1089 which you probably recognize from the Square of Nine chart as being the square of 33. We would add the numbers like this:

1+0+9+9=18

Then we would reduce the 18:

1+8=9

Let's look at the first 33 numbers in our natural numbering system. As explained in Book IV-"On the Square" in my series "The PATTERNS of Gann" the "natural" numbers are numbers 1, 2, 3, etc. That is, numbers that nave no fractional part.

We will list the numbers in the first column and in the second

we will reduce them to a single digit. Of course the first nine will be the same since they are already single digits:

1=1
2=2
3=3
4=4
5=5
6=6
7=7
8=8
9=9
10=1
11=2
12=3
13=4
14=5
15=6
16=7
17=8
18=9
19=1
20=2
21=3
22=4
23=5
24=6
25=7
26=8
27=9
28=1
29=2
30=3
31=4
32=5
33=6

As you can see every time we get to 9 the next number is 1 and we start the series all over again.

In my preface and in my previous books I have emphasized that the reader should always be on the lookout for PATTERNS.

As we work through this book I will often ask you to look for the PATTERN as the search for the answers to Gann is the search for PATTERNS.

As we saw above, the PATTERN was very straight forward. We went from 1 through 9 and started over again. But you will see that we cannot go beyond nine without repeating the PATTERN even when the PATTERN is not as straight forward.

We can see that when we look at the squares. This time instead of looking at the first 33 natural numbers we will look at the first 33 squares made up of those natural numbers.

First we will list the square roots of the square, then the squares themselves and in the third column we will express the squares with their single digit values (SDV).

1x1=1=1
2x2=4=4
3x3=9=9
4x4=16=7
5x5=25=7
6x6=36=9
7x7=49=4
8x8=64=1
9x9=81=9
10x10=100=1
11x11=121=4
12x12=144=9
13x13=169=7
14x14=196=7
15x15=225=9
16x16=256=4
17x17=289=1
18x18=324=9
19x19=361=1
20x20=400=4
21x21=441=9
22x22=484=7
23x23=529=7
24x24=576=9
25x25=625=4
26x26=676=1
27x27=729=9
28x28=784=1
29x29=841=4
30x30=900=9
31x31=961=7
32x32=1024=7
33x33=1089=9

PATTERN?

No, it doesn't make the nice 1, 2, 3, 4, PATTERN that we saw with the natural numbers in order. But, there is a PATTERN.

We can see that the first nine squares reduce to the single digits 1, 4, 9, 7, 7, 9, 4, 1, 9.

The squares 10 through 18 also reduce to the single digits 1, 4, 9, 7, 7, 9, 4, 1, 9.

Now check the next 9 squares and you will see that the squares reduce to the same single digits, proving what Gann said. You can never go beyond nine without starting over again.

Specifically you cannot go beyond the 9th "term" in a number

series which grows by the same increments each time. For example, the squares are made up of the odd series of numbers which grow by increments of two each time.

That not only works for squares but also for the other figures I discussed in my book Book VI-"The Triangular Numbers."

The beauty about the single digit system of numbers is that you can do some mental calculations and get answers without picking up a calculator. I have worked out some complicated Gann problems while driving my car.

Is 9,776 a triangular number?

Give it a try. I'll give you the answer at the end of this book.

Before we do some calculating let's have a look at the Square of Nine chart and see if we can discover some PATTERNS with our knowledge of the single digit numbering system.

Before reading further, look at your chart and give it a try and then come back to this material.

Chapter 2-The Nine as Zero

By the time you finish this you will be able to look at the Square of Nine chart and find the PATTERNS as I suggested above.

We will start by playing a game. Games are fun and learning by games is a very easy way to learn!

Write down the year in which you were born, add your age, subtract your weight, add 3 for each pizza you ate this week, subtract 7 for each time you went to church or synagogue this week, add 13 if your favorite color is red, add 17 if it is blue, add 33 if it is green.

Now multiply your answer by 45. Sum your answer to a single digit in the same way that some writers summed the stock market top in October, 1987 when the top was 2722. it was summed as 2+7+2+2=13. That's the way they left it and added their own reasons for doing so.

But let's finish the job as Gann would have done, 1+3=4. So make your answer a single digit, please.

I can guess your answer. It is 9!

If your answer does not agree with mine, then check it again as you made a mistake. I didn't. As Walter Brennan said in the "Guns of Will Sonnet," that's not brag, just fact.

Want to play again? Might as well. Ok. Go through the same

routine, only this time multiply your answer by 18 instead of 45.

Again, I can guess your answer. It is still 9!

And again if your answer does not agree with mine, check it again. You made a mistake somewhere.

A parlor game? Somewhat. But much more useful than might at first be realized.

In similar parlor games you are usually asked to start with a single number. Then it is multiplied and divided in certain ways, according to some mathematical formula, so that the operator knows the answer, much in the same way that the magician David Copperfield, guesses which car you are in on a train in his TV shows.

But look at the variables above. I have no way of knowing your age, how many pizzas you had, etc.

But I do have the knowledge of 45 and 18, the two things I did have control over. And therein lies the key!

THE NINE AS ZERO

What do I mean by the "nine as zero?"

Let's look at that high on the Dow again. We added the digits 2722 or 2+7+2+2 and got 13 and reduced again we find that 1+3=4. Let's move up to 2731 and reduce that figure to a single digit. 2+7+3+1=13 and 1+3=4. The same answer we had for 2722. Now let's move down to 2713 and reduce that number to a single digit: 2+7+1+3=13 and 1+3=4. Again the answer is the same. let's play an old Gann trick and add 360 to 2722 and get 3092 and reduce that to a single digit:

3+0+8+2=13 and 1+3=4, same answer.

Now let's subtract 360 from 2722, ala Gann and get 2362 and reduce that to a single digit:

2+3+6+2=13 and 1+3=4.

PATTERN?

Note than in the first example I moved up 9 points to 2731 and in the second I moved down 9 points to 2713 and got the same answer.

Why? As I stated above the key is "nine as zero."

I had been studying the single digit numbering system for a number of years before I discovered the concept of "nine as zero." Why did the nine act as it did?

When the answer finally came to me it was all quite simple.

The 9 in the single digit system works (has the same qualities) as the 0 in our regular numbering system.

Another way to put it: the 9 has the same value in the single digit numbering (SDN) system as the zero has in the regular numbering system.

Let's look at the function of zero in addition and subtraction in our usual base 10 system of numbers. We can take a number like 33 and add a zero to it and end up with 33 as the answer. Likewise we can subtract zero from 33 and the answer will still be 33. So what have we learned?

We have learned that adding or subtracting a zero in our usual numbering system does not change the value of the number to which it was added or subtracted. No matter how many zeroes we add to 33 we will still get the number 33. Likewise with the subtraction.

Let's now change 33 to a single digit value (SDV). So 3 plus 3 is 6. If we add 9 to 33 we get 42 which also has an SDV of 6. If we subtract 9 from 33 we get 24 which also has an SDV of 6.

It does not matter how many 9's we add or subtract we will still get 6. 27 is three 9's and 33 minus 27 is 6. 27 plus 33 is 60 and 60 has an SDV of 6.

We have now seen that adding or subtracting 9 or multiples of 9 from a number does not change its SDV. So in adding or subtracting, 9 has the same characteristics in the SDV system as zero had in the regular counting system.

Neither changed the value of the original number!.

When I added 9 to 2722 and got 2731, it did not change the single digit value as the value of 2722 was 4 and 2731 was 4. Ditto when I subtracted 9 from 2722 and got 2713.

Also when I added 360 ala Gann and subtracted 360 like Gann the answer was still 4 since adding or subtracting 360 was the same as adding or subtracting 40 9's as 40 times 9 is 360.
On page 153 of the course in which he is discussing the 15-day, 24-hour chart Gann subtracts 360 from 436 and gets 76. If you reduce both numbers to 13 and then to single digit value you will find that the answer in both cases is 4.

Gann's use of the square of 144 served the same purpose. 144 is a multiple of 9 or 9x16=144.

Take the number 436 again. Keep subtracting 144 until you can't any longer and you will again have 4. 3x144 is 432 and 436-432 is 4.

You can see the same results when Gann used the square of 90 as 90 is 9x10 and adding it or subtracting it from a number will not change its SDV.

With that in mind go back to our little game and figure out how I came up with the answer. Hint: think multiplication.

Got it?

As I stated earlier, I had no control over your variables, but I did have control over the multipliers, 45 and 18.

Let's look at the role of the zero in our usual numbering system when it comes to multiplication.

Using the number 33 again, let's multiply it by zero and we get zero since we all know that zero times any number is zero. When we added or subtracted zero we did not change the value of the number, the number was still 33. But when we multiply 33 times zero, we do change the value and that value is zero itself.

Using 33 again let's multiply by 9 and get 297. Let's now reduce to a single digit, 2+9+7=18 and reducing further 1+8=9. We could have reduced 33 to its single digit value 3+3=6 and then multiplying by 9 to get 54 and then reduce that, 5+4=9.

PATTERN?

Got it?

When we multiply by 9 and reduce to a single digit we will always get 9. Nine changes the single digit value to itself as the zero changed the value in our usual numbering system to itself.

As noted above you can multiply a number by 9 and then reduce to a single digit or reduce the number to a single digit first and then multiply by 9. The answer will always be 9.

And that's how I knew your answer would be 9.

"Hold on. Wait a minute," you say. "You didn't multiply by 9. You multiplied by 45 and 18."

That's right and the reason is that they are both multiples of 9!

When I asked you to multiply by 45, in essence you were also multiplying your answer by 5 and then by 9 and in the case of the 18 you were really multiplying your answer by 2 and then by 9. If I had told you to multiply by 9 you would have seen the scheme right away and I would not have had this chance to give you a lesson in looking for PATTERNS.
By the way, when I told you to check your answer if it did not agree with mine and told you if there was a mistake it was yours and not mine, it was not brag, just fact. It always has to be 9.

So let's say it again:

In the single digit numbering system, adding or subtracting a 9 or multiples of 9 will not change the value of the original number.

In the single digit numbering system, multiplying by 9 or multiples of 9 will always change the value of the original number and that value will always be 9.

Chapter 3-A Recap So Far

Let's do a recap so we can get the idea firmly in mind. Again we will use the number 33 since Gann students seem to like it so well (Gann's Square of 33, the 33 degrees of Masonry, one of the "master numbers," etc.) This time we will use multiples of zero and 9.

Let's make the multiple 5.

First will be addition:

33+0+0+0+0+0=33. The value did not change.

33 (3+3=6) +9+9+9+9+9=33+45=78. 78=7+8=15=1+5=6. The value did not change.

Next will be multiplication:

33x(5x0)=33x0=0. The value changed to zero.

33x(5x9)=33x45=1485. 1485=1+4+8+5=18. 18=1+8=9. The value changed to 9.

As I said earlier Gann noted on page 112 of the "old" commodity course (Section 10, Master Charts, the Square of Nine, page 2 of the "new" commodity course) that you cannot go passed 9 without starting over and that he used the 9 and the circle. (As we saw ,the circle of 360 degrees is also a 9).

It is my belief that Gann used the circle not only because of its astronomical relationship, but also because its main divisions were 9's. Ditto the square of 144.

I believe he used it because the divisions when added or subtracted did not change the "value" or vibration" or "octave" of the number.

Here, we must be careful, because vibration and octave are not used in the musical sense of which there is also evidence in the Gann material. I do not want to mix the two here. That is for another study. Value, vibration and octave here are meant in the single digit sense.

I mentioned earlier that the high on the Dow in October of 1987 and how it was pointed out by some writers that it was a "13" and I noted it was also a "4" in Gann terms. Using the divisions of the

circle we would also have 4 by adding or subtracting:

45 (9x5)
90 (9x10)
135 (9x15)
180 (9x20)
225 (9x25)
270 (9x30)
315 (9x35)
360 (9x40)

We could have added 9, 18, 36, 72, 144, etc. all with the same result. Check Gann's comments on the soybean price of 436 in his private papers titled "Soybeans. Price Resistance Levels." Another interesting aspect of divisions of multiples of 9 is that when the multiples of 9 are divided by 2 or the powers of 2 such as 4, 8, 16, etc., the numbers will also add to a single digit of 9, even those with fractions.

We can see this by Gann's division of the circle by the powers of 2.

360 divided by 2 is 180=SDV 9.
180 divided by 2 is 90=SDV 9.
90 divided by 2 is 45=SDV 9.
45 divided by 2 is 22.5=SDV 9.
22.5 divided by 2 is 11.25=SDV 9.
11.25 divided by 2 is 5.625=SDV 9.

We recognize the last line as Gann's division of the circle by 64. We can also see that it is divided by 2 to the sixth power as 2x2x2x2x2x2=64.

You can continue to divide by 2 but the result is always the same. The answer will have a single digit value of 9!

Chapter 4-PATTERN Recognition

A nice thing about SDV is that it allows for PATTERN recognition. The triangle, square, pentagon, hexagon and octagon numbers or any other numbers built on the same PATTERNS will show up as certain PATTERNS in the SDV system.

I showed you earlier that using the simple counting numbers 1 through 9 would have the same PATTERN going from 10 to 18. I also showed you how the squares had their own PATTERN.

Even the numbers that make the squares (I showed the significance of those numbers in my book "On the Square") have their own PATTERN that never goes beyond 9.

The odd numbers which form the squares when added are:

1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27

and they have the SDV PATTERN

1, 3, 5, 7, 9, 2, 4, 6, 8, 1, 3, 5, 7, 9

We can see that when the odd numbers reach 17, the ninth term, the PATTERN starts over at 19. Again, as Gann said, you cannot go beyond nine without repeating, especially if the numbers have a PATTERN in the first place. The odd numbers do have their own PATTERN. They are all two units apart.

The making of pentagons, hexagon, octagons and even 33-sided figures can be checked in the same way. I will not go into their construction as I did that in my book "The Triangular Numbers."

Suffice it to say that the results are always the same. But here is a little exercise for you. Do the cubes. That's right, multiply the cubes out from 1 through 9. I think that after the first six you will already have the idea.

Remember, always reduce your answer to SDV. Just to be sure, go ahead and do the first 18 cubes.

Chapter 5-SDV and the Square of Nine Chart

The PATTERNS also show up if we lay out a square whether it be built from the center or from the side.

Get out your Square of Nine chart.

Some call, including myself, the square of 33 chart the Square of Nine chart so we will use that loosely here. The square has many constructions and can be described as a cycle of 8 as Gann noted in his private papers, a cycle of 7 and even a cycle of 6. But those arguments I have described in the book, "The Triangular Numbers," so no need to go into that here.

So, let's look at that part of the square of 33 chart which Gann called the "Square of Nine" and the 19x19 chart that totals 361. See page 112 again in the "old"course (Section 10, Master Charts, Square of Nine, page 3 in the "new" course.)

Starting with the 1 in the middle of the Square of Nine chart we go north until we reach 316 which has an SDV of 1 since 3+1+6=10=1+0=1.

And that's the last time I will reduce a number to it's SDV because by now I think you understand the method.

Now, let's go south starting from 1 until we reach:

352 which has an SDV of 1.

Going east from 1 we go out to:

334 which has an SDV of 1.

Going west from 1 we go out to:

298 which has an SDV of 1.

PATTERN?

Yes, they all have an SDV value of 1.

Now check the distance from the center to each of the points we went to, north, south, east and west.

Starting with 1 as the first term we find that each of those points were the 10th term.

PATTERN now?

Yes, like Gann said. You cannot go beyond 9 without starting over.

Let's prove it to ourselves by checking some of the other points. The next term north of 1 is 4. Now go to the term north of the term 316 which is 391 and has an SDV value of 4.

The next term east of 1 is 6. Using 6 as the first term go out to the term next to 334 which is 411 and we find it adds to 6.

Work out the terms south and west in the same manner to prove the method to yourself.

Note that the four numbers we found earlier are bounded by a circle. Now go to the corners of the next circle, the square of 19. Go to 307, 325, 343 and 361. When you reduce those numbers you can see that they all are SDV 1.

With those four points, plus the four points we found earlier, plus the one in the center, we have 9 points, all of which have a single digit value of 1.

If we lay out the square of 19 by 19 as Gann suggested going up 1 column to 19 and repeating until we have 19 columns ending at 361, we would also have 9 points with SDV 1 in the same positions.

Confused?

Think of the square of 19 as an overlay on the square of Nine.

1 on the square of 19 would be at 361 on the square of Nine chart. 19 would be at 307. 361 would be at 325 (Gann notes that a new cycle starts at this number since two 45 degree angles cross here).

343 would be at 343.

For the other points 190 would be at 316. 172 would be at 352. 10 would be at 298. 352 would be at 334. And at the main center would be 181. Reduce those and they will all be 1's and they will overlay the 1's on the Square of Nine.

I have made two charts below, one is from the Square of Nine and the other from the 19x19 chart. The numbers I show are just the numbers from the 9 different points in each chart to show the idea.

307	316	325
298	1	334
361	352	343

Square of 19 on Square of 9 Chart

19	190	361
10	181	352
1	172	343

Regular Square of l9

You can turn the 19x19 overlay upside down, to the east or to the west and the results will be the same, the 1's will match up with the 1's on the Square of Nine chart.

Of course these are not the only 1's. In the square of 19x19 there are 41 ones plus 40 twos, 40 threes, etc. since 9x40 equals 360.

The other circles on the square of 33 suggests other PATTERNS, but that is a discussion for another time.

Chapter 6-Diagonals in Squares

Diagonals in various squares can be studied with the SDV in mind. You can work the PATTERNS in your mind without ever writing down the numbers with a little practice.

Let's have a look at the square of 19 again.

One of its diagonals runs from northwest to southeast or top left to bottom right. Close your eyes, give it some thought and see if you can figure the SDV numbers on this line.

If you said that all are 1's you are correct!

If you study the chart a few minute you will see why that is true. At 19 the SDV is 1. The next part of the diagonal is at 37 also a 1. We can get to 37 by adding 18 to 19 and we already know that when we add any multiple of 9 to another number we do not change its value. And by adding 18 to 19 we come to 37 since it is one less than the number at the top of the chart which is 38. Add 18 again and we are at 55, dropping one unit down again, etc. Work out the rest by adding 18 each time.

A good way to remember what you are doing is to use an "adder" which is one less than its side. Or 19-1 is 18.

Dropping down to 11, SDV 2, we find that all the numbers going down on a 45 degree angle from 11 will all be 2's since we are adding 18 to 11 and then 18 to 29, etc.

By establishing these two rows I believe you will quickly see how the other rows can be filled in without any additional figuring.

But for the fun of it, let's figure the other diagonal, the one that goes from southwest to northeast or from the lower left corner to the upper right and corner.

We will start with 1 and will need an adder to keep us on the diagonal. Going up to 19 and then down to 20 and then up to 21 we will be on the diagonal. So the adder is 20 since 1 plus 20 is 21. The adder in this case is one more than the side. 19+1 is 20.

Since we can change the 20 to an SDV value of 2 we can go up this diagonal by starting at 1 and adding 2 plus 2, etc. The answer will be 1, 3, 5, 7, 9. When we add 2 to 9 it becomes 11 and therefore 2 and when we add 2 plus 2 plus 2, etc. we get 2, 4, 6, 8, 10 (1), 12 (3), etc.

You will note that after the ninth term on this angle, which is 8, the single digits repeat the same order or PATTERN. Remember, you cannot go passed 9 or the ninth term without starting over.

Going on the diagonal from 58 which is 5+8 or 13 or 4, we find the SDV numbers are 4, 6, 8, 10 (1), 3, 5, 7, 9, 11 (2), 4, 6, 8, etc. Again when we reach the number after the ninth term we have repeated the 4 which starts the same series all over again.

Each number on the extreme bottom row corresponds to the same number at the extreme top in the same row as 20 and 38 are both 2's, etc. The SDV on the extreme left row corresponds to the SDV on the extreme right row.

Chapter 7-The Square of 12

Let us now leave the square of 19 and look at another square, one that is mentioned by Gann as being one of the important ones, the square of 12.

Its side is 12. The adder from top left to bottom right must be 12-1 or 11 or 2. Since 12 is 3 we simply add 3+2+2+2, etc. to get the SDV's on that diagonal. They are 3, 5, 7, 9, 2, 4, 6, 8, 1, 3, 5, 7.

12	6	9	3	6	9	3	6	9	3	6	9
11	5	8	2	5	8	2	5	8	2	5	8
10	4	7	1	4	7	1	4	7	1	4	7
9	3	6	9	3	6	9	3	6	9	3	6
8	2	5	8	2	5	8	2	5	8	2	5
7	1	4	7	1	4	7	1	4	7	1	4
6	9	3	6	9	3	6	9	3	6	9	3
5	8	2	5	8	2	5	8	2	5	8	2
4	7	1	4	7	1	4	7	1	4	7	1
3	6	9	3	6	9	3	6	9	3	6	9
2	5	8	2	5	8	2	5	8	2	5	8
1	4	7	1	4	7	1	4	7	1	4	7

On the diagonal from bottom left to top right the adder is 12 plus 1 or 13 or 4. We add 1+4+4+4, etc. to get 1, 5, 9, 13(4), 8, 3, 7, 2, 6, 1, etc.

In describing his square of 12 on page 111 in the "old" course (Section 10, Master Charts, page 2, in the "new" course), Gann said when you move over three sections you find the square of its own place.

Some have intepreted this as astrological or astronomical since Gann seems to be saying that the square represents 144 months or 12 years and moving over 3 places is 36 months or one-quarter of 144 or one-quarter of a circle (that of Jupiter) or 90 degrees. Since Jupiter goes 2.5 degrees a month (heliocentric) it reaches 90 degrees in 36 months. Ninety degrees astronomically or geometrically is a square.

That seems logical, but I have often looked in other places for other meaning. You will note that across the top of the square the SDV is 3, 6, 9. Nine is the square of 3. This is another possible explanation of what Gann meant.

Observing the first 3 SDV numbers in the first three rows in bottom left we can observe the PATTERN going up, 1, 2, 3 and then 4, 5, 6, then 7, 8, 9. Moving up to the next nine numbers in the three rows we can read, 4, 5, 6, then 7, 8, 9, then 1, 2, 3. Up to the next 9 numbers we read 7, 8, 9, then 1, 2, 3, then 4, 5, 6. Then the next 9 numbers repeat the order on the bottom.

If we think a few minutes, this PATTERN will become clear to us. But while we are giving that one some thought, let's move on to some other squares.

Chapter 8-The Square of Seven

First, let's look at the square of 7, a popular Gann number.

Since our side is 7 our adder will be one less than 7 or 6 for the top left to bottom right diagonal or 7+6+6+6, etc. We get 7, 4, 1, 7, 4, 1, etc. Going from bottom left to top right our adder will be 7 plus 1 or 8 so we get 1+8+8+8, etc. or 1, 9, 8, 7, etc.

Now let's go ahead and fill it in. Now, let's look at the square again. The square of 7, right?

7	5	3	1	8	6	4
6	4	2	9	7	5	3
5	3	1	8	6	4	2
4	2	9	7	5	3	1
3	1	8	6	4	2	9
2	9	7	5	3	1	8
1	8	6	4	2	9	7

Wrong! Fooled you that time.

What you see now is a section of the square of 52, another square prominently mentioned by Gann.

For our purposes here we will make up a partial square of 52. We will also use only one diagonal, the one going from top left to bottom right. Since the side is 52 our adder will be 52-1 or 51 which is 5+1 or 6.

52	x	x	x	x	x	x
51	4	x	x	x	x	x
50	x	1	x	x	x	x
49	x	x	7	x	x	x
48	x	x	x	4	x	x
47	x	x	x	x	1	x
46	x	x	x	x	x	7

Since 52 is 5+2 or 7 our first SDV is 7 and the next is 7 plus 6 or 13 or 4. We can check this as 52 plus 51 is 103 or 1+0+3=4.

The SDV on the diagonal is 7, 4, 1, 7, 4, 1, 7, 4, 1, 7. Draw this on down to 1.

Dropping down to 25 and drawing a diagonal down from there we change 25 to 7 and add 51 or 6 and get 4 in the next column. We can check this as 25 plus 51 is 76 and 7+6 is 13 and 1+3 is 4. So our numbers here run 7, 4, 1, 7, 4, 1, etc.

PATTERN?

Now let's drop down to 7 in the square of 52. Going down the diagonal from 7 we add 51 which still has the SDV of 6 and we get 13 or 4. We can check this as 7 plus 51 is 58 or 5+8 is 13 or 1+3 is 4.

As you can see we have the same PATTERN running down from 52, 25 and 7. It is the same PATTERN on the square of 7. For the same reason that we had a repeated PATTERN in the square of 12.

The reason is that the square of 12 is just an extension of the square of 3 and the square of 52 is an extension of the square of 7. 3 is 3 and 12 is simply 1+2 or 3.

The square of 7 on the diagonal starts at 7. The square of 52 starts at 7 since 5 plus 2 is 7. Ditto with 25 which is 2+5 or 7.

In all cases the difference is a multiple of 9. The difference in 12 and 3 is 9. And 7 plus (2x9) is 25 and 7 plus (5x9) is 52. All proving once again that you cannot go beyond 9 without starting over again. Make up a few squares on your own and prove it to yourself. Try 13 and 31 for a start.

It works every time!

If we wanted to add another row to the side of the square of 7 we would start at 50 at the bottom which would be 5. This eighth row in the square of 52 would start at 365 which is also 5. We could add a ninth row to the square of 7 and it would end at 63.

Beginning a 10th row we would have 64 which is 1 and brings us back to where we stated in the first row since we cannot go beyond 9 without repeating. The ninth row of 52 would end at 468 and the 10th row would begin at 469 which is 4+6+9 or 19 or 1+9 which is 10 and 1+0 is 1.

It works every time!

I know. I said earlier I would not do any more reducing since you would understand by now how to do it.

But its does make it easier, doesn't it?

We could make an overlay of the square of 7 or 49 numbers reduced to SDVs and place it over the various parts of the square of 52 and numbers working to the square of 7 would also be working to the square of 52.

Chapter 9-The 24-Hour Square

Looking at another important square, the 24-hour square which ends at 576 or 4 times 144, we can see that it has an SDV of 6 so we

could use a square of 15 or a square of 6 to overlay it.

Let's lay out a square of 6 SDV style and observe it. This time let's give more attention to the numbers going straight across instead of the diagonal.

6	3	9	6	3	9
5	2	8	5	2	8
4	1	7	4	1	7
3	9	6	3	9	6
2	8	5	2	8	5
1	7	4	1	7	4

Along the bottom we have 1, 7, 4, 1, 7, 4. In the next row we have 2, 8, 5, 2, 8, 5. In the third row the numbers are 3, 9, 6, 3, 9, 6. In the fourth row the numbers are 4, 1, 7, 4, 1, 7. In the fifth row they are 5, 2, 8, 5, 2, 8. In the sixth are 6, 3, 9, 6, 3, 9.

As you can see there are only three lines of different numbers, the other three being the same numbers, but in a different order.

We can see why repetition starts in the forth row from the left. Any number in the first row will become the number in the fourth since we are adding three 6's to the number in the first row to get the one in the fourth. Three 6's are l8 which is a multiple of 9 and adding 9's does not change the value of the original number.

It would be the same if we were using a square of 24. We would be adding three 24's to the number in the first row to get the number in the fourth row. Three 24's equal 72, another multiple of 9, which still does not change the value of the original number.

With like reasoning we can see that the number in the fifth row is the same as in the second and the one in the sixth is the same as in the third, all for the same reason.

Now we will look at something a little different. Since this is a 24 hour and 15 degree chart or 15 days and 24 degree chart, let's convert the degrees to SDV. The first 15 degrees will convert to 6 and we will place it in front of 1, 7, 4, etc.

The second unit of 15 is 30 which becomes 3 and we place it in front of 2, 8, 5, etc.

The third unit of 15 is 45 and we will make that 9 and place it in front of 3, 9, 6, etc. If we kept converting the results would be the same since 60 is 6 and would be in the next line of 4, 1, 7, etc.

So for simplicity we could work with 3 lines corresponding to three numbers.

x	**6**	**3**	**9**	**6**	**3**	**9**
x	**5**	**2**	**8**	**5**	**2**	**8**
x	**4**	**1**	**7**	**4**	**1**	**7**
45 Deg (9)	**3**	**9**	**6**	**3**	**9**	**6**

30 Deg (3)	**2**	**8**	**5**	**2**	**8**	**5**
15 Deg (6)	**1**	**7**	**4**	**1**	**7**	**4**

The brief account Gann gives about this square will have you going around the circle which can be a little confusing. That's why I converted it to a square and took a small portion, the three lines, to work with.

A few numbers are given by Gann which on the surface are confusing but after we make the conversion we can put them into an interesting perspective. By converting 44, 239, 311 and 344, we can see that they fall into three groups, 8, 5, 2, which fall on one of our three lines. No matter what angle they fall against, the angle will convert to a 3 such as 120.
The other two numbers, 67 and 436 are both 4's. When Gann subtracts 360 degrees from 436, he gets 76, which is 4 and just a reversal of 67. 67 plus 9 is 76. Subtracting the 360 degrees from 436 didn't change its value since 360 is a multiple of 9 as we saw earlier.

Other possibilities can be seen in working off angles. The number 436 is 16 degrees beyond the angle of 420 which is a 6, in the same way that 76 is 16 degrees beyond the angle of 60 which is a 6. Subtracting 360 from 436 gives us 76 and subtracting 360 from 420 gives 60. This provides for the same degree in the circle and off the same angle.

The other angles can be worked the same way.

Chapter 10-The Properties of "1"

Let's now turn our attention to a couple of other aspects of the SDV system. Until now we have been dealing with 9 and have seen that it's properties in the SDV system is the same as zero in our usual numbering system.

In the usual numbering system the addition of zero does not change the value of a number. Multiplication does change the value to zero. In an opposite manner the addition of "1" changes the value of a number but multiplication does not.

Is there a number in the SDV system that has the same properties as the one in our regular numbering system?

Yes. It is still 1 or numbers that add to 1. We can readily see that because when we multiply a number by 10 such as 5 and get 50 its SDV value is still 5. But we can also do the same thing with 19, 28, 37, etc. because their SDV is 1. 19 times 5 is 95 and 9+5=14 and 1+4=5.

I'm sure you have seen by now that we can deal in certain ways with the SDV numbers other than 9 or 1. My discussion to this point has been the 9 as zero and the 1 as 1.

Let's add up a couple of big numbers and then get their SDV value. Let's take 194,536 and add it to 233,327. We get out our little hand held calculator and find that the answer is 427,863. I believe at this point I no longer have to show you how to simply add those six numbers to come up with the SDV of 3.

But there is an easier way of doing it!

Without the calculator we could have established the fact that the answer would be 3 by doing some mental calculations.

And doing mental calculations is the whole point of this book as you might have gathered from the first paragraph.

The key is this:

We could have reduced each number to SDV before adding. Since the addition of 9 never changes the value in our SDV system we can simply drop them or cast them out.

Looking at 194,536 we can drop the 9, drop the 4 and 5 since they add to 9 and drop the 3 and 6 since they add to 9. All we have remaining is 1.

Looking at 233,327, we can drop the three 3's and the 2 and 7 and have 2 as the single digit value.

So our first number has an SDV of 1 and our second an SDV of 2. Add them together and we have 3, which was the answer we got when we ran the two large numbers through the calculator and then reduced the answer to its SDV.

But now you are probably ahead of me so before reading further why don't you give multiplication a try SDV style!
We can perform multiplication in the same way. We can take a couple of Gann numbers like 44 and 67 and multiply them:

44X67=2948
2+9+4+8=5

We could have first reduced our multipliers to single digits:

44=4+4=8
67=6+7=13=1+3=4

Then multiply them:

8x4=32=3+2=5

Let's look at subtraction. In our normal system if we subtract 7 from 5 we get -2. If we subtract any greater number from a lesser number we will always have a minus number.

But in our SDV system if we subtract 7 from 5 we get 7!

It took me quite a while to figure that out, long after I had come up with the 9 as zero. But when I did figure it out it seemed so simple.

Want to give it a try before going on? I'll wait. I need a good rest!

Got it? Ok. Let's have a look at it.

To subtract a larger number from a smaller in the SDV system simply add 9 to the smaller and then subtract. Adding 9 to 5 gives 14 which does not change its value. Now subtract 7 from 14 and the answer is 7.

25 is a 7 and 32 is a 5 and 25 from 32 is 7, so 7 from 5 is 7.

We know that 7 minus 7 is 0 in our regular number system. In our SDV system we can change the first 7 to 16 by adding 9. Now subtract 7 and you are back to 9. Again we are using 9 as zero.

Chapter 11-Single Digit on the Square of Nine

Going along the angles on a square chart like a 19x19 is pretty straight forward. However the charts where the numbers begin in the center such as the Square of Nine and the Square of Four can be a little confusing because of the way they are constructed.

As I said before I do not want to get into a long discussion of the construction of the Square of Nine chart and wander far afield.

Suffice it to say that one of its constructions is based on a cycle of 8 as I pointed out in my Book VI-"The Triangular Numbers."

The concept of the cycle of 8 is best understood by working off the number 8 and going down the 45 degree angle that is one unit shy of the angle which has the odd squares on it.

The first cycle ends at 8, the second at 24, the third at 48, etc. This is a gain of 8 in each cycle. Therefore the cycles are made by adding 1x8 plus 2x8 plus 3x8 plus 4x8 plus 5x8 plus 6x8 plus 7x8 plus 8x8 plus 9x8, the total being 45 times 8 or 360.

In other words we add 16 to 8 to get 24, then add 24 (which is 8 more than 16) to 24 to get 48. Then we add 32 (which is 8 more than 24) to 48 to get 80, etc.

Keeping this in mind we can see how a gain of 8 works in running off other numbers. As an example let's work off of the number 2 going to bottom left. The difference between 2 and 10 is 8. So the difference between 10 and 26 must be 16 and the difference between 26 and 50 must be 24.

Moving out on the line to 53 and going in the same direction we can see that the difference between 53 and 85 is 32. Can you guess the next number without looking at the chart?

That's right. Adding 8 to the difference of 32 gives us 40 and 40+85 is 125 which is the next number.

Going back to 2 and working on the 45 degree line that goes to the top left, 2, 12, 30, 56, etc. we see that the difference between 2 and 12 is 10. By adding 8 to that difference we get 18 and adding 18 to 12 we get 30. Adding 8 to 18 we get 26 and adding 26 to 30 we get 56. In other words the difference between the numbers grows by 8 each time.

Going straight out from 2 to the left we come to 11. The difference is 9. Add 8 to that difference and we get l7, which added to 11 gives 28.

We can work off the number 3 in the three directions in the same way. But the number under the 2 is 9 and it will work only to the bottom left. It will not work straight out or to the top left. We can see that going straight out the difference between 9 and 10 is 1 and 8 plus 1 added to 10 is not 27. Ditto with the difference between 9 and 11.

Moving over to the next column or square 13, 12, 11, 10, 25. With the first four numbers we can work off them with the same gain of 8 in the difference. For example the difference in 12 and 29 is 17 and the difference between 29 and 54 is l7 plus 8 or 25. This is the same as the difference between 11 and 28 and 28 and 53.

However, with the 25 we have the same problem as we had with the 9. When we subtract 25 from 26 we have a difference of 1 and 1 plus 8 is 9 and 9 plus 26 is not 51.

Go to the next column and work 31 through 49 with the same results. Then check each column working to the left and you will see they follow the same form. They all work to the same form of the gain of 8 in the differences to the top left, bottom left and straight out except for the odd square numbers which only work to the bottom left.

Let's now go on around to the top of the squares and see what we can find. We will work off of 3, 4 and 5. You have already seen how the numbers work off of 3 going to top left. Now we will check them straight up. Subtracting 3 from 14 we get 11. Adding that difference to 8 we get 19 and adding that to 14 we get 33.

Going to top right we have 15 minus 3 is 12 and 12 plus 8 is 20 and 20 plus 15 is 35. We can work off of the 4 and 5 in the same manner. But we cannot drop back to the 2 and go straight up or to the top right, because the differences won't work out. Up in the next square, 13, 14, 15, 16, 17 can be worked by the same method. Ditto going up into the next set of numbers.

Moving on around to 5, 6, 7, we can work off the numbers to the

top right, bottom right or straight out to the right in the same manner. The same holds true for 17, 18, 19, 20 and 21. It also holds true for the other numbers as we move to the right.

For example, we can use the Gann number 67. Its difference from 104 is 37. that added to 8 gives us 45 and we find that 104 plus 45 is 149.

Going down to 7, 8, 9, we can work off the numbers in the same manner. It can be noted here that working off the natural square odd numbers can be done going to bottom right, straight down and to bottom left, but because of the construction of the chart we cannot go straight out or to the top left.

Now that we have checked out the "difference of eight" construction of the chart and found the problem areas we can see how these problems affect our SDV count.

Using the number 25 as an example we will check out the SDV count going to bottom right. The SDV of 25 is 7. Counting down nine places (or 10 if we count the 25) we come to 511 which is 7. Counting to bottom left we come to 529 which is a 7. Counting straight down from 25 we come to 520 which is 7.

Note that 25, 520 and 529 make a small triangle and 25, 511 and 529 make a larger one. The difference in 520 and 529 is 9 and the difference between 511 and 529 is 18. Remember the adding or subtracting of 9 or 18 does not change the SDV value.

Going straight out to the left from 25 we can see that the count over to 450 is not a 7. The reason being as pointed out before, it does not follow the gain of 8 sequence.

As we noted when working off the numbers 3, 4 and 5, if we dropped down to the 2 and went straight up or to the top right, the gain of 8 would not work. Therefore when we do an SDV from 2 going in those directions it will not work.
Therefore, we have to note that whenever the gain of 8 or difference of 8 is violated, the SDV does not work because of the construction of the chart.

You might call this the crossing of a corner of a square. Since it does not work going from 2 through 4, it does not work going from 12 through 14, 55 going through 31, 305 going through 241, etc.

There are places where crossing of corners does work, from 298 to 316, from 316 to 334, 334 to 352, 352 to 298. Also from 60 going to the bottom left (through 86 which is five places from 298) we can go to 366. From 117 we can go to the top right through 69 (which is five places from 1) to 261.

All the other numbers on the two diagonals that cut through 86 and 69 going from top right to bottom left also follow the SDV principle.

There are some other interesting aspects of corner crossing. I know I should't point them out to you.

As I have said a number of times in these writings:

Why should I have all the fun?

I should let you make the discovery yourself as an interesting exercise in PATTERN discovery and have some fun yourself. But you might not want to take the time to do the work, so I'll do it for you.

Let's work in the area Gann mentions in his description of the 1 through 33 square, the price of soybeans in the $3 to $3.12 range. We will work from bottom left to top right.

Going from 307 to top left we would go off the page but from our work we know that we would end up with a 1 on the ninth square up from 307. By adding differences of 8 we can see that 307 plus 76 is 383 plus 84 is 467, etc. up to the 9th difference when we add 140 and our answer is 1279 or 1.

Working from 307 to bottom left we would also go off the page, but following the same procedure we would find that our number would have an SDV of 1.

But when we move off of 307 going to top right or bottom left we run into the crossing square problems. Going from 547 which is 7 to top right at 883 we have 1. So shifting back and forth on this line does not work SDV wise unless we are on an exact count from 307.

Let's now drop drown from 307 to 306 which goes through 308.

Let's think of our series of SDV's as 10 units. Since we cannot go beyond 9 our first unit and our 10th will be the same. For example if we made 3 our first unit then 12 or 3 is our 10th unit or term. In other words our first term and our 10th will be identical.

The difference between 306 and 307 is one unit and the difference between 307 and 308 is one unit. Subtracting these two units from 10 we have 8 units left. Let's divide the 8 units by 2 and get four and place four units in front of 306. The four units are 642, 546, 458 and 378. Now let's place four units or terms after 308. They are 384, 468, 560 and 660. Now we can see that the first term is 642 and the last term or 10th term is 660. Both are 12's or 3's.

If we shift down one term on this line and make 746 or 8 our first term then 560 or 2 becomes our tenth and they are not identical. It is only by holding 306 as our fifth term does the SDV work.

Let's now count down from 307 to 304 which gives us 4 terms. We subtract the 4 from 10 and get 6 and divide by 2. We put three terms in front of 304. They are 544, 456, and 376. Now 240 is the fifth term and 562 is the 10th. We find that 544 and 562 are both 4's.

Dropping down to 302 we see that it is the sixth term counting down from 307. Subtracting 6 from 10 and dividing by 2 we get 2. Moving down two places to bottom left we come to 454, which is 4 and counting up to 10 terms from there to the top right we come to 472, which is 4.

I'll let you do the next two. Like I say, why should I have all the fun?

Moving on around to the other side, let's check another corner, mainly the one from 42. This time we will count up instead of down and find that 42 is the second term from 43 (counting 43 as the first term). If we subtract 2 from 10 we get 8 and then divide by 2 and get four. Counting up four from 42 going to upper right we come to 202 which is a 4 and going 10 terms from here back to the bottom left we come to 220 or 4. So it works again. Try a few and see what happens.

From our work on both of the corners, did you notice a

PATTERN?

You know me and my simple observational arithmetic bit. When we worked off the 306 and put the four terms in front then 306 became the fifth term. When we dropped down to 304 and put three terms in front of it, then 240 became the fifth term.

If you worked this section on out as I suggested you would have noticed that all the terms on the 45 degree angle going from top left to bottom right 306, 240, 182, 132, etc. would all have been the fifth term when counting from bottom left to top right.

Over on the other side of the square we can see that 42 was the fifth term going from top right to bottom left from 202. If we checked 6, 20, 42, 72, 110, etc. on this line we would find that they are also fifth terms.

If we try to shift our count along these top right to bottom left lines we will find that the SDV count does not work going across the square corners unless the numbers on the lines I have mentioned are the "fifth terms."

It will be noted that these numbers on both sides of the square form the geometric means between the squares. For example 42 is the geometric mean between the square of 6 and the square of 7.

I mention this only in passing as I do not want to get into a discussion of the various means, but to those who already understand means I thought this might make an interesting observation.

(Note: Geometric and other means were discussed in my Book IV- "On the Square.")

We can also note that the difference in each of the 10 terms is 18, such as 660 minus 642 and 220 minus 202.

Chapter 12-The Square of Four Chart

Let's now take a look at the Square of Four chart. Although it looks different from the Square of Nine, there are similarities.

What runs on a 45 degree line on the Square of Nine runs on a 180 degree line on the Square of Four and vice versa. We can check from 67 to 679 and from 67 to 688 on both charts. In both cases the three numbers form a triangle and all are 4's being 10 terms apart.

Since the numbers going to top right from 67 on the Square of Four are the same as those going straight to the right on the Square of Nine, we can see that the numbers on the Square of Four also follow the gain of 8 concept.

We can prove that to ourselves by looking at the even square numbers. The construction of the chart can be stated in several ways just as the Square of Nine.

We can say that the even squares represent 4 times the natural squares in order, 4 times the square of 1 is 4, 4 times the square of 2 is 16, 4 times the square of 3 is 36, etc.

The even squares can be expressed in a different way. We can make them the sums of 4 times the odd numbers in order. We can say 4 times 1 is 4; plus 4 times 3 is 16; plus 4 times 5 is 36.

Since we are multiplying the odd numbers which are two places apart by 4, the difference is 8. For example, let's simply multiply the first three odd numbers in order and see what we get:

4x1=4
4x3=12
4x5=20

We can see that the difference in 4 and 12 is 8 and the difference in 12 and 20 is 8.

If we continued to multiply the odd numbers in order by 4 the difference between one answer and the next would always be 8.

It works every time!

Since we are adding the odd numbers in multiples of four in order to make the even squares, the difference in the squares grow by 8. The difference in 100 (the square of 10) and 144 (the square of 12) is 44 and the difference between 144 and the square of 14 (196) is 52 or 8 more than 44.

On the Square of Nine chart we could have expressed our cycle of 8 also in 4's, 4 times the even numbers. We could have said 4 times 2 is 8, plus 4 times 4 is 24, plus 4 times 6 is 48, etc.

So now we have proved to ourselves that the Square of Nine and the Square of Four both follow the difference of 8 syndrome.

Chapter 13-The Hexagon Chart

Turning to the hexagon chart, we find that Gann described it for what it is, a cycle that gains 6 each time around. Let's check out 10 terms and see if we can go beyond 9.

Starting with 4 and going to bottom left we end up at 310 which is also a 4 so our SDV value for 10 terms holds up. We can see that the difference in 4 and 14 is 10 and the difference in 14 and 30 is 16. So the difference of the difference is 6. We see that 30 from 52 is 22 and 22 is 6 more than 16, etc.

If we subtract 4 from 310 we get 306, which is 51 times 6. It is also 34 times 9 and adding 306 to 4 did not change the value of 4.

An interesting aspect of this chart shows up when we view it from top to bottom. Looking at the top from 60 degrees to 120 degrees we can see that the first row on top has 23 numbers and the row after that 22 and the next down 21.

As a result we have gaps when going from the top row to the next down. And as a result of that we have alternating rows in which the numbers fall exactly on the 90 degree line. The numbers are 1419, 1170, 945, etc.

If we count the numbers on the alternating rows as our terms we find that the 10th term from 1419, which is a 6, falls on 42 which is a 6.

We might could check this phenomenon a little easier by going over to 1408 which is a 4 and going down to 472 which is a 4. If we go to the extreme outside we come to 1390 which is 4 and then over to the 60 degree line to 40 we also have a 4.

Counting up from 1390 to 1408 we find that we have 19 terms and our answer.

Remember that 1, 10, and 19 are all 1's. When we counted from the top or 1419 down to 42 by skipping a line each time we were also counting down to the 19th term if we counted all the lines.

If we counted up from 42 on diagonals such as 67, 98, 135 we would have come out at the top at 1410 or 42, 68, 100 we would have come out at 1428.

We find that 1428, 1419 and 1410 are all 6's. This is a triangle which includes 10 times 19 or 190 numbers. In the same way the triangle of 10 includes 55 numbers.

(I discussed triangular numbers and where they can be found in the Gann material in Book VI-"The Triangular Numbers."

Chapter 14-How I Did It

In discussing this material with a friend of mine he said, "It's interesting, but what is it worth, what is the point to it?"

That's a fair question as I could see the point he was trying to make. Like most people in the market, he was looking for something "to pull the trigger with in the markets in the morning."

As I noted in the preface to this series of books the problem with over 90 per cent of those in the market who pull the trigger is that they either shoot themselves in the foot or in the head. One is very painful, the other very deadly.

I also noted in the preface that this series of books is not to be a "how to make money in the markets in the morning."

The books are meant to open some doors or lift the veils in some of the Gann material by looking for number PATTERNS with which to understand some very cryptic material.

This book is an attempt to answer the question of what Gann meant when he said "you can never go beyond 9 without starting over." And to that degree I believe I have succeeded.

I believe I have provided numerous examples of what he might have meant and with these examples maybe I have placed in your hands the key to open more doors to find that trigger to pull.

I believe I have succeeded in my task if I have done nothing more than show you a new way to look at numbers in the Gann world and outside of it.

The SDV numbering system is useful in being able to do some mental work without recourse to a calculator in discovering PATTERNS you may not have even thought of.

Earlier I noted that with a calculator you could do some mental work while driving along in your car.

You are thinking of some Gann numbers or maybe you noticed some numbers in some ancient book and you wondered if they were squares. Add them and reduce to a single digit. Is it a square?

If it does not add to a 1, 4, 9, or 7, you know it is not because earlier we saw that the first nine squares have the single digit values of 1, 4, 9, 7, 7, 9, 4, 1, and 9 and the rest of the natural squares repeat that nine-number sequence.

I also told you I would reveal how I made a calculation while in

bed one night. The problem was by no means a simple one.

I wanted to know on what odd square I would end up on if I went out one square and up one 22.5 angle each time, going around the Square of Nine chart.

Certainly not on 1089 or the square of 33.

Give it a try before I give the answer.
I will give you the first two numbers which you can check on the Square of Nine chart. Going out one square and to the next angle from our starting point which is the line the odd angles are on (315 degree angle) we find that it is 10. Going out another square and up to the next angle we find ourselves on 28.

Now close your eyes and see if you can do the rest.

Got it?

You will end up at 1225 or the square of 35.

How did I do it?

Since the angles are 22.5 degrees each then there are 16 angles in the 360 degree circle.

To go from 1 to 10 is a gain of:

1x9

To go from 10 to 28 the gain is:

2x9

The PATTERN was already forming.

Since there are 16 angles then the answer is 1x9 plus 2x9 plus 3x9 up through 16x9.

From my triangular work I knew that the triangle of 16 was 136.

I merely multiplied 9x136 in my head and added the 1 in the center and got 1224 plus 1 equals 1225.

I knew that the answer would end up on the line from where I started so the answer would have to be an odd square. Since 1089 is the square of 33 I figured that 1225 was probably the square of 35 since I was looking for something with an SDV of 1 for reasons you should know by now.

I got up the next morning and checked it on the calculator and was right.

I was not surprized since 1225 is a number found in Masonic work and Gann was a Mason. It is also a TELEOIS.

But the TELEOIS is for another day.

And then you will know the rest of the story!

PS-The number I mentioned near the beginning of this material, 9776, is not a triangular number. It has a single digit value of 2 and in order to be triangular it would have to be a 1, 3, 6 or 9. Since triangular numbers are hard to recognize and I have found no way to find their "root" then this SDV method provides at least one way of knowing when a number is not triangular.

PPS-In the forward to this series, I discussed the various PATTERNS that are sought by speculators in the market. It should be noted that those PATTERNS sometime work. But they often fail or fade away.

But the PATTERNS I have described in the single digit numbering system have never failed. They were the same in the days of the ancients, in Gann and Elliott's day and they will be so in the future. The PATTERNS are "Never Beyond Nine."

Book IX

Gann and Fibonacci

Chapter 1-Article in Gann and Elliott Wave Magazine

(As noted in my preface I wrote an article for Gann and Elliott Wave Magazine (now called Traders World). I was one of the charter subscribers to the magazine having sent in my subscription fee before the first issue came out.

The article appeared in Volume 1, Number 3, the November/December 1988 issue. It was entitled by the publisher "The Gann Side of Fibonacci Numbers."

For those of you who have not read it the article is reproduced here and serves as an introduction to this book.)

Forty-four is a Fibonacci number. Sixty-seven and one half degrees is a Fibonacci number. Two hundred and sixty-six is a Fibonacci number. Three hundred and sixty degrees is a Fibonacci number.

For those few of you who have never heard of Fibonacci numbers I can see you saying, "So what?"

For those of you who have "read" about the Fibonacci numbers, I can see you doing a double take.

For those of you who are supposed to be Fibonacci experts, I can see your eyeballs rolled back and clicking in your head and your feet up in the air as in a Mutt and Jeff cartoon. The cartoon has a big balloon which read, "He's got it. He's got it! By Gann, he's got it!"

Those who have read about Fibonacci are saying "What's this Gann stuff? I thought Fibonacci had to do with Elliott waves."

It does. But there is also a Gann side to the Fibonacci phenomenon, sometimes apparent, but often not. It is quite possible that the Gann relationship to Fibonacci has been explored, but if so, I have seen little evidence of it.

I am talking about such things as:

(1) The master numbers.

(2) The angles.

(3) The signs and seasons.

(4) The signs and degrees.

(5) The stone of Simon.

(6) The eighth square.

(7) The death zone and the circle.

(8) The wanderings and the pyramid.

(9) The Great Cycle of Enoch.

We could add more but that's plenty for our purposes now. Let's investigate the phenomenon of Fibonacci with the above nine items with what I call simple observational arithmetic.

I say that because persons who write on Elliott, Gann and other math wizards are used to writing in mathematical terms not always understood by the average person.

Like many of you I had a little algebra and geometry in high school and a little algebra in college, but my field for 20 years was journalism. And when you don't have many reasons for using algebra and geometry over the years, it becomes hazy.

Books have been written on the markets by mathematicians showing the mathematical formulas behind certain systems. But they seem to be targeted for other mathematicians and those persons working with computers.

Those books are probably very good for those who understand the formulas. But one gentleman well known in the markets and considered a market genius in his own right said he didn't understand the books at all.

So the methods I use might seem very elementary to those with a higher learning of math. If so, I ask them to bear along with those of us of lesser mathematical background as we explore the nine topics above in simple observational arithmetic.

In addition to not being a mathematician, I'm not an astrologer, astronomer or a Mason either. I've read a few books on such and see some links with the Gann material, but that doesn't make me an expert.

As I said before, my field was journalism, and I'm no expert in that either so don't look for a journalistic gem in this report.

My "arithmetic" approach to Gann was to run thousands of numbers through a calculator looking for PATTERNS, PATTERNS that showed up in math, astrology, astronomy and Masonic books as well as sundry other books. Those PATTERNS provided the basis for several "discoveries."

Before moving on to the nine topics above, let's look at a

couple of "amazing" facts that are noted by Fibonacci experts.

One of the "amazing facts" is that the ratio of the first term to the second term in a Fibonacci series is 1.6l8 and from the first term to the third terms is 2.6l8. They also like to tell us that if we divide the second term into the first and multiply that times the 1.6l8 ratio, we will come up with the number one.

Let's put down two groups of three Fibonacci numbers and a group of three non-Fibonacci numbers and see what we can find by simple arithmetic observation.

Since all Fibonacci numbers do not fit the 1.6l8 ratio exactly, let's put down the ones that are the closest and eye ball them. The three numbers are 55, 89 and 144.

When we divide 55 into 89 we get 1.6l8l8l8 and when we divide 55 into the next higher Fibonacci number, 144, we get 2.6181818.
Now let's look at another series not so perfect but yet of the same Fibonacci series, 8, 13, 21. First, we divide 8 into 13 and get 1.625 and we divide 8 into the next higher number and we get 2.625.

All very interesting.

Now let's look at some non-Fibonacci numbers picked at random. Let's use the year 1988 and separate it into two numbers 19 and 88 and add the 19 to the 88 so we get the following sequence, 19, 88, 107. Next, we find the relationship between the first number and the second and the first and the third, in the same way we did in the other two sequences.

We divide 19 into 88 and get 4.6315789. When we divide 19 into 107 we get 5.6315789.

In all three cases above, the whole numbers changed when we divided the first number into the second and the third, but the decimal fraction did not. What's going on here?

The mathematician is lighting his pipe and saying, "Elementary, my dear Watson, observe what you did."

Let's observe. In the first sequence the division by 55 into 89 can be counted as one unit of 55 with 34 left over. and the fraction of 34 divided by 55 is .6l8l8l8. When we added 55 to 89 to get 144, we simply added another unit of 55 to the pot which gives us two units of 55 or 110 with 34 left over.

That remainder of 34 divided by 55 will always be .6181818. We could keep adding 55 to the pot and dividing by 55 till the cows come home and we would still end up with a remainder of 34. The whole number would grow but the decimal fraction would always be the same. Try it for yourself. It works every time.

Let's look at the second sequence of 8, 13, 2l. When we divide 8 into 13 we get one unit of 8 plus 5 left over which represents .625

of 8. When we add 8 to the 13 to get 21 we are simply adding another 8 to the pot. Dividing 8 into 21 we have two units of 8 with 5 left over and 5 divided by 8 is still .625. We can add 8's to the pot until the cows come home and divide by 8 and still have a remainder of 5. It works every time.

In the third sequence of 19, 88, 107, we divide 88 by 19 and get four units of 19 which equal 76 with 12 left over. The remainder of 12 divided by 19 gives us the decimal fraction, .1635789. By adding 19 to 88 to get 107, we are simply adding 19 to the pot of 88 and getting five 19's or 95 with 12 left over. Need I tell you about the remainder of 12 and the cows again? It's still working!

Now for the second "amazing fact" about Fibonacci numbers that the experts like to point out to us. The fact that when you multiply 1.6l8 by .618 you get one or to be more exact .999924. The reason why the multiplication does not equal one is because the two Fibonacci ratios have been rounded off.

The two Fibonacci ratios are obtained by dividing the smaller Fibonacci number into the larger and then the larger into the smaller. Let's take the first part of our first example, 55 and 89. When we divide 89 by 55 we get 1.6181818 as before and then we divide 55 by 89 and obtain .6179775. When we multiply the two results we get .9999999.

From our second example we can use 8 and 13. Dividing 8 into 13 we get 1.625 as before. Dividing 8 by 13 we get .6153846. Multiplying the two results we get .9999999.

Let's look at our non-Fibonacci example and divide 19 into 88. We get 4.6315789. When we divide 88 into 19 we obtain .215909. Multiplying the two results we get .9999995.

Let's pull a Dr. Watson and observe what we have done. In each case we divided a smaller number into a larger one and then the larger one into the smaller one and multiplied the results, getting a decimal number almost equal to one. The reason for it not being exactly one is the rounding off that has to be done.

So, let's express each of the numbers as fractions and then multiply. We can express 89 divided by 55 as 89 over 55 and 55 divided by 89 as 55 over 89. We multiply and get 4895 over 4895. Any number over itself or divided by itself is always one. The same procedure for 8 and 13 gets us 104 over 104 or one. Ditto for 19 and 88 which equals 1672 over 1672 or one. In our review of the two properties of the Fibonacci sequence we have really found nothing magic or amazing. It is simply how our arithmetic system works. Interesting, but not amazing.

Now let's look at some of the other interesting properties of the Fibonacci sequence staring first with the Master numbers.

(That was the end of the article in Gann and Elliott Wave Magazine. The rest of this book continues that work.)

Chapter 2-The Master Numbers

This book is written with the assumption that the reader is somewhat familiar with the Fibonacci series of numbers. Therefore no attempt is being made to explain its history, how the numbers are found in nature, the pyramids, etc. That has been done by a number of other writers.

But before we proceed I would like for you to close up this book (or step away from the computer if you are reading this on disk) and write down the series up to 144 before you continue reading.

I asked you to do that because of an important concept we must understand before we go on to the master numbers.

Like many of you I have seen the series expressed in two ways.

Like this:

1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144.

And like this:

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144.

For a long time I thought the first way seemed to be just as good as the second. The extra numeral "1" didn't seem to make any difference. It seemed to confuse the issue and was just in the way.

Wrong!

And if you wrote it that way, you should understand why it is wrong.

The Fibonacci sequence is also known as a summation series. That is, adding two numbers to get a third, adding the second to the third to get the next number, etc.

So, let's examine the series, working backwards.

We obtained 144 by adding 55 to 89; 89 by adding 34 to 55; 55 by adding 21 to 34; 21 by adding 8 to 13; 13 by adding 5 to 8; 5 by adding 3 to 2; and 3 by adding 1 to 2.

But how do we get the 2?

We can't do it in the first series because 0 plus 1 is 1. So we have to have 1, 1, in order to add to 2.

Now let's look at the master numbers.

I do not want to get into an argument here about what Gann

considered a master number. In one place he indicates it is 45. Others believe it was 13, some think it was 17 and others 72 because of the references in Masonry. That discussion is for another time and place.

But here we will look at master numbers as understood by the numerologists.
I do not want to get into all of the theories of numerology either (there are a number of books on that subject which can be read by those who are interested), so we are only going to look at the master numbers.

The master numbers in numerology are the double digits of 1 to 9 or 11, 22, 33, 44, 55, 66, 77, 88 and 99.

Some of those will be recognized by Gann students.

They are:

22, the number of Robert Gordon of "The Tunnel Thru the Air" when his name is reduced to a number according to the numerology system.

33, the highest degree in Masonry and also a Gann square among other things.

44, the cash low on soybeans.

55, a number in the original Fibonacci system and a triangular number. (Triangular numbers were discussed in Book VI of this series.

66, a number mentioned several times by Gann and also a triangular number.

77, a number well hidden in "The Tunnel Thru the Air."

88, the cycle of the planet Mercury.

For our present purposes we will divide the master numbers into two halves. Instead of calling this number, 11, eleven we will call it "one placed beside of one" as in the original Fibonacci series.

So let's pick out a couple of master numbers and see what we can discover.

We will start with 44 or 4 and 4 or 4 beside of 4 and add them in a summation series just as we do with the original Fibonacci series.

We add 4 to 4 and get 8; 4 to 8 to get l2, etc. as follows:

4, 4, 8, 12, 20, 32, 52, 84, 136, 220, 356.

Let's pause for a second and divide 356 by 220.

We get 1.6181818!

Let's select another number, 77, and use the same procedure obtaining:

7, 7, 14, 21, 35, 56, 91, 147, 238, 385, 623.

Let's pause once again to check some of our work and divide 385 into 623.

We get 1.6181818!

Before going on I would like for you to do the other six master numbers in the same way, carry out the numbers to the 11th term and then divide the last term by the next to last term.

Ok. You have done them.
PATTERN?

Now you are probably doing a double take and saying, "What's going on here? This can't be true. I was told that only the original Fibonacci system worked like that."

"Sure," the experts say, "You can do summation series, but they will never work to the Fibonacci ratios."

Wrong!

We just showed that they can. Let's observe what we did.

Instead of thinking of 7 and 4 as just 7 and 4, we can think of them as units. In the same way that we added one unit of 1 to one unit of 1 and got two units of 1, we added a unit of 7 to a unit of 7 and got two units of 7 or 14.

When we added 4 to 4 we added one unit of 4 to another unit of 4 to obtain 8 or two units of 4. Adding 4 to 8 we get 12, or three units of 4, etc.

Think about that concept with those master numbers you have just counted.

Let's take the kids to the park and make some observations. The kids want to seesaw so we pick out one. One kid weighs more than the other so we have to adjust the seesaw to make it balance.

One kid weighs 55 pounds and the other 89. Never mind the weight of the seesaw itself, we move it until we get the two kids weights adjusted to it.

We can say that one kid is 1.6181818 heavier than the other because this is what we find when we divide 55 into 89. That is their ratio, one to the other.

Let's see if we can let some other children ride on the seesaw

along with the first two kids, which we will call kid 55 and kid 89, without having to rebalance the seesaw.

We pick out a couple of 10 pound kids and put one on each side of the seesaw, but it doesn't balance.

Why? The 10 pounds added to kid 55 makes 65 pounds and the 10 pounds added to kid 89 makes 99 pounds. When we divide 99 by 65 we get 1.5230769. We upset the ratio and therefore lost the balance.

So we take off all the kids and replace 55 with a 45 pounder and kid 89 with a 79 pounder. Still out of balance. When we divide 79 by 45 we get 1.7555555.

Again we upset the ratio and put the seesaw out of balance.

So we take off those two kids and put kid 55 and kid 89 back on each end of the board. To this we add another 55 pounder to kid 55 and an 89-pounder to kid 89 and find that they balance.

We can check that by dividing 110 into 178. We obtain 1.6181818.

Why?

When we added the 10 pound to each side we were adding like amounts which do not work. In the last instance we added a multiple of each side. We could keep adding 55 to one side and a like amount of multiples of 89 to the other and obtain the same ratio.

Chapter 3-How to Hold a Ratio

In chapter two one might think we ought to have added the 89-pounder to number 55 and the 55-pounder to number 89 in which we would have had 144 pounds on each side. But you must remember that we started with a board which had to be adjusted so that the number 55 was on the longer end and 89 on the shorter end and our object was to maintain a proportion or ratio rather than equality.

Let's go back and look at our series of 4's and 7's. When we divided 4 into 356 we get 89 and when we divide the next to the last term, 220 by 4, we get 55.

In the 7 series we divide 7 into 623 and get 89 and when we divide 7 into the next to the last term, 385, we get 55.

PATTERN?

Using the master numbers you worked with you should come up with the same results if you did it right and made no mistakes.

So, in summary we can say that any series of two equal numbers, such as 8 and 8, when added together in a summation series will always equal multiples of the Fibonacci series or vice versa.

Another way to look at is to say that when two numbers, such as 50 and 100 that have a proportional value, that is, one-half to one, will not change that proportion when both are multiplied by the same number.

If we multiply 50 by 4 and 100 by 4 we get 200 and 400. 200 is still one-half of 400.

When we added 55 to 89 to each side of the original 55 and 89 on the seesaw, we were doing the same thing as multiplying each number by two. Multiplying both sides by two did not change the ratio or proportion. Ditto if we multiplied each side by any other number.

So there are two ways of changing the original Fibonacci series into a new group of numbers which will retain the same relationship or ratios.

We can put down 4 and 4 or any other number and add them in a summation series.

Or we can simply multiply the original series by a given number such as 4x1, 4x1, 4x2, 4x3, 4x5, etc.

Now, we can set up a table which will show the relationship between the original Fibonacci numbers and the master numbers.

They can be listed down the page or across the page. We will also have a column showing the ratio between each number which will correspond to the ratio between any given set of master numbers.

We can see that the ratio of 1 and 1 is the same for 2 and 2, 3 and 3, etc.

The ratio between 8 and 13 is l.625. It is the same for 2 times 8 and 2 times 13; 4 times 8 and 4 times 13; 9 times 8 and 9 times 13, etc.

1	2	3	4	5	6	7	8	9	Ratio
1	2	3	4	5	6	7	8	9	1
2	4	6	8	10	12	14	16	18	2
3	6	9	12	15	18	21	24	27	1.5
5	10	15	20	25	30	35	40	45	1.666
8	16	24	32	40	48	56	64	72	1.600
13	26	39	52	65	78	91	104	117	1.625
21	42	63	84	105	126	147	168	189	1.615
34	68	102	136	170	204	238	272	306	1.619
55	110	165	220	275	330	385	440	495	1.617

Chapter 4-Looking for Geometric Mean

One writer once said they thought that Gann used Fibonacci, but didn't know how he did it.

In the above discussion we have shown one way that he could have done it.

Gann's work also was concerned with squares, so let's explore that a little and see what relationship we can find between the squares and the Fibonacci numbers.

We will make a little detour here in order to grasp an idea.

It was in search of a possible "geometric mean" in the Fibonacci series that led me to the discoveries on the master numbers.

The mathematicians in the crowd will see this as elementary, but us Watsons will have to make some observations.

Don't let the mathematical term "geometric mean" scare you. We will go through it easily so it can be grasped.

A mean is a number between a smaller and larger number that has a certain relationship to the smaller and larger numbers.

There are arithmetic means, geometric means, harmonic means and 7 other means known to the ancients.

I discussed the arithmetic and geometric means in Book IV-"On the Square" and showed how to find the geometric means on the Square of Nine chart.

I discussed the harmonic means in Book V-"The Cycle of Venus."

I do not want to go into all the means here as that would take us far afield and I want to stick to the discussion at hand.

But, I will do a little recap on the geometric means.

A geometric progression is one that grows by a fixed multiplier and has a geometric mean. The mean can be found by multiplying each end of the progression and taking the square root of the answer. The answer will be the middle term of the series and is a check to see if you are doing it right.

For example, the geometric progression most understood by the public is the one that involves the story of the hired hand who told the farmer that he would work for a penny the first day if the farmer agreed to double that each day for a month.

As the story goes, by the end of the month the hired hand would be making over $1 million a day.

The same thing is accomplished by doubling a dollar 21 times.

In like manner a trader who starts with $1 million and uses half of the pool of money each time on a trade would be broke if he had 21 straight losing traces.
Let's look at that progression based on "doubling" starting from 1:

1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048.

By "doubling" we are actually saying we are using a multiplier of 2 as 2 times 1 is 2, 2 times 2 is 4, 2 times 4 is 8, etc.

We can pick out three terms in order such as 1, 2, 4 and find that when we multiply the first term by the last, 1 times 4, and take the square root we get 2, so 2 is the geometric mean between 1 and 4.

Pick out any other three terms in order and do the same operation and you will get the same results.

We could pick out five terms and get the same results. We could start from 4 and write down:

4, 8, 16, 32, 64

Multiplying the first term, 4, by the last term, 64, we get 256.

Taking the square root of 256 we get 16, the middle term since there are two terms on each side of it. So 16 is the geometric mean between 4 and 64.

It also works for 7 terms, 9 terms, 11 terms, etc. Locate the middle term and square it and you will have the same answer as multiplying the first term by the last in any series of numbers which grow by the same multiplier. In this case the multiplier was 2.

The number of terms we have shown is an odd number of terms so that we might easily find a middle one. The question might be asked, "How would you figure an even number of terms such as four terms?"

Let's put down four terms such as 8, 16, 32, 64.

Multiplying 8 times 64 we get 512. Taking its square root we get 22.627416, which is the geometric mean between 8 and 64. But, in an even series we can also multiply the two numbers on either side of the mean, in this case 16 and 32 and get the product of the two end terms, in this case 512.

To have a geometric progression and a geometric mean it is not necessary to start with 1 and have a multiplier of 2. We can start with any number and have any multiplier we choose, be it a natural number, a fraction, a decimal number, etc.

For example we could begin with the number 10 and use a multiplier of 3 to obtain the three numbers 10, 30, 90.

With a glance we can see that 10 times 90 equals 30 times 30 so the series conforms to a geometric progression.

Taking it out to four terms, 10, 30, 90, 270, we can also see that in the even numbers series the multiplication of the two end numbers equal the multiplication of the two middle numbers, another check on the geometric progression.

With that in mind we can check the Fibonacci numbers for any indication of a geometric progression.

Chapter 5-Fibonacci and the Squares

Let's put down the first few Fibonacci numbers again.

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144

Without doing the arithmetic we can see that there is no geometric progression since the ratios between the terms vary.

Between 1 and 1 the ratio is 1. Between 1 and 2 the ratio is 2 and we have already seen that the ratio between 55 and 89 is 1.6181818.

But we will do the observance anyway just to see what we can find.

Since 1.6 is pretty close to the Fibonacci ratio found in the higher numbers and is easier to use because it has no rounded off numbers we will use it for our multiplier.

Starting with 5 we can multiply by 1.6 and get 8, but when we multiply 8 by 1.6 we get 12.8. We could keep multiplying by 1.6, getting 20.48, 32.768, 52.4288, 83.88608.

Multiplying 5 times 83.88608 and then taking the square root we would get 20.48, which proves we are using a geometric progression starting from 5 and using a multiplier of 1.6 up through seven terms.

But we observe that the more we multiply the farther away we get from the original Fibonacci numbers.

Don't give up the ship. All is not lost.

Let's reverse the process and see what we can find. Instead of starting with a multiplier in mind let's see what relationship we can find between the two end terms and the middle term of a sequence in the same way we would check for a geometric relationship.

Our method of operation will be to put down the first three terms of the original Fibonacci series, multiply the two ends, square the middle and compare the results.

We will then move over one term and do the same thing again.

In the work shown below the first column will be the three terms we are checking, the second will be the multiplication of the two end terms, the third will be the square of the middle term, and the fourth the difference in the answers.

Three Terms In Order	Product of End Terms	Square of Middle Term	Difference In Results
1, 1, 2	2	1	Plus 1
1, 2, 3	3	4	Minus 1
2, 3, 5	10	9	Plus 1
3, 5, 8	24	25	Minus 1
5, 8, 13	65	64	Plus 1

PATTERN?

We could go on but I'm sure you have already seen the PATTERN. If we pick any three terms in the series we find that the product of the two ends will be either "1" greater or "1" less than the square of the middle.

One writer a number of years ago made note of this in passing and pointed out about the "1" greater and "1" lesser, but not in the manner shown above.

But there was a small mistake in his observance. The "1" greater and "1" lesser seems to be right. But if we were forced to write a formula for the above, the "1" greater and "1" lesser part of it would not be quite right.

In checking a series that has been multiplied by 7, it would seem that the lesser or greater would be 7, but let's examine it in the same manner we examined the original series.

Let's take the first two series of three numbers we had earlier and multiply each number by 7:

7, 7, 14
7, 14, 21

Now let's make up a little table with the columns like we had earlier. I won't label the columns here since you already have the idea.

7, 7, 14 98 49 plus 49
7, 14, 21 147 196 minus 49

PATTERN?

We don't have to go any farther since you can readily see that the difference in the product of the end terms and the square of the middle is either 49 more or 49 less.

So the difference in that sequence of 7 is not just 7 but the square of 7.

If we had used a sequence whereby we had multiplied the original Fibonacci numbers by 8 the difference of the product of the end terms and the square of the middle would have been plus or minus 64.

So, in writing a formula for the original series which is based on one, the difference would not be merely 1, but the square of 1.

I have noted in earlier works that often the digit "1" has to be seen in many cases not just as the single digit, but as a square, triangle, hexagon, etc.

In our work above we used a sequence based on 1 and 7 and I told you about the sequence based on 8. So now is a good time for you to give it a try yourself using some of the other master numbers.

So, we have seen that there is a correlation between the squares and the Fibonacci numbers.

Chapter 6-Fibonacci of the Angles

In our discussion of the Fibonacci of the master numbers, it probably dawned on you that a Fibonacci series could be started with any two like numbers.

If the series works for 7 and 7, 4 and 4, etc., why not any other two like numbers since they can be set up as multiples of the original Fibonacci series.

And the answer is of course they can!

Therefore any number can be a Fibonacci number if we want to start with that number. And many times certain numbers repeat in different series as can be seen from our table on the master numbers.

We could use any part of the circle we like for figuring the Fibonacci of the angles, but since Gann divided it into 64 parts of 5.625 degrees each, we will use that.

We can even see a Fibonacci "relationship" here as the number can be read as 5 5/8.

We could put down the series and simply add them:

5.625, 5.625, 11.250

Or we could simply multiply 5.625 by the original Fibonacci series like so:

1 5.625
1 5.625

2 11.250
3 16.875
5 28.125
8 45.000
13 73.125
21 118.125
34 191.250
55 309.375
89 500.625
144 810.000

What ever the relationship between the adjoining Fibonacci series, will be the same between the successive fractions, just as it is with the master numbers.

Since there is no further explanation really needed we will now list the angles of 11.25, 22.5 and 45.

1	11.25	22.5	45
1	11.25	22.5	45
2	22.5	45	90
3	33.75	67.5	135
5	56.25	112.5	225
8	90	180	360
13	146.25	292.5	585
21	236.25	472.5	945
34	382.5	765	1530
55	618.75	1237.5	2475
89	1001.25	2002.5	4005
144	1620	3240	6480

Just as in the master numbers we can see numbers there that pop up in much of Gann's material.

Chapter 7-The Eighth Square

So far, we have adhered to a strict relationship to the original Fibonacci series.

It's purpose was to show that many different numbers, in fact any number or fraction of a number, could be called a Fibonacci number when arranged in a certain sequence.

Let's look at our original Fibonacci sequence again. When we divide 1 into 1 we get 1 and when we divide 1 into 2 we get 2. From there on the ratios between each successive pairs of Fibonacci numbers fluctuate between 1 and 2, each time getting a little closer to 1.618 as the series progresses, but it is not until we get to the 8th term that the ratio is less than 1.62 and more than 1.61.

Let's list the original sequence with the terms at the left side (the number with the period). Out at the side we will put the ratios in two columns.

1. 1
2. 1 1
3. 2 2
4. 3 1.5
5. 5 1.6666666
6. 8 1.6
7. 13 1.625
8. 21 1.6153846
9. 34 1.6190476
10. 55 1.617647
11. 89 1.6181818
12. 144 1.6179775

We can see that the ratio between each succeeding pair of numbers fluctuates between 1 and 2.

The ratio between 1 and 1 is 1. Between 1 and 2 it is 2, etc.

In the first column the ratio grows toward 1.6l8 and in the second it decreases toward 1.618.

And we can see that it is at the 8th term that the series is less than 1.62 and more than 1.61.

I believe that this could be one of Gann's references to the "8th square," which he never defined.

I say one of the references because there are other reasons to believe he meant something else by the "8th square." I showed another reason, an astrological one, in Book V-"The Cycle of Venus."

Now we are going to examine something very interesting that the experts might note briefly in passing, but never really explain with the mathematical proof.

That is, the relationship between two numbers that are neither in the Fibonacci series nor are they made in the same way we did when we used the master numbers.
Before we go any farther I would like for you to close up this book (or step away from the computer if you are reading this on disk), mark down your age; mark down your weight under that; add them; then add the weight to the total, etc. as you would in a Fibonacci series.

Some might call this a summation series.

I call it a left to right series as when you go across the page you add the left number to the right one, drop the first number and add the second to the total, etc.

Carry your answer out to about 12 terms as we did up to 144 on

the original series above. Don't be afraid of the extremely large numbers.

When you get back we will look at the Fibonacci of Jack Benny!

Chapter 8-The Fibonacci of Jack Benny!

The reason I asked you to do your age and weight was to show that I was not picking numbers to fit a predetermined situation. Your age and weight, my age and weight or any others will work.

I have picked the "age" and "weight" of the late Jack Benny for purposes of illustration.

We know that Benny's perennial age was "39." I will guess his weight at about 175. Right or wrong it makes no difference for the illustration.

We will create a left to right (or summation series) thus: 39, 175, 214, 389, etc. going down the page as I have more room going down than across. The idea is still the same.

At the left I will number the terms as in the original Fibonacci series. At the right we will list the ratio by dividing one number into the next as in the original Fibonacci series.

1. 39
2. 175 4.4871794
3. 214 1.2228571
4. 389 1.817757
5. 603 1.5501285
6. 992 1.6451077
7. 1595 1.6078629
8. 2587 1.6219435
9. 4182 1.6165442
10. 6769 1.6186035
11. 10951 1.6178165
12. 17720 1.618117
13. 28671 1.6180022
14. 46391 1.6180461
15. 75062 1.6180293
16. 121453 1.6180357
17. 196515 1.6180333
18. 317968 1.6180342
19. 514483 1.6180338
20. 832451 1.618034
21. 1346934 1.6180339

If you now do the operation on your age and weight series you will come out with different numbers, but the result will still be the same.

The ratios will converge on the number 1.618.

If we count down to the eighth term we find that the difference in two successive calculations are in a band of about 2 per cent.

I have gone through this process to show that two numbers drawn at random, your age and weight, anybody's age and weight or two numbers that you could select between 1 and a million will converge on 1.6l8 in a summation or left to right series.

If we took a small number like 5 and added it to 1,000 in a summation series thus:
5, 1000, 1005, 2005, we could see immediately that we are headed for making up a series that is almost exact Fibonacci.

The experts like to point out that in the original Fibonacci series, two columns can be arranged for the ratios and that one column will become larger and the other smaller, ascending from 1.00 and descending from 2.00 and converging at 1.6l8.

We have shown here that the same thing can be done with any two numbers that are summed in a left to right series or summation series.

Chapter 9-Using Some Gann Numbers

We have seen that any two numbers, whether they be the same as in the original Fibonacci 1, 1 or 7, 7, etc. or two different numbers such as your age and weight can be used in a summation series.

Let's look at some of the Gann numbers.

THE SIGNS AND SEASONS

There are 4 seasons in the year and 12 months or 12 signs of the zodiac.

So a series could be made up of:

4, 12, 16, 28, 44, 72, 116, 188, 304, 492, 796, 1288.

The process can be reversed by putting the 12 first and the 4 in the second position:

12, 4, 16, 20, 36, 56, 92, 148, 240, 388, 628, 10l6.

I'm sure you can see some Gann numbers in each group:

In the first group:

4, the square of 2.
12, the signs in the zodiac.
16, the square of 4.
28, a triangular number and one that makes up part of the "Great

Cycle" as explained in my Book II.
44, the low on cash beans and also a pyramid number.
72, the "inner square" on the Square of 144.
304, another bean price in Gann's private papers.

In the second group:

12, the signs in the zodiac.
4, the square of 2 and the four seasons.
16, the square of 4.
20, the geometric mean between the square of 4 and the square of 5.
36, the square of 6 and a triangular number.
56, the number of weeks from the January, 1948 high on soybeans to the February, 1949 low. Also the geometric mean between the square of 7 and the square of 8.
240, the halfway point of the range between the 436 high on beans and the 44 low.

THE SIGNS AND DEGREES

There are 12 signs and 30 degrees to a sign in the zodiac so a summation series could be made up of:

12, 30, 42, 72, 114, 186, 300, 486, 786, 1272, 2058, 3330.

The process can be reversed:

30, 12, 42, 54, 96, 150, 246, 396, 642, 1038, 1680, 2718.
Again we can see some Gann numbers. There are several geometric means of successive squares and at least one triangular number.

But this time instead of pointing them out I will let you look for them yourself. As I have often said in this work, why should I have all the fun!

Chapter 10-How Many Age and Weight?

We will now look at a very interesting aspect of a summation series.

In our series based on the master numbers, it would be easy to find out how many ones, fours, sevens, etc. we have in any summation series of numbers.

With the sevens we merely divide seven into one of the terms and get the answer. Dividing 7 into 623 we find there are 89 sevens.

Dividing by 1 of course would give us the number of ones, which is the easiest to see.

But in our summation series in which we use two different numbers for starting the series, is there a way to know how many of

each number is in any given total in the series.

In our series of age and weight of Jack Benny, can we pick out a point in the series and determine how many 39's and how many 175's are contained in the answer?

You might want to close this book or step away from the computer and see if you can work out the solution.

With a little experimenting it took me about 30 minutes.

Back already? That's pretty sharp.

Did you start like I did?

I thought that one way would be to select a number in the series and then start subtracting 175 and 39 on an alternating basis. That seemed correct at first glance, but didn't work.

Then I started from the beginning of the series to try to find the solution.

It proved cumbersome, but after figuring a few terms the logical way dawned on me as I'm sure it did on you.

So I put down six terms in a row to see what I could discover.

39
175
214
389
603
992

The first sum is found at the third term. We know there we have only one 39 and one 175.

So by the side of 214 we can write 1 and 1:

39	39	175
175	x	x
214	1	1

To make 389 we add 175, so by the side of 389 we have 175 twice and still have only one 39:

39	39	175
175	x	x
214	1	1
389	1	2

Since 603 is made up of 214 plus 389 we look at their

composition. For the 214 we see we have 1 and 1 and for 389 we have 1 and 2. So we add those and get 2 and 3:

39	**39**	**175**
175	**x**	**x**
214	**1**	**1**
389	**1**	**2**
603	**2**	**3**

Since 992 is made up of 389 plus 603, we can write down 1 and 2 for 389 and 2 and 3 for 603. So we add 1 to 2 and 2 to 3.

39 39 175
175
214 1 1
389 1 2
603 2 3
992 3 5

39	39	175
175	x	x
214	1	1
389	1	2
603	2	3
992	3	5

PATTERN?

We can see that we now have three 39's and five 175's.

Looking down from 39 we see that we have the start of the original Fibonacci series.

Looking down from 175 we see that we also have begun a Fibonacci series except for the fact that the series starts from 1 instead of 1, 1.

We also note that for the second number in the series which is 175, our Fibonacci series in each case is one number higher in the series than the first number.

To check our work here let's multiply 39 by 3 and 175 by 5 and add them.

39x3=117
175x5=875

117+875=992

So our theory is correct.

Let's extend the series:

39	39	175
175	x	x
214	1	1
389	1	2
603	2	3
992	3	5
1595	5	8
2587	8	13
4182	13	21
6769	21	34
10951	34	55

We can see that the sum of 10951 contains thirty-four 39's and fifty-five 175's.

Although I have shown the idea of the arithmetic above, it would not have to be worked out for the second number. After we have discovered the number of 39's we need, we simply go to the next Fibonacci number to get the number of 175's we need.

If we add 6769 to 10951, how many 175's would be included in the total?

You are correct if you said 89. We can see that the total would give us fifty-five 39's so there must be eighty-nine 175's.

Now try this method on your own age and weight.

Chapter 11-A Master Sheet

Those working with the original Fibonacci series generally know it by heart up to 144 or 233 so it would be easy to check the terms up through those numbers, but beyond that it gets a little hazy.

To give you some help with that I have constructed a master sheet.

The first column is the number of the term in the sequence, the second column relates to the first number in the sequence and the third column relates to the second number in the sequence.

1.
2.
3. 1 1
4. 1 2
5. 2 3
6. 3 5
7. 5 8
8. 8 13

9. 13 21
10. 21 34
11. 34 55
12. 55 89
13. 89 144
14. 144 233
15. 233 377
16. 377 610
17. 610 987
18. 987 1597
19. 1597 2584
20. 2584 4181
21. 4181 6765

Since the Benny series has 21 terms, we now know by simple observational arithmetic that 1346934 (the final sum of the 39 and 175 series at the 21st term) contains 39 times 4181 and 175 times 6765.

I'll let you do the multiplication on your calculator.

The master sheet above can be used with any summation series up through 21 terms. If you want more terms I'm sure you know by now how to extend the master list.

In our "signs and degrees" we took the series, 12, 30, etc. out to 12 terms for a total of 3330. From our table above we see that we have 55 times 12 and 89 times 30 in that total.

When we reversed the process and started with 30, 12, etc. and took it out to 12 terms we obtained 2718. Here we have 55 times 30 and 89 times 12 in that total.

Since a summation series such as 12 and 30 and its reverse of 30 and 12 gives two different sums beyond the third term, you might be curious as how to check that difference.

Looking at the 12th terms of 12, 30 we have the sum of 3330 and at the 12th term of 30, 12 we have the sum of 2718. Subtracting the two we have a difference of 612.

One would think at first thought that starting with the larger number in the series would give a larger answer, but the reverse is true.

We can check the difference of 612 by subtracting 12 from 30 to get 18. We also subtract the Fibonacci numbers of the 12th terms which from the table are 89 and 55, giving us a difference of 34. We find that 34 times 18 is 612.

Chapter 12-The Stone of Simon

There is a stone in the Kaballah known as the Cephas stone.

Cephas was also known as Peter and as Simon.

It consists of the cube of 9. Or 9x9x9=729, which you will recognize from the Gann material.

The meaning of the stone is best left to other writers who understand the Kaballah. My interest is strictly in the arithmetic.

In my Book VI on the triangular numbers I explained how the cardinal numbers could be lifted out of any cube. That explanation dealt with the cube of 33, but any cube will work the same way.

Since the Cephas Stone is made up of the cube of 9, we will look at that.

When the cardinal numbers are lifted from the stone they total 153.

You can prove this to yourself by drawing out a square of 9 times 9 and removing the center column from top to bottom and from side to side. Since there are 9 numbers down and 8 across (you took out one number in the center when you took out the 9 going down) you will have removed 17.

Since to make a cube it would have to be nine deep, you would be removing 9 times 17 or 153.

The number 17 appears much in Gann's astrological work. No need to tell you that 9 does, too.

The number 153 is a triangular number and appears in the Bible and in the Great Pyramid.

When 153 is subtracted from the cube of 9 or 729, it leaves 576 or four times 144, a Gann number, an original Fibonacci number, a pyramid number and a Biblical number.

A summation series can be made up of 153 and 576 and of 9 and 17.

Since I have shown you how to make up series and check your answers I will leave it up to you to do some experimenting.

There is much to be said on the topics I have touched on in this brief rundown on the stone, but I do not want to go far afield.

THE DEATH ZONE AND THE CIRCLE

Gann called his 45 degree line the death zone among others. With that line and the circle we can make up a series of:

45, 360, 405, 765, 1170, 1935, 3105, 5040, 8145, 13185.

Or we could do the reverse:

360, 45, 405, 450, 855, 1305, 2160, 3465, 5625, 9090.
There are some Gann numbers in those two series, but I'm going to let you have the fun of playing with them.

Chapter 13-The Great Cycle of Enoch

The numbers that make up the Great Cycle of Enoch, 19 and 28, are interesting to me because of their appearance in Gann's discussion of the soybean market of the late 1940's and early 1950's.

There is no need to discuss where the numbers come from at this point. I discussed them in my Book II-"The Great Cycle."

Those of you who have read Gann's novel, "The Tunnel Thru the Air," and followed up on it know the two numbers.

The series is made up of:

19, 28, 47, 75, 122, 197, 319, 516, 835, 1351, 2186, 3517.

The reverse is:

28, 19, 47, 66, 113, 292, 471, 763, 1234, 1997, 3231.

A SUMMATION SERIES OF BOTTOMS

Let's take the cash bottom on beans, 44, and the contract bottom, 67, and form some series.

Using the double 44 and double 67 we have:

44, 44, 88, 132, 220, 352, 572, 924, 1496, 2420, 3916, 6336

and

67, 67, 134, 201, 335, 536, 871, 1407, 2278, 3685, 5963, 9648

Using 44 and 67 in a summation series we have:

44, 67, 111, 178, 289, 467, 756

Reversing it we have:

67, 44, 111, 155, 266, 421, 687

SQUARES FROM SUMMATION SERIES

One interesting aspect of the original Fibonacci series is that when you square two successive terms and add them you will end up with another Fibonacci number.

Let's put down the original series starting at 8:

8, 13, 21, 34, 55, 89, 144, 233.

Squaring the 8 we get 8x8=64
Squaring 13 we get 13x13=169

Adding the answers: 64+169=233

Let's start at 13 and put down the original series:

13, 21, 34, 55, 89, 144, 233, 377, 610.

Squaring 13 we get 13x13=169
Squaring 21 we get 21x21=441

Adding the answers: 169+441=610

Here is a chance to use your ability to recognize PATTERNS.

Look at the two Fibonacci series above.

We have squared two Fibonacci numbers in a series, added them and gotten the answers and we see where the answers are located in the series.

Without doing the workout can you tell me where the answer would be located if we squared 21 and 34 and added them?

Look at the series that starts at 8 and count the terms, including 8 and the answer.

Now do the same for the series which begins at 13.

PATTERN?

When you counted the terms that started with 8 you found the answer at the end of 8 terms.

When you counted the terms that started with 13 you found the answer at the end of 9 terms.

PATTERN now?

Flip back to chapter 11 and look at the master list of Fibonacci numbers. Can you find the answer to the square of 21 plus the square of 34 without doing the arithmetic?

If you said that you started with 21 and counted down to the 10th term you are correct!

Working backwards from 8 you can see now that the total of 5x5 plus 8x8 will be found at the 7th term counting down from 5.

Now try it starting from the beginning of the Fibonacci series.

This might be another clue as to what Gann meant when he said to move over three places to find the square of a numbers own place.

I mentioned another possible reason for "moving over three places" in Book VIII-"The Single Digit Numbering System."

Another interesting note about the terms. At the fifth term in the original Fibonacci series we have the number 5. At the 12th term, we have 144, the square of 12.

Chapter 14-Wanderings in Wilderness and Height of Pyramid

This is one I will let you try to figure out before I give you the answer which is found at the end of this chapter.

Beginning with the double numbers for the "wandering in the wilderness" you can find the height of the Great Pyramid in inches.

I hope you have enjoyed reading this book and have gained new insight into the Fibonacci series of numbers.

To recap, I have tried to show by simple observational arithmetic:

(1) That all numbers can be regarded as Fibonacci numbers when used in certain sequences.

(2) That the master numbers and all other double numbers can be sequenced into exact ratios with the original Fibonacci series.

(3) That the relationship between the first term and the second term and the first term and the third term will have the same remainder when divided.

(4) That the product of the division of the first term into the second and the second into the first will always be one.

(5) That the summation of any two numbers will approach 1.618 within a 2 per cent band when it reaches the 8th term.

(6) That the sums of a summation series or left-right series will be Fibonacci multiples of the two numbers used in the series.

In most cases I have not tried to point out Gann numbers in the various series. A serious reader of Gann will see those for himself.

Now the answer to "the wandering in the wilderness and the height of the pyramid."

Gann tells us that the wandering in the wilderness was 40 years. If we use double 40 for our summation series we get:

40,40, 80, 120, 200, 320, 520, 840, 1360, 2200, 3560, 5760

The height of the Great Pyramid according to the Encyclopedia Britannica is 480 feet or 5760 inches or 144 times 40.

(Note: The height of the Great Pyramid of Giza is taken from a 25-year-old encyclopedia. Recent encyclopedias list the height at 481 feet.

The present day height is about 450 feet because of its missing capstone.

Most pyramid writers seem to believe that the intended height of the original pyramid was 5813 inches and that the height and base were a function of the solar year.

Still, the information I give above is an interesting Biblical exercise.)

Chapter 15-Fibonacci in Gann?

Whether Gann used actual Fibonacci series numbers or a combination thereof is pretty hard to figure.

Some of the ratios are probably in his material as we can see such things as a ratio of 1 to 1 or 1 to 2 or 5 to 8 or its reverse of 8 to 5 (.625).

There is a slight evidence that he might have used some multiplies of Fibonacci numbers in his bean chart of the late 1940's and early 1950's.

Of course everyone is familiar with his square of 144 and 144 is one of the original Fibonacci numbers.

In his bean chart of that period mentioned above he notes that the price reached a high of 436.

We can put on the square of 144 and have 3 squares (432) with 4 left over. (It is the 4 left over that makes me say "slight evidence."

The time period that he marks out is 267 weeks. If we divide that by 3 we have 89 so that makes that time period 3 times an original Fibonacci number.

Some might feel that Gann picked 267 weeks from the 436 high arbitrarily, but I don't think so.

There is at least one astrological reason for him doing so.

But there is also another reason which I will explain in a later book which looks at the exact relationship between 436, 44 and 267.

There are many places in Gann where he uses some multiples of other Fibonacci numbers such as 5 and 8. The degrees in a circle is 45 times 8 and of course you can make many multiples of 5 which would apply to his material. Ditto 2 and 3.

A number which Gann says is very important is 63 which is 3 times 21.

An index of Gann numbers is being planned which I think will throw some more light on the subject.

Book X

The Cubes and the Hexagon

Chapter 1-How Do you Make a Cube?

How do you make a cube?

That's a question I recently asked of a friend of mine. Yes, that's the same friend I told you about in Book IV-"On the Square."

I told you then that when he, a man who had studied Gann much longer than I had, was asked about how to make squares, he said, "Frankly, I don't know."

I told you then that my friend was no dummy. His answer showed no lack of intelligence and if you didn't know the answer it showed no lack of yours.

I told you that you could ask a hundred people on a street corner in New York City how to make a square and except for a mathematician that might be in the group, they probably wouldn't know.

They might draw a square on the sidewalk and that would represent a square. But the question remains.

"How do you make a square? That is, how do you make the natural squares in order numerically.

Some in the crowd would say that you could multiply a number times itself and that would be a square and they would certainly be right.

But I was looking for another answer. I wanted them to tell me how to make squares not by multiplication, but by addition!

So, in Book IV we learned how to make squares from the odd numbers.

Now, once again I ask, "How do you make cubes?"

Yes, those people on the street corner might draw a cube on the sidewalk.

And you could say that any number multiplied by itself three times is a cube, such as 3x3x3=27.

Again I would say you are right. But now I would like for you to

do it a different way.

By addition!

Give it a try before reading on.

Gann indicated that most of his work could be done by addition and subtraction and that multiplication and division were just short cuts for doing that.

Multiplication would be a lot faster, but as I showed in Book IV we can learn a lot about the PATTERNS of numbers if we use simple observational arithmetic.

And addition is about as simple as you can get.

As I noted above the squares were made from the odd numbers. Does that indicate a method to be used for making squares?

Let's look at the odd numbers in order up through 89.

1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
33
35
37
39
41
43
45
47
49
51
53
55
57
59
61
63
65
67

69
71
73
75
77
79
81
83
85
87
89

Recognize any cubes in that list?

You probably saw two. 1, which is the cube of 1, and 27, which is the cube of 3.

But we can't see any PATTERN there and remember from the rest of the books in this series that the study of Gann is a constant search for PATTERNS which often lead to another set of PATTERNS.

As I noted in Book IV, it is easier to start at the bottom of the ladder, than to start at some high number somewhere. If the PATTERN works for the first few numbers in our numbering system then it probably works anywhere on up the ladder.

So let's start at the bottom of the ladder (which is really the top number here since I started at 1 and went down the page.)

Let's take the number 1 which is the cube of 1 or 1x1x1 and put it aside.

What is the next cube we should be looking for after 1x1x1?

If you said 2x2x2 which is 8, you are certainly correct.

Any 8 in the list?

No. In fact there are no even numbers at all since the list contains the odd numbers from 1 to 89.

Can we possibly make an 8 with some of the other numbers?

How about the two numbers following the 1 which are 3 and 5.

3+5=8 or 2x2x2

PATTERN?

The first number is a cube. The next two numbers add to a cube.

The next cube to be made is 3x3x3 or 27.

Do you have any suggestions?

Let's put the 1 and the 3 and the 5 aside for a few minutes.

PATTERN now?

I can see the light bulb forming over your head!

I can see you rushing to get a piece of paper to write down the odd numbers from 1 to 89 and then marking off the numbers to make the cubes.

Let's see your work.

Since we used one number, 1, to make the cube of 1 and used the next two numbers to make the cube of 2, you saw that the next three numbers, 7, 9, 11, could be used to make the cube of 3.

We had a PATTERN and the rest was easy!

So let's put down the numbers again:

1=1 or 1x1x1
3+5=8 or 2x2x2
7+9+11=27 or 3x3x3
13+15+17+19=64 or 4x4x4
21+23+25+27+29=125 or 5x5x5
31+33+35+37+39+41=216 or 6x6x6
43+45+47+49+51+53+55=343 or 7x7x7
57+59+61+63+65+67+69+71=512 or 8x8x8
73+75+77+79+81+83+85+87+89=729 or 9x9x9

And now you know why I picked the odd numbers from 1 through 89. I wanted to take you up to the cube of 9 or 729, which is a cube that Gann mentions on page 112 of the "old" commodity course (Section 10 Master Charts, page 3, Six Squares of Nine of the "new" course.)

Chapter 2-The Cubes and the Triangular Numbers

The triangular numbers were discussed in Book VI-"The Triangular Numbers" and there I showed you how triangular numbers are made and how cubes are contained in the squares of the triangles.

There are several ways the cubes are related to the triangular numbers.

And now we will look at another way.

So quick now, how many odd numbers would we need to list all the cubes from 1 through 17 in the manner we listed them in chapter one and what would be the last odd number we would use?

Go back and look at chapter one and study the PATTERNS before reading on.

As I have noted before, the study of Gann is the study of PATTERNS and learning how to look for PATTERNS is the only way that Gann's cryptic material will ever be solved.

Gann said to study and prove yourself worthy. I've studied a lot. Don't know how worthy I am, but I've learned a lot by going over his material many times.

He also said to study charts because the more we study charts the more we will know. He didn't say what to study on the charts, but I have a good idea he was pointing the way toward the PATTERNS.

Ok. You're back now. You're a little bit quicker than I am. It takes me a little while for things to sink in. Maybe that's why my search in the Gann material has taken me so long.

You have the advantage on me. I had no one to help me along the way. But you have me to point out the possibilities to you.

Let's look at your work.

We know from chapter one that it took one number to make the cube of one. It took two numbers to make the cube of two. It took three numbers to make the cube of three. It took four numbers to make the cube of four, etc. all the way up to nine where it took nine numbers to make the cube of nine.

Using that same PATTERN we will make all the cubes up through the cube of 17 where we will have to have 17 odd numbers.

So, how many odd numbers will we need to make up this series of cubes?

If you said 153 you are correct.

Why?

Because we know that adding 1 through 17 will give us the triangle of 17 which is 153.

Knowing what that last odd number will be is a little trickier, but it can be worked out once we know the PATTERN.

Go back to the bottom of the ladder and give it a try. Let's use all the cubes through 5.

Notice that the last odd number used there was 29.

The triangle of 5 is 15.

Notice that when I did the cubes up through 9 the last odd number used was 89.

Those of you who have studied the triangular numbers and know why the number 45 is important know that the triangle of 9 is 45.

PATTERN?

Let's put down the information on 5 and 9 that I just gave you.

5, 15, 29
9, 45, 89

Now let me put down the information on 17 noted above and I'll let you supply the third term:

17, 153, ?

If you said 305 you are correct.

Why?

Looking at 5 we see that the second term is 15, the triangle of 5 and the third term, 29, is 1 less than the double of 15.

Looking at 9 we see that the second term is 45, the triangle of 9 and the third term, 89, is 1 less than the double of 45.

Looking at 17 we see that the second term, 153, is the triangle of 17.

So, following the same PATTERN as with 5 and 9 we simply double 153 and subtract 1.

Now let's check it all out to see if we are correct. This time I will number all the odd numbers in the left column so that we can see the number of odd numbers needed for any group we want to make up.

1. 1
2. 3
3. 5
4. 7
5. 9
6. 11
7. 13
8. 15
9. 17
10. 19
11. 21
12. 23
13. 25
14. 27
15. 29
16. 31
17. 33
18. 35
19. 37
20. 39
21. 41
22. 43

23. 45
24. 47
25. 49
26. 51
27. 53
28. 55
29. 57
30. 59
31. 61
32. 63
33. 65
34. 67
35. 69
36. 71
37. 73
38. 75
39. 77
40. 79
41. 81
42. 83
43. 85
44. 87
45. 89
46. 91
47. 93
48. 95
49. 97
50. 99
51. 101
52. 103
53. 105
54. 107
55. 109
56. 111
57. 113
58. 115
59. 117
60. 119
61. 121
62. 123
63. 125
64. 127
65. 129
66. 131
67. 133
68. 135
69. 137
70. 139
71. 141
72. 143
73. 145
74. 147
75. 149
76. 151
77. 153

78. 155
79. 157
80. 159
81. 161
82. 163
83. 165
84. 167
85. 169
86. 171
87. 173
88. 175
89. 177
90. 179
91. 181
92. 183
93. 185
94. 187
95. 189
96. 191
97. 193
98. 195
99. 197
100. 199
101. 201
102. 203
103. 205
104. 207
105. 209
106. 211
107. 213
108. 215
109. 217
110. 219
111. 221
112. 223
113. 225
114. 227
115. 229
116. 231
117. 233
118. 235
119. 237
120. 239
121. 241
122. 243
123. 245
124. 247
125. 249
126. 251
127. 253
128. 255
129. 257
130. 259
131. 261
132. 263

133. 265
134. 267
135. 269
136. 271
137. 273
138. 275
139. 277
140. 279
141. 281
142. 283
143. 285
144. 287
145. 289
146. 291
147. 293
148. 295
149. 297
150. 299
151. 301
152. 303
153. 305

As you can see we were right. When we reached the 153rd term the odd number was 305.

Now we will check our work. Since we have already done the cubes up through 9 in chapter one, we will not list them again. We will start with the odd numbers which make up the next cube and go on up to the cube of 17. Since we ended with the odd number of 89 in making up the first 9 cubes we will start with 91 to finish up our work.

91+93+95+97+99+101+103+105+107+109=1000 or 10x10x10.

111+113+115+117+119+121+123+125+127+129+131=1331 or 11x11x11.

133+135+137+139+141+143+145+147+149+151+153+155=1728 or 12x12x12.

157+159+161+163+165+167+169+171+173+175+177+179+181=2197 or 13x13x13.

183+185+187+189+191+193+195+197+199+201+203+205+207+209=2744 or 14x14x14.

211+213+215+217+219+221+223+225+227+229+231+233+235+237+239=3375 or 15x15x15.

241+243+245+247+249+251+253+255+257+259+261+263+265+267+269+271= 4096 or 16x16x16.

273+275+277+279+281+283+285+287+289+291+293+295+297+299+301+303+ 305=4913 or 17x17x17.

As you can see we used 17 odd numbers to make the cube of 17 and the last odd number we used was 305, so everything checks out.

Now try one for yourself, say all the cubes from 1 through 12.
First you find the triangle of 12...

Chapter 3-Odd Numbers In One Cube

In chapter two we saw how to find how many odd numbers we would need and what the last odd number would be for us to make up a series of cubes from 1 up through any given number.

But what if we wanted to know what odd numbers would be needed just for any one cube.

So, quick now, what odd numbers would we need to make the cube of 33!

Just kidding. But before this chapter is over you will learn a very simple way of doing it.

One way we could do it would be to find the triangle of 33, double that triangular number and subtract 1 to find the last odd number we would need.

We have seen that the amount of odd numbers needed is simply the cube root of the number we are working on. So in this case we would need 33.

So after finding the last term needed we could begin with that term and count the odd numbers backwards until we had 33 odd numbers.

But there is an easier way!

Let's put down the odd numbers that make up the first few "odd" cubes. I'm making the "odd" cubes here as it is a little easier to see a PATTERN. And after all, seeing PATTERNS is our method of operation.

1, the cube of 1
7, 9, 11, the cube of 3
21, 23, 25, 29, 3l, the cube of 5
43, 45, 47, 49, 51, 53, 55, the cube of 7

PATTERN?

Let me put them down again:

			1			
		7	9	11		
	21	23	25	29	31	
43	45	47	49	51	53	55

Now do you see the PATTERN?

Look straight down from the 1. We have 1, 9, 25, 49.

Got it now?

That's right. They are all squares. And each is a middle term in its series.

For the cube of 3 we have 9 and a term on each side of it.

For the cube of 5 we have 25 and two terms on each side of it.

For the cube of 7 we have 49 and three terms on each side of it.

Nine is the square of 3, 25 is the square of 5 and 49 is the square of 7.

So, what would we do if we wanted to find the odd numbers which make up the cube of 9?

You guessed it!

We would put down the square of 9, which is 81.

Since we need 9 terms and 81 is the middle term in the series then we would need 4 odd numbers before 81 and four odd numbers after 81.

The four odd numbers before 81 are 73, 75, 77 and 79.

The four odd numbers after 81 are 83, 85, 87 and 89.

So we would have the series:

73, 75, 77, 79, 81, 83, 85, 87, 89

And when you add them up you get 729 or 9x9x9.

Looking back at chapter one, you can see that is the same series of numbers we had to make the cube of 9.

Quick now! How could you easily find the odd numbers to make up the cube of 33?

If you said that first you would multiply 33x33 to get 1089 (you know that from Gann's Square of Nine chart) and use that as the middle term and then use the 16 odd numbers before 1089 and the 16 odd numbers after 1089 you are correct.

Get a piece of paper and work it out. It is a good exercise in PATTERN checking.

Chapter 4-The Even Cubes

Quick now! What odd numbers would we use to make the cube of 34?

Yes, I'm kidding again. But if you have been studying the PATTERNS, it should not take you too long to figure it out.

In making the cube of 34 we would be making the cube of an "even" number. In the last chapter I showed how to make the odd cubes and told you I was doing that as the PATTERN was easier to see.

Let's put down the odd numbers which make up the first few "even" cubes:

3, 5, the cube of 2

13, 15, 17, 19, the cube of 4

31, 33, 35, 37, 39, 41, the cube of 6

PATTERN?

Let me arrange them again like I arranged the numbers for the odd cubes a second time:

		3	5		
	13	15	17	19	
31	33	35	37	39	41

Got it now?

What if I did this:

3, (4), 5
13, 15, (16), 17, 19
31, 33, 35, (36), 37, 39, 41

Yes, I have added middle terms. And the middle terms are all squares of even numbers, the squares of 2, 4 and 6.

When we made the odd cubes we had an odd number of odd numbers. To make the cube of 5 we had 5 odd numbers and the middle term was 25.

But when we make the even cubes we have an even amount of odd numbers and therefore no middle term.

To make the cube of 4 we have four terms.

But in order to make the cubes we need to discover the square of our root. If we are going to make the cube of 4 we have to find the square of 4 or 16.

But when we square an even number we always get an even number

and we cannot use even numbers in our sequence of numbers to make the cubes. We always use the odd numbers.

So what do we do?

We simply find the square of the even number and find the odd numbers on each side of it.

For the cube of 2 we need two odd numbers. So we simply square 2 to get 4 and use one odd number before 4 and one after it.

So we would use the 3 and the 5.

For the cube of 4 we would need 4 odd numbers so we square 4 to get 16 and use the two odd numbers before 16 and the two after:

13, 15, 17, 19

So quick now, how would you find the odd numbers to make the cube of 34?

That's right, square 34 and then find the 17 odd numbers before the square and the 17 odd numbers after the square. When you add those odd numbers you will have the cube of 34.

Chapter 5-Making Other Powers

Would it surprise you to learn that the other powers of numbers can be made from the odd numbers in the same way that squares and cubes are made?

Ok, ok. I'm not going to say "Quick now, make the power of a certain number." But I'm sure that from your PATTERN observations you could probably do it.

In Book IV-"On the Square," we saw how squares are made from the odd numbers and in this book we have seen how the cubes are made so now let's have a look at how the fourth power of numbers are made simply from the addition of odd numbers.

Let's put down the fourth power of the first three "odd" numbers.

1x1x1x1=1
3x3x3x3=81
5x5x5x5=625

Look back at the odd numbers listed in chapter two and see if you can find some which add to the above answers.

Hint: The number of odd numbers needed in each case will match the square root. Example, for the fourth power of 1 we need only 1 odd number.

Go ahead and give it a try. I'm going to rest awhile.

Back already?

Let's have a look at your work.

The first one is easy. 1 to any power including the power of zero is always 1.

So let's put that down:

1=1x1x1

With some experimenting you might have found that 25, 27 and 29 add to 81.

With some more experimenting it might have taken you awhile to find that 121, 123, 125, 127 and 129 add to 625.

Let's stack them as we did with the cubes to look for a PATTERN.

		1		
	25	27	29	
121	123	125	127	129

Got it now?

Looking down from 1 we can see that 27 is the cube of 3 and 125 is the cube of 5.
So to make the fourth power of 3 we simply cube 3 and use that for our middle term and add one odd number before it and one odd number after it.

To make the fourth power of 5 we simply cube 5 and use that for our middle term and add the two odd terms before it and the two odd terms after it.

Now, how about the even numbers to the power of four.

Here again we have the same situation as we did with the cubes.

To made the fourth power of 2 or 16 we use:

7+9=16

The cube of 2 or 8 falls between 7 and 9. But since 8 is an even number we do not use it in our total. We just use it as in any even fourth power or any other power to locate the odd numbers that we need.

Now, why don't you do the fourth power of 4.

If you used the cube of 4 as your middle term and then added the two odd numbers before that middle term and the two after you did it

right as:

61+63+65+67=256

What if we wanted to make the "fifth" power of four by the same method.

We would use 256 (the fourth power) as our middle term and use the two odd numbers before that and the two odd numbers after that:

253+255+257+259=1024 or 4x4x4x4x4

It works for any number to any power!

If we wanted to do 5 to the 10th power we would use 5 to the 9th power as our middle term and find the two odd numbers before that middle term and the two after and those four plus our middle term would equal the 10th power of 5.

I never showed you this in the making of the squares. Now is a good time to try it. Find the 9 odd numbers that make up the square of 9. What is the series middle term and why is it the middle term?

Chapter 6-Cube+Square=Square

As the title of this chapter suggests there are some cubes that can be added to squares and the total will be a square.

Think about it a few minutes.

Since cubes are made from certain odd numbers in order and squares are made from certain odd numbers in order, does it not seem logical to combine the two to get another square?

Think about it again.

What are the odd numbers used to make the cube of 5?

Remember we used the square of 5 to get our middle term and then used the two odd numbers before that square and the two after.

So the odd numbers used to make the cube of 5 are:

21, 23, 25, 27 and 29

We know from Book IV that a square can be made using the odd number starting at 1 on up to any odd number you want to use.

So here we could have a square formed from the odd numbers 1 through 19.

We know from our work in that book to find the square we are making with the odd numbers we simply add 1 to the last odd number

and divide by 2, so if we add 1 to 19 and divide by 2 we get 10, so the square made from 1 through 19 is the square of 10 or 10x10=100.

Since we are adding the odd numbers from 21 through 29 to make the cube of 5, we are also making a square from the odd numbers from 1 through 29.

We know that by adding 1 to 29 and dividing by 2 we get 15 so we must be making the square of 15 or 15x15=225.

And the square of 10 or 10x10=100 plus the cube of 5 or 5x5x5=125 totals 225 or the square of 15.

In my Book VI-"The Triangular Numbers" I pointed out how the cubes are contained in the squares of the triangles and this is one of the proofs for it.

Try one for yourself, say the cube of 6 and the square that is before the cube and the square that is made when the square before the cube is added to the cube.

The same method can be used for other powers.

From our earlier work we saw that 7+9=16 or the fourth power of 2. The odd numbers before 7 are 1, 3 and 5 and when added they make 9 or the square of 3.

And from that favorite of the Masons, the 47th principle of Euclid or the Pythagoran theory we know that 9 plus 16 is 25 or the square of 5.

And we can check that as 1+3+5+7+9=25 or the square of 5.

Try some others for yourself. Say, the fourth power of 3 and I think you will see something very interesting!

Chapter 7-Building Cubes Like Squares

In Book IV-"On the Square" we followed a man when he tiled a bathroom floor to see how squares are made numerically.

We can do the same thing with the cubes.

This will take some imagination on your part since there is no way I can show you a cube. So the squares I show in this chapter are "cubes" and you will have to picture the "depth" of the cubes.

So let's put down:

And we will call that 1x1x1

To make the cube of 2 we will put 2 units to the north of the one, two units to the northeast and two to the east and one on top of

the original 1. I have numbered the units that contain the two units 1, 2, 3.

So, we have 2x3

And since we place 1 on top of the original 1 we have

(2x3)+1=7

Since this is all placed on top of the original 1 we have

1=1, the cube of 1
(2x3)+1=7, and 1 plus 7 equals 8 or 2x2x2

Then in the places I have marked 1, 2, 3, 4, 5, they would be three deep so we would have 3x5 or 15 and we would have to put a unit each on 1 and on 1, 2, 3 at bottom left for a total of 4 so we have added:

(3x5)+4=19

So we add that to the other group already made:

1=1
(2x3)+1=7
(3x5)+4=19

And 1+7+19=27 or 3x3x3

Let's add another group and number them 1, 2, 3, 4, 5, 6, 7. They will be four deep so there are 4x7=28 in this group.

We will have to place one each on the other units to build them up to the same height. So we put one unit each on those 9.

Now in the total group we have:

1=1
(2x3)+1=7
(3x5)+4=19
(4x7)+9=37

And 1+7+19+37=64 or 4x4x4.
PATTERN?

Without drawing out the cubes as I have, can you now supply the next line to the group of numbers above to make the next cube, 5x5x5=125.

I will give you a start by subtracting 64 from 125 so that we know that we will need 61 units.

(1x1)+0=1
(2x3)+1=7
(3x5)+4=19

(4x7)+9=37
(?x?)+?=61

In the row to the left of the multiplication sign we can see that we have the natural numbers in order, 1, 2, 3, 4 so the next number under 4 would be 5.

On the right side of the multiplication sign we can see that we have the natural odd numbers in order, 1, 3, 5, 7, so the next odd number would be 9.

On the right side of the plus sign we have the squares in order and although zero is not a natural number as explained in Book IV, I have put it in here as a convenience so the squares are 0, 1, 4, 9 and the next would be 16.

So if you said the numbers for the next group are:

(5x9)+16=61

You are correct.

Add some other groups in the same way and then add the answers and you will always have a cube.

Did you notice that the numbers in the parentheses when multiplied equal a triangular number and those numbers are every other triangle?

We will see triangles and their relationship to the cubes again later in this book.

Meanwhile note that (4x9)+25=61. Another PATTERN! Give it a look in light of what you have seen above and see if you can take the PATTERN all the way back to its origins and compare it to the other PATTERN we looked at above.

Chapter 8-Squares and Geo Means

We will now look at another way to build cubes.

We will build them with the squares and the geometric means between the squares.

The geometric means was discussed in Book IV-"On the Square" and I showed how to find those means on the Square of Nine Chart.

Later we will look at the geometric means on the hexagon chart, but for now let's stick to the work at hand.

So put on your PATTERN cap and let's have a look at the first two squares and the geometric mean between them.

1x1=1

1x2=2
2x2=4 and 1+2+4=7, the difference in the cube of 1 and the cube of 2.

2x2=4
2x3=6
3x3=9 and 4+6+9=19, the difference in the cube of 2 and the cube of 3.

Next PATTERN please!

If you said:

3x3=9
3x4=12
4x4=16 and 9+12+16=37, the difference in the cube of 3 and the cube of 4, you are correct.

Now I would like for you to find the difference in the cube of 7 and the cube of 8.

If you said:

7x7=49
7x8=56
8x8=64 and 49+56+64=169, then you are correct again.

Since you still have your PATTERN cap on I would like for you to use the same method to find the difference in the "fourth" powers of some numbers.

To avoid getting into some very big numbers let's just say that we want to find the difference in the fourth power of 2 and the fourth power of 3.

Hint: We used the square or "second" power and their geometric means to find the difference in the "third" power or cubes.

If you said let's use the cubes and their geometric means you are correct!

Remember that squares have one geometric means, but cubes have two.
So let's work it out:

2x2x2=8
2x2x3=12
2x3x3=18
3x3x3=27 and 8+12+18+27=65

The fourth power of 3 is 3x3x3x3 or 81 and the fourth power of 2 is 2x2x2x2 or 16. And 81 minus 16 is 65, so we are correct.

This method works for any other powers. If we were looking for the difference in the "fifth" power of 2 and the "fifth" power of 3,

we would use the total of the "fourth" power of two and the "fourth" power of 3 plus their geometric means.

You have probably noticed that we used successive squares and their means to find the difference in cubes.

But there is a way to find the difference in non-successive cubes.

Let's make the difference in the cube of 2 which is 8 and the cube of 4 which is 64. The answer is 56.

Let's see if we can find that answer using the same method as before:

2x2=4
2x4=8
4x4=16 and 4+8+16=28.

PATTERN?

Let's look at another one, 4 and 7. Again the cube of 4 is 64 and the cube of 7 is 343 and the difference is 279.

Using the same method as before:

4x4=16
4x7=28
7x7=49 and 16+28+49=93

PATTERN now?

With the 2 and 4 we got 28. The difference was 56.
With 4 and 7 we got 93. The difference was 279.

The difference between 2 and 4 is 2 and 2x28=56.

Can you do the next one, the 4 and 7.

If you said the difference in 4 and 7 is 3 and 3x93=279 you are correct.

This also works for other powers, but I will let you work out a few on your own. As I have said many times before, "Why should I have all the fun!"

Chapter 9-The Double Cubes

The double cubes can be made simply by multiplying the odd

numbers that we used to make the single cubes by 2.

A couple of Gann's important numbers involve a square and a double cube.

We all know about the number 144. Yes, it is the square of 12 and I imagine that is what most people think when they think about the number 144.

It is also a Fibonacci number and I'm sure most of you know that.

It's square is found in certain computations of the numbers that make up the Great Pyramid, but that is for another study.

But the number is also the product of two numbers which can be used in squaring the circle, 9 and 16.

At first glance we would say then that 144 is the product of the square of 3 or 3x3 and the square of 4 or 4x4.

But look again. It is also the product of something else that those two numbers represent.

A square and a double cube!

(Double cubes are mentioned in Masonry in connection with the zodiac).

The square of course is 3x3. And the double cube is 2x2x2 (which is 8) times 2.

This might not seem so significant if Gann did not speak of another number which is the product of a square and a double cube.

On page 112 of the "old" commodity course (Section 10, Master Charts, page 3, of the "new" course) Gann speaks of the 6 squares of 9 or 6x81=486.

I showed in Book IV-"On the Square" that this number is one of the geometric means between the cube of 6 and the cube of 9.

But that is not its significance here.

The number 486 can also be expressed as 9x54.

Again 9 is the square of 3 and 54 is a double cube since it is 3x3x3x2.

Chapter 10-Geometric Means on the Hexagon

Before we move on toward finding the cubes on the hexagon you might be interested in the geometric means found there.

The geometric means were discussed in Book IV-"On the Square" so I will not go into all that here. But if you have read the book you will have the idea.

The geometric means between the successive squares do not make the nice PATTERNS here as they did on the Square of Nine chart.

But there are some interesting PATTERNS and we will look at a few of those. Let's work off the first few squares starting with the square of two and working down the 240 degree angle and checking every over number.

2x2=4
5x6=30
8x10=80

There is a PATTERN being made so put on your PATTERN cap and see if you can supply the next geometric mean that follows the same PATTERN without looking it up on the chart.

If you said 11x14=154 you are correct.

Why is that correct?

We can see that the numbers to the left of the multiplication sign grow by 3 and 8 plus 3 is 11.

We can see that the numbers to the right of the multiplication sign grow by 4 and 4 plus 10 is 14.

So we multiply 11x14 to get our answer.

Now go ahead and do the next one.

Let's move over to the 300 degree line and work off of the square of four and check ever other number in the same way.

4x4=16
7x8=56

Do I have to go any farther? Isn't the PATTERN already apparent?

Yes, it follows the same PATTERN as before. The difference in the numbers in the column to the left of the multiplication sign is 3 and to the right it is 4.

So now can you supply the next geometric mean that would follow the same PATTERN?

If you said 10x12=120 you are right. Check it on the hexagon chart.

Now move up to the square of three on the 90 degree angle.

3x3=9
6x7=42

Need I say more?

Chapter 11-The Cubes on the Hexagon

I know you have been patiently waiting for me to say something about Gann and the hexagon and how the chart relates to the cube.

But the work that has gone on before has set up some of the ground work for this discussion.

Gann's discussion of the hexagon begins on page 113 in the "old" course (Section 10, Master Charts, in the "new " course).

He notes that something can be built with six sides and earlier in his discussion of the cube he noted it had six sides or we might say it has six faces.

The word hexagon itself means a six-sided polygon.

With that in mind I would like for you to locate the cubes of 1, 2, 3, 4, 5 and 6 on the hexagon chart.

Got them?

Any PATTERN here?

Well, don't feel bad if you didn't find a PATTERN, I didn't either.

But you and I both know that there must be a PATTERN somewhere.

But locating the cubes on the chart doesn't do it.

On the Square of Nine chart, we could located both the even and odd squares and find that they run on certain lines, but that is not true with the hexagon.

But, wait a minute! There is a PATTERN!

Look back at chapter 7.

We see the numbers, 1, 7, 19, 37.

Now look at your hexagon chart again and locate those numbers.

They are located just above the line that Gann calls 360 degrees.

Does that suggest anything?

Look at the 360 degree line, the one that contains 6, 18, 36.

PATTERN?

When discussing the "cycle of eight" in Book IV-"On the Square," I noted that the cycle of six was based on the same idea.

What is that idea?

The cycles are made by taking 1 unit of the cycle and adding 2 units, then 3 units, then 4 units, etc.

So the cycle of six is made:

1x6 plus 2x6 plus 3x6 plus 4x6, etc.

We can put those down like so:

1x6
2x6
3x6
4x6

Since the addition of the numbers on the left make up triangular numbers we can express the cycle as 6 times a triangular number for any place in the cycle.

In this case the triangle of 4 is 10 so when we add 1x6, plus 2x6, plus 3x6, plus 4x6, we can express that as 10 times 6 or 60.

Look for 60 on the hexagon chart for confirmation of that idea.

The triangle of 9 is 45. So if we multiply 45 times 6 we get 270 and we can find it on that 360 degree line.

Do a few for yourself to prove the idea.

Note that the numbers we listed above 1, 7, 19, 37 are one unit above the 360 degree line. So what does that suggest?

Let's try this. Multiply 153 times 6 and add 1.

The answer is 919. Find it on the chart.

Yes, it runs on the same line as 1, 7, 19, 37, etc.

And what are those numbers? If you followed chapter seven very carefully you would have seen that they are the differences in the cubes.

If they are the differences then they will add to the cubes!

1 is the cube of 1.
1+7 is 8, the cube of 2.
1+7+19 is 27, the cube of 3.

So, we have finally found the cubes on the hexagon chart and we have found a PATTERN!

Is there a way of knowing what two cubes the numbers on this line are the difference of?

Without doing the workout do you know what the two cubes the number 919 is the difference of?

Let's go to the bottom of that ladder again.

1 is the triangle of "1."

6x1 is 6. 6 plus 1 is 7.

7 is the difference in the cube of "1" and the cube of 2.

3 is the triangle of "2."

6x3 is 18. 18 plus 1 is 19.

19 is the difference in the cube of "2" and the cube of 3.
Got it now?

Look at the numbers around which I have placed quotation marks and give it another try.

Now once again what are the two cubes that 919 is the difference of?

If you said 17 and 18 you are correct.

Are we on the right track about the cubes?

Let's look at Gann's discussion again about the hexagon chart.

He starts at 1 and tells us that the first cycle ends at 7, the second at 19, the third at 37, etc., each time gaining six units.

At no time does he tell us that the numbers we are making are the differences in cubes. Just another one of his well hidden methods.

When you compare the Square of Nine and the hexagon as he says you will also find some other well hidden relationships.

Gann mentions that one of the cycles falls on 169 and that number is important for more reasons than one. Of course one of those reasons is that it is the square of 13. It also shows up in the workout on the soybean chart of the late 1940's and early 1950's.

(It is also well hidden in "The Tunnel Thru the Air.")

I noted in Book VI-"The Triangular Numbers" that I thought

Gann's material was based more on the triangles than on the squares and that numbers mentioned in his material seemed to indicate that.

So, I will leave you with this last PATTERN for you to find. He mentions that 360 runs from the main center. Obviously all numbers on the hexagon run from the "center," so he must have meant something else when he mentioned the 180 degrees or the 90 degrees. With what you know now, figure out what he meant!

Book XI

Gann and the Teleois

Whether or not Gann had a knowledge of the Teleois is a matter of conjecture on my part. Although he never mentions it by name, there appears to be times when he is referring to it.

Whether he did that or not I know there are Teleois angles on the Square of Nine chart.

What is the Teleois, you ask. Good question. The word itself seems to mean perfect from what little I have found about the word. Whether that means the Teleois numbers are perfect, I don't know, since in many writings I have found several numbers referred to as perfect numbers. Some are Teleois and some are not.

My introduction to the Teleois came from a book written about 1940 called "The Prophecies of Melchizedek" by Brown Landone.

Landone found Teleois relationships in the Great Pyramids, the planets, the human body, etc. I will not recount those relationships here as that would be going down a different path and as I have said in a number of my writings, we have to stay on the path we are on and go down those other paths later.

He listed the basal Teleois proportions as 1, 4, 7.

He listed the primary Telois proportions as 13, 19, 25, 31.

He listed the secondary Telois proportions as 10, 16, 22, 28.

If we list those numbers in numerical order we can see a PATTERN.

1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31.

Got it now?

Starting with 1 the numbers listed are 3 units apart!

Those of you who have read my Book VI "The Triangular Numbers" in this series will recognize that these numbers are also the numbers that are used to make a five-sided figure.

Since there are three units between each number, then there must be nine units between any unit and the third one over. Example, look at 7 and then count 10 as one 13 as two and 16 as three to get the third number over from 7 and we see that the difference is 9.

You can see then that if we take any Teleois number, multiply by

nine and then add 1 we will have another Teleois number.

For example 9 times 4 is 36 and 36 plus 1 is 37 which is another Teleois number.

As I have explained in my earlier work I often run numbers through my calculator looking for PATTERNS which lead to other PATTERNS.
One day I was looking at the numbers on the angles on the Square of Nine chart. I noticed when I went out a square and up an angle I landed on a Teleois number. You might want to get out your Square of Nine chart to see if you can see the same thing.

I will start you out on the first three numbers and see if you can take it from there, 10, 28, 55.

When I looked at those three numbers I saw a PATTERN. If you have read my book "The Triangular Numbers" you might have seen the same thing.

First, subtract 1 from each number. You get 9, 27, 54.

Got it now?

Let's put down some triangular numbers in order starting with 1.

1
3
6

Got it now?

Let's multiply those three triangular numbers by 9:

1x9 is 9
3x9 is 27
6x9 is 54

Now look at your next number on the Square of Nine chart going out one square and going up to the next 22 1/2 degree angle after 55.

Did you locate it? It is 91.

Now let's continue with the triangular numbers after the number 6.

The next triangular number after 6 is 10.

And 10x9 is 90. Add 1 and you have 91.

Can you finish the PATTERN going all the way around the Square of Nine chart and ending up back on the 315 degree angle, the angle that contains all the odd squares?

Now that you have done that, is there any other PATTERN you

noticed?

If not why don't you write down each of the numbers you touched as you went out a square and up an angle.

I'll do the first few for you and since this actually starts with the number 1 I will use that first:

1
10
28
55
91
136

Got it now?

Hint! Think of triangular numbers!
Yes, they are all triangular numbers. Out at the side of the numbers why don't you write down their roots. (Triangular numbers and where they appear in the Gann material were discussed in Book VI of this series.)

If you don't know them I will put them down for you.

1-1
10-4
28-7
55-10
91-13
136-16

As you can see the roots are the Teleois numbers in order!

So we can now see that the numbers that fall on the 22 1/2 degree angle as you go out a square and up to the next 22 1/2 degree angle each time can be made in two different ways but the answers are the same.

We can multiply the triangular numbers in order by 9 and add 1:

(1x9)+1=10
(3x9)+1=28
(6x9)+1=55
(10x9)+1=91
(15x9)+1=136

or starting with the number 4 in our list of Teleois numbers which are three units apart we can simply list the triangle of those numbers:

Triangle of 4=10
Triangle of 7=28
Triangle of 10=55
Triangle of 13=91

Triangle of 16=136

Now you can see why I call those angles the Teleois angles.

Let's put down the angles and the numbers that fall on them as we go out a square and up a 22 1/1 degree angle each time.

We will start with 9 on the 315 degree angle and then go to:

10--337.5
28--360 or 0
55--22.5
91--45
136--67.5
190--90
253--112.5
325--135
406--157.5
496--180
595--202.5
703--225
820--247.5
946--270
1081--292.5
1225--315

Note that 1225 does not show on the chart but this is where we would end up going out a square and up or down or across to a 22.5 degree angle.

Now let's put in the triangular roots of each of the numbers in parentheses.

10 (4)--337.5
28 (7)--360 or 0
55 (10)--22.5
91 (13)--45
136 (16)--67.5
190 (19)--90
253 (22)--112.5
325 (25)--135
406 (28)--157.5
496 (31)--180
595 (34)--202.5
703 (37)--225
820 (40)--247.5
946 (43)--270
1081 (46)--292.5
1225 (49)--315

And we see that the triangular roots are the teleois numbers in order starting from 4.

Now let's do the same thing except this time we will multiply the triangular numbers in order and add 1.

10 (9x1)+1--337.5
28 (9x3)+1--360 or 0
55 (9x6)+1--22.5
91 (9x10)+1--45
136 (9x15)+1--67.5
190 (9x21)+1--90
253 (9x28)+1--112.5
325 (9x36)+1--135
406 (9x45)+1--157.5
496 (9x55)+1--180
595 (9x66)+1--202.5
703 (9x78)+1--225
820 (9x91)+1--247.5
946 (9x105)+1--270
1081 (9x120)+1--292.5
1225 (9x136)+1--315

I will note here that Gann made mention of some of the numbers above.

In his account of US Steel, he told about the price having resistance at 55.

In talking about soybeans he noted that they were in the 253rd month.

In his discussion of the Square of Nine chart he said there was a change in cycles at 325.

We have seen that in all three instances the numbers were on the Teleois angles!

Book XII

Gann's Magic Square

Chapter 1--The Search For Gann's Squares

In one place in his material W. D. Gann describes the "Square of Nine" chart and in another place he describes the Square of 33x33. One seems to be just an extension of the other and the end of the square at 33x33 seems to be arbitrary.

But is it arbitrary? By the time you have finished this book you will see that the square of 33x33 is the most logical ending point.

When I first started studying Gann many years ago, I was fascinated with his charts, the Square of Nine, the Square of Four, the Hexagon chart, etc.

I looked at them hundreds of times. At first I just accepted them the way that they were, trying to follow them as he described them in his material, mostly just coming to a dead end.

I believed that somewhere he must have written something more to describe the charts, because as they were the writings were very cryptic.

He and other writers after him pointed out that on the Square of Nine chart the odd squares run along the 315 degree line and the even squares run along the line that is next to the 135 degree line.

In other words the even square line and the odd square line were "almost" 180 degrees apart.

That "almost" always bothered me. The 135 degree line contained the numbers that were 1 more than the even squares, 5, 17, etc.

Someone came along in the 1980's and called the Square of Nine chart an Octagon chart and showed how it was made up of a series of numbers that would fall on the 45 degree angles by starting at 1 and going down to 9 and then starting the next series of numbers by skipping every other number and in the next column every two numbers, etc. like this:

1	x	x
2	11	28
3	13	31
4	15	34
5	17	37

6	19	40
7	21	43
8	23	46
9	25	49

In the next column you would add 4 to 49 to get the first number and then 4 to that, etc. until you get the next odd square which would be 81.

Notice how the "1" is placed. It is placed above the rows that make up the rest of the material. It is placed this way so that the numbers along the bottom row will run on the odd squares. The writers called this arrangement an Octagon.

That's probably a good description, but I think a better description would be a "plus 1 Octagon arrangement."

Gann never said how this chart was constructed. He listed the numbers that fell on the 90 degree angles. In one place he called it the Square of Nine chart or the square of 19x19 and in another place he called it the square of 33.

There is a definite PATTERN between the square of 19 and the square of 33, but we will look at that later on.

The one chart where Gann mentioned the construction was the Hexagon chart. There was no mention of the construction of the Square of Four.

And he never mentioned the construction of a regular square such as the square of 12 or 144 and I assumed he did that because no construction method was needed.

But we will see that the square of 12 has a PATTERN. And that PATTERN will be discovered and surprise you when we work out the PATTERNS of the other three charts.

So if you have those charts, the Square of Nine (and that's what we will call it here as most people call it that and Gann seemed to call it that at one time), the Square of Four, the square of 12, and the Hexagon chart get them out and give them a good look.

Are they all made alike? That is, is the construction of one just the same as the others, or is there two alike or three alike and one is the oddball?

Before reading on, give them all a good look and see if you can figure out their construction.

Chapter 2--A Look at Construction

So let's look at the construction of all four of the charts.

For many years I believed that the construction of the Square of Four chart followed that of the Square of Nine chart since the numbers seemed to be based on the same idea, but ran in different directions.

I considered the Hexagon chart to be the "odd ball" of the three charts. I didn't even consider the construction of a regular chart such as a 12x12 or an 8x8, which seemed so obvious (little did I know!)

So let's do some constructing and see what we can find.

Since Gann did give the construction of the Hexagon chart let's start with that.

He tells us to begin with 1 and put a circle of 6 around it and then put a circle of two 6's (or 12) around that and then a circle of three 6's (18) around that, each time adding 6 more than the previous time.

The numbers come out on the line 1, 7, 19, etc.

On his original chart that's where the 0 or 360 degree line runs, but on the chart that is probably in your material the 0 or 360 degree line contains 6, 12, 18, etc.

So let's use that line as our 360 degree line since the following explanation will be a little easier. We will come back later and move the line up after we have the construction method well in mind.

So let's just count off to 6:

6

Now let's add 12 to that since we are using 6 more each time than the previous.

6
18

Now let's add 18 to that:

6
18
36

Now let's add 24 to that:

6
18
36
60

Now let's add 30 to that:

6
18
36
60
90

Now let's add 36 to that:

6
18
36
60
90
126

Let's put those numbers down as they appear on the Hexagon chart:

6, 18, 36, 60, 90, 126

Since Gann said that this completes the first Hexagon (he has 127 since that was on his original and I will deal with that later) let's end it there.

Before I go any farther, do you see what he has done?

Let's put down the numbers he added each time:

6 6
12 18
18 36
24 60
30 90
36 126

Do you see it now?

1x6 6
2x6 18
3x6 36
4x6 60
5x6 90
6x6 126

How about now?

The first column are the multiples of 6 we add each time. The second column is the running total that we get when we add the multiples of 6. As you can see the next multiple of 6 to add would be 7x6 or 42 and the running total would be 168.

1x6 =6
+2x6 =18

+3x6 =36
+4x6 =60
+5x6 =90
+6x6 =126

But let's not go that far since we want to keep to Gann's first Hexagon.

We saw that adding 1x6 to 2x6, etc. up to 6x6 gave us a sum of 126.

But, we could have done that in a different way.
We could simply have added 1+2+3+4+5+6 which is 21 and then multiplied by 6 which would equal 126.

By adding 1 through 6 we got the triangular number of 6.
(Triangular numbers were discussed in my Book VI)

So we can multiply any triangular number times 6 and it will fall on the 360 line that runs:

6, 18, 36, etc.

Looking above we can see that the next triangular root after 6 is 7 and the triangle of 7 is 28 and if we multiply 28 times 6 we would get 168, just like if we had added 7x6 or 42 to 126 as noted above.

The triangle of 17 is 153, a number found in the Bible. Multiply it by 6 and check the line that runs:

6, 18, 36 and see if you can find it.

You did!

Chapter 3--Comparing the "Square of Nine"

Now let's go to that chart that everyone calls the Square of Nine chart.

We will follow the line that is next to the line that has the odd squares or where the numbers are 1 less than the odd squares. It is the line that reads:

8, 24, 48, 80, etc.

Let's subtract each number beginning with the 8 from the next number. The results are:

8
16
24

32
40
48
56
64

We can see that the differences in the numbers are:

1x8
2x8
3x8
4x8
5x8
6x8
7x8
8x8

See the PATTERN?

Yes it is the same PATTERN as on the Hexagon chart!

When Gann described the Hexagon chart and said to take 1 and put 6 circles around that and 12 around that and 18 around that, he could have been describing the "Square of Nine" chart.

He could have said, "take 1 and put 8 around that and 16 around that and 24 around that."

The answers would have been on the line that has the odd squares on it. Since he called the chart using circles of 6 the Hexagon chart, he could have called this the Octagon chart as someone in the past called it.

(But there is much more to that as we will see later.)

But, like on the Hexagon chart, let's ignore the line that runs 1, 9, 25 and just concentrate on the line that runs 8, 24, 48 etc.

I guess by now that you have figured out you can use any triangular number and multiply by 8 and get the answer on this line.

But let's go through it again. We can get the answer by adding the multiples of 8 as we did the multiples of 6:

1x8 8
2x8 16
3x8 24
4x8 32
5x8 40
6x8 48
7x8 56
8x8 64

And when we add 8, 16, 24, etc. up through 64 we get 288.

Here again we could simply take the triangle of 8 (add 1 through 8) and get 36 and then multiply by 8 and get 288.

We could make up any chart we wanted to using the same idea. For a cycle of 12 we could say take 12, put 24 around that and 36 around that and 48 around that, etc. On our 360 degree line the numbers would come out as 12 times a triangular number, 12, 36, 72, 120, etc.

Let's look at another similarity between the "Square of Nine" chart and the Hexagon Chart.

Chapter 4--Another Similarity

Let's look at another similarity between the "Square of Nine" chart and the Hexagon chart.

Looking first at the Hexagon chart, check the numbers starting with 6 and going to the right.

They are 6, 18, 36, 90, 126, etc.

Now look at the numbers that go to the left or that are 180 degrees from the other line.

They are 3, 12, 27, 48, 75, 108, etc.

See a PATTERN?

We have already seen that the numbers 6, 18, 36, 90, 126, etc. are formed by multiplying 6 times a triangular number. But there is also a definite PATTERN to 3, 12, 27, 48, 75, 108, etc. Play with them awhile. Do you have the answer?

Let's go back to the "Square of Nine" chart and do the same thing as we did with the Hexagon chart.

Going down from 8 we have 8, 24, 48, 80, 120, 168, etc.

Now look at the numbers that are 180 from that line. Since the line 5, 17, 37, etc. is 180 degrees from 9, 25, 49, then the 180 degree line from 8, 24, 48, etc. must be:

4, 16, 36, 64, 100, etc.

See the PATTERN now?

Yes 4, 16, 64, 100, etc. are the even squares, but there is another PATTERN and the PATTERN is the same as the PATTERN for the numbers on the Hexagon chart 3, 12, 27, etc.

Play with them awhile. Got it now?

Maybe it would help if we put down together those groups of

numbers that run on both 180 degree lines and look at them for a PATTERN:

3, 12, 27, 48, 75
4, 16, 36, 64, 100

Can you see the PATTERN now?

Let me see if I can help you.

1x3, 4x3, 9x3, 16x3, 25x3
1x4, 4x4, 9x4, 16x4, 25x4

See it now?

Look at the first number in each of the multiples. They are:

1, 4, 9, 16, 25
1, 4, 9, 16, 25

Yes, they are the natural squares in order!

Looking at our discussion above can you guess what you would have on the 180 degree line if we made up another cycle of numbers? On a cycle of 4? A cycle of 10? A cycle of 12?

Like I told you before when I mentioned the cycle of 12, the 360 degree line would contain numbers made by multiplying 12 times the triangular numbers in order. But what numbers would be on the 180 degree line?

Let's make some cycles and find out! Remember I told you we could make cycles of numbers by using tabular form instead of actual circles. We go down a list of numbers that have a difference of 1 and then in the next column they will have a difference of 2 and in the next a difference of 3, etc.

First, let's do the cycle of 4.

1 6 15 28 45
2 8 18 32 50
3 10 21 36 55
4 12 24 40 60

We could go on and on with this, but that will give you the idea.

Look along the bottom line. That is our 360 degree line. How is it made? How could we get the numbers for the bottom line without filling in all the numbers?

If you said we could simply multiply 4 times the triangular numbers in order you would be right.

Our last number is 60 which is 4 times the triangle of 5 or 15.

The next triangular number is the triangle of 6 or 21. So the next number on the bottom line would be 4 times 21 or 84. Do a few of those to get the idea.

We won't do the "cycle of 6" or the Hexagon or the "cycle of 8" which is usually called the Square of Nine since we have already done those.

So let's go on and do the cycle of 10:

1 12 33 64
2 14 36 68
3 16 39 72
4 18 42 76
5 20 45 80
6 22 48 84
7 24 51 88
8 26 54 92
9 28 57 96
10 30 60 100

We could carry this on out, but that is all we need to see the PATTERN.

Again, look at our 360 degree line which runs along the bottom and we can see that the numbers can be made by multiplying 10 by the triangular numbers in order, 10x1, 10x3, 10x6, 10x10.

Can you supply the next two numbers that would go in this row? If you said 150 (10x15) and 210 (10x21) you would be right.

Now let's do the cycle of 12.

1 14 39 76
2 16 42 80
3 18 45 84
4 20 48 88
5 22 51 92
6 24 54 96
7 26 57 100
8 28 60 104
9 30 63 108
10 32 66 112
11 34 69 116
12 36 72 120

Again, we could carry this on out, but that's all we need to see the PATTERN.

Look along the bottom row we call the 360 degree line. We can see that the numbers are made by multiplying 12 by the triangular numbers in order, 12x1, 12x3, 12x6, 12x10.

Again, can you supply the next two numbers in this row? If you said 12x15 and 12x21, you would be correct.

We could make up some cycles of 14, 16, 18, 20, etc. and the results would be the same. The 360 degree line would contain numbers that are made by multiplying our cycle numbers 14, 16, 18, 20, etc. times the triangular numbers in order, 1, 3, 6, 10, 15, 21, etc.

But now let's get back to our 180 degree line since this is what we are trying to find. Look at the cycles of 4, 10 and 12 again and see if you can find the 180 degree line.

Remember that when we looked at the 180 degree line in the cycle of 6 (Hexagon) and cycle of 8 (Square of 9 or Octagon) we found that they were multiples of the squares.

Can you find those lines in the cycles of 4, 10 and 12?

Let's look at the cycle of 4 again:

1 6 15 28 45
2 8 18 32 50
3 10 21 36 55
4 12 24 40 60

Do you see it here?

Look at the row that begins with 2:

2 8 18 32 50

We can see that these numbers are 2 times the squares in order:

2x1, 2x4, 2x9, 2x16, 2x25

So this must be the 180 degree line if it is the same PATTERN as the Hexagon and Octagon.

Let's look at the cycle of 10 again:

1 12 33 64
2 14 36 68
3 16 39 72
4 18 42 76
5 20 45 80
6 22 48 84
7 24 51 88
8 26 54 92
9 28 57 96
10 30 60 100

Can you find the 180 degree line here?

Look at the numbers in the row that begin with 5:

5 20 45 80

We can see that these numbers are 5 times the squares in order:

5x1, 5x4, 5x9, 5x16

So this must be the 180 degree line.

Before I put down the cycle of 12 again, can you guess where the 180 degree line will be?

If you said the row that starts with the number 6 you are right!

Let's look at it.

1 14 39 76
2 16 42 80
3 18 45 84
4 20 48 88
5 22 51 92
6 24 54 96
7 26 57 100
8 28 60 104
9 30 63 108
10 32 66 112
11 34 69 116
12 36 72 120

Looking at the row beginning with 6 we have:

6 24 54 96

And we can see that these numbers are made by multiplying 6 times the squares in order:

6x1, 6x4, 6x9, 6x16

Now let's go back and look for a PATTERN:

We have seen that in the cycle of 6 the 180 degree line runs from 3 and contains the numbers that are 3 times the squares in order and in the cycle of 8 the 180 degree line runs from 4 and contains the numbers that are 4 times the squares in order.

PATTERN?

Yes! We can see that 3 is half of 6 and 4 is half of 8.

In the cycle of 4 the 180 degree line runs from 2, in the cycle of 10 it runs from 5 and in the cycle of 12 it runs from 6.

So we could make up any cycle of even numbers, 4, 6, 8, 10, 12, 14, 16, 18, etc. and the bottom row (360 degree line) would contain numbers that are the cycle number times the triangular numbers in order and the 180 degree line would contain numbers that are 1/2 the cycle number times the squares in order.

(There is one even cycle I have not done. I leave it up to you to figure out what it is and do it. It is the easiest cycle of all to figure. Like I said in one of my earlier books, you do not have to go way up in numbers to prove things. You can usually start at the bottom of the ladder and if it works at the bottom of the ladder it will usually work at the top.)

Chapter 5--Proof Of Construction

So, what have we proved with all this?

The fact that each cycle's 360 degree line contains numbers that are the cycle's number times the triangular numbers in order is pretty much proof that all these cycles are constructed in the same way, the Hexagon (the cycle of six), the Square of Nine (which in this case is really the Octagon, the cycle of eight) and all the others that we could make with the same method.

The fact that the 180 degree line contains numbers that are made up of squares times 1/2 the cycle numbers is just further proof by PATTERN that these cycles are constructed in the same way.

If you want some other proof, look at the 180 degrees of some of the other numbers on the "Square of Nine" chart. See how 3 is 180 degrees of 7. Now look at the first column of numbers in this:

1
2
3
4
5
6
7
8

4 is 180 degrees of 8. Move up 1 from 4 to 3 and move up 1 from 8 to 7. Now move up 1 from 3 which is 2 and move up 1 from 7 which is 6. Now check your "Square of Nine" Chart and see where 2 and 6 are located.

Do we need any further proof on the construction of the "Square of Nine" or the Octagon Chart (the cycle of eight) and the cycle of six or the Hexagon Chart.

For those of you who still insist on calling the Octagon chart the "Square of Nine" chart, check the angles!

This chart is divided into 45 degree angles and subdivided into 22.5 degree angles. There are eight 45 degree angles in 360 degrees.

The Hexagon chart is divided into 60 degree angles and subdivided into 30 degree angles. Since their construction is the same then we would have to call the "Square of Nine" an Octagon chart

if we call the cycle of six a Hexagon chart.

Nine divided into 360 is 40 and there are no 40 degree angles on the "Square of Nine" chart.

We will see later that another name, more descriptive, can be used for the Square of Nine or the Cycle of Eight. And also for the Hexagon Chart!

But for now let's move on to the questions raised at the beginning. The question or questions were which charts are constructed alike and which are different.

Chapter 6--Construction of the Square of Four

Let's look at Gann's Square of Four. For many, many years I believed that the construction of this chart was like the Square of Nine chart.

Why?

The numbers seemed to be the same PATTERN but just ran in different directions.

We can see that the odd squares run down on an angle in the Square of Nine and the even squares run up an angle in the Square of Nine.

In the Square of 4 they run across the page.

We can see that 3, 13, 31, etc. run down the page in the Square of Four and on the Square of Nine they run on a 45 degree angle. There are many more examples and I'm sure you have looked at this from time to time.

In my book " On the Square" I noted how that numbers running on an angle on the Square of Nine or Cycle of Eight had the difference of 8 and would expect that in a "Cycle of Eight."

If we look at 3, 13, 31, we see that 13 minus 3 is 10 and 31 minus 13 is 18 and the difference between 18 and 10 is 8. Each time the number on this line is 8 more than the previous number.

And we also see that on the Square of 4. Look at the numbers going up on an angle 1, 6, 19, 40.

The differences in the numbers are:

5, 13, 21

And the difference between these numbers is 8. (5 from 13 is 8 and 13 from 21 is 8)

So from all this I had assumed for many years that the Square of Four and the Square of Nine were constructed from the same PATTERN and the Hexagon was the "oddball," as far as construction was concerned.

But now we have already seen that the Square of Nine and the Hexagon are constructed in the same manner and have proved it by checking the 360 degree line on each and the 180 degree line on each.

If we check the Square of Four 360 degree line we find that it contains the numbers 4, 16, 36, 64, etc.

We have already done a "Cycle of Four" using the same method that was used to make the Cycle of Eight and the Cycle of Six.

When I reached this point I decided to put down the numbers in the same way that I made the Cycle of Four and see what I could do with it.

This was my cycle of four:

1	6	15	28	45
2	8	18	32	50
3	10	21	36	55
4	12	24	40	60

Using that as I guide I tried to made up something so that the numbers would come out as they do on the Square of Four.

So I put down these numbers:

1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	16	36	64	100

Then I filled in the blanks. Can you do it before looking below?

I needed to put in numbers in the second column so that when I was done I would have 16.

In the Cycle of Four I had used numbers with a difference of 2 so here I used the difference of 3.

1	7	0	0	0
2	10	0	0	0
3	13	0	0	0
4	16	0	0	0

And that came out right.

Can you guess what difference I would need in the next column?

With some experimentation I found that the next column would work if I used a difference of 5.

1	7	21	0	0

2	10	26	0	0
3	13	31	0	0
4	16	36	0	0

And then it was easy for me to see what was going on!

Do you see it now? Can you supply the difference in numbers for the next column? If you said 7 you are right!

1	7	21	43	0
2	10	26	50	0
3	13	31	57	0
4	16	36	64	0

And of course the next column would have a difference of 9.

1	7	21	43	73
2	10	26	50	82
3	13	31	57	91
4	16	36	64	100

The 360 degree line on the Square of Four chart are made up of the even squares. But they are also made up of something else. They are 4 times the squares in order!

Let's look at that:

4x1 = 4
4x4 = 16
4x9 =36
4x16=64

And then it dawned on me. Maybe you have already figured it out.

Why is the 360 degree line of the Cycle of Four made up of numbers which are 4 times the triangular numbers in order and why is the 360 degree line of the Square of Four chart made up of numbers that are 4 times the natural squares in order?

Let's look again at the way we constructed both the Cycle of Four and the Square of Four. This time I will place over the top the numbers that were added to each column.

1	2	3	4	5
1	6	15	28	45
2	8	18	32	50
3	10	21	36	55
4	12	24	40	60

1	3	5	7	9

1	7	21	43	73
2	10	26	50	82
3	13	31	57	91
4	16	36	64	100

Look at the numbers over each column that I have put in blue.

These are the "differences" in the numbers in each column. These are the numbers which are to be added in each column to provide the answers in each column.

PATTERN?

Yes! In book VI, "The Triangular Numbers" I explained how triangular numbers are made by simply adding the natural numbers in order.

And the natural numbers in order are 1, 2, 3, 4, etc.

Looking across the numbers in blue above the Cycle of 4 we can see that they are 1, 2, 3, 4, etc. So the answers we get on the 360 degree line are 4 times the triangular numbers in order.

In book IV, "On the Square" I told how the natural squares are made from the natural numbers in order which are two units apart, 1, 3, 5, 7, also known as the odd numbers in order.

Looking across the numbers in quotes above the Square of Four we can see that they are 1, 3, 5, 7, etc.

So the answers we get on the 360 degree line of the Square of Four are 4 times the squares in order!

Now to go back to the original question about the construction of the Square of Nine, the Hexagon chart and the Square of Four.

Even though the Square of Four seems to be constructed the same as the Square of Nine since the numbers are the same, but run in different directions and since the difference in numbers on the angles are the difference of 8, it is not constructed the same.

The Square of Nine or more appropriately called here the Cycle of Eight is based on the triangular numbers, the Square of Four is based on the squares.

So the Cycle of Eight (the Square of Nine) and the Hexagon chart are constructed alike and the Square of Four is the "oddball" of the three.

Chapter 7--Square of 6? Square of 8?

You might ask, could a Cycle of Six or a Cycle of Eight 8 be

constructed in the same manner as the Square of Four, that is would the 360 degree line be 6 times the natural squares in order or 8 times the natural squares in order?

The answer is yes!

You have seen how the Hexagon was built:

1	2	3
1	8	21
2	10	24
3	12	27
4	14	30
5	16	33
6	18	36

We could go on out but that is far enough for the illustration.

And the numbers along the bottom, the 360 degree line, are made by multiplying the triangular numbers 1, 3, 6, etc. by 6.

Now let's make the difference in the columns the numbers that make up the squares:

1	3	5
1	9	29
2	12	34
3	15	39
4	18	44
5	21	49
6	24	54

Again we could carry this on out but we have enough for the illustration.

We can see along the bottom row, our 360 degree line, that the numbers are made up by multiplying 6 times the natural squares in order 6x1=6, 6x4=24, 6x9=54, etc. Since the Square of Four based on 4 times the natural squares in order is called the Square of Four, this then could be called the "Square of Six".

The same thing could be done with the number 8. I will let you do that on your own as an exercise.

In Book VI-"The Triangular Numbers" I showed how various figures could be made by addition of numbers.

I showed how to make triangular numbers, squares and other figures. The next figure after the square is the pentagon. Pentagon numbers are made by adding numbers that are three units in difference starting with one. So the numbers that are used to make the pentagon are 1, 4, 7, 10, etc.

So your next question might be: Can we make a cycle using these numbers? The answer is yes. We can take the number 6 again for illustration.
Over the top we will put the numbers that are used to make the pentagons.

1	4	7
1	10	37
2	14	44
3	18	51
4	22	58
5	26	65
6	30	72

Again the 360 degree line runs along the bottom. Lets look at the last number there. It is 72.

We can see that the third term of a pentagon is 12 (1+4+7).

And 6x12 is 72. So it works.

If we started adding numbers (from 1) which are 3 units apart, 1, 4, 7, 10, 13, etc. stopping at any point we wanted to and multiplied our answer by 6 we would get a number which would be on the 360 degree line from 6.

We could call this the "Pentagon of Six."

This can be done with any of our other numbers, 4, 8, 10, 12, 14, etc. Or for that matter, we could use the odd numbers and have a "Pentagon of Three," a "Pentagon of Five," etc.

And we can see why it works. As I told you earlier, making the Cycle of Six starting with 6 and adding 12 and then 18, etc. is the same as saying:

1x6+2x6+3x6+4x6=60 or 1+2+3+4=10 and 10x6 is 60 like on the Hexagon.

If we wanted to do squares we could say:

1x6+3x6+5x6+7x6+9x6=150 or 1+3+5+7+9=25 and 25x6=150.

If we wanted to do it using the pentagon numbers we could say:

1x6+4x6+7x6+10x6=132 or 1+4+7+10=22 and 22x6=132.

And cycles could be made of numbers that at 4 units apart, 5 units apart, etc.

Chapter 8--The "Square" of 12

Earlier I mentioned a regular square, the square of 12 and its construction. In the chapter heading I put the "Square" of 12 to bring attention to it since it is not like the Square of Four, that is, its construction is not like that of the Square of Four.

How is it different from the others? We could say the same of any other "regular" square. How is it different from the others. Lets put down a "regular" square of six.

By regular square I mean those squares that a person would make normally if asked to make a square of numbers. That is, it's construction would "not" be like Gann's Square of Four.

So let's put down a "regular" square of six.

1	7	13	19	25	31
2	8	14	20	26	32
3	9	15	21	27	33
4	10	16	22	28	34
5	11	17	23	29	35
6	12	18	24	30	36

We can see that the 360 degree line is simply the multiples of 6.

If we put over the top of this the difference in the numbers that are used to make each column we have this:

1	1	1	1	1	1
1	7	13	19	25	31
2	8	14	20	26	32
3	9	15	21	27	33
4	10	16	22	28	34
5	11	17	23	29	35
6	12	18	24	30	36

So what is the problem here? The problem is that in making the other cycles we used the polygons: triangles (3-sided figures), squares (4-sided figures) and pentagons (5-sided) figures from a book by a very ancient writer.

In that book there was no "two-sided" figure which would be made starting with 1 and adding O's to give us the next 1. This bothered me for awhile.

(And it would have to be a two-sided figure if you think about it since the triangular numbers are made from numbers which are 1-unit apart and squares from numbers 2-units apart. A polygon made from numbers that are 0 units apart would have to be a two-sided figure.

I explained in Book VI-"The Triangular Numbers" that the difference in the numbers used to make a polygon is 2 less than the sides of the figure. The square, a four sided figure, is made from numbers that are 2 units apart and 2 is two less than the four sides.

A triangular number is made from numbers that are 1 unit apart and 1 is 2 less than the three sides. If we make a figure from numbers that have a difference of 0, then 0 is 2 less than a two-sided figure.)

As I said before the ancient writer that came up with all this did not show a two-sided figure and that bothered me for awhile.

But never fear! I stumbled on the answer as we will see later on.

But first, let's move on to the magic squares and see if we can find Gann's Magic Square.

Chapter 9--Finding the Magic Squares

My first encounter with Magic Squares was in a 1965 edition of the Encyclopedia Britannica (I have read about 1/3 of that edition). You will probably find Magic Squares in more modern versions of the encyclopedia, but they might be listed under games or something like that.

I don't know if all encyclopedias have articles on Magic Squares, but you may want to check out the subject at your library.

The definition of a magic square as given in the encyclopedia is "an arrangement of numbers in the form of a square so that every column, every row, and each of the two diagonals add up alike, this sum being called the constant. These squares are of very great antiquity and appear to have been known from very ancient times in China and India."

So let's look at a simple square, the square of 3.

1	4	7
2	5	8
3	6	9

As you can see the rows and columns don't add to the same amount. Yes the diagonals do add to the same, but the rows and columns don't.

So, let's rearrange the numbers:

8	1	6

3	5	7
4	9	2

Now you can see that each row, column and diagonal add to 15.
And that is a magic square.

Let's do an even square, the square of 4:

1	5	9	13
2	6	10	14
3	7	11	15
4	8	12	16

Again the diagonals add to the same. But the rows and columns don't.

So let's rearrange the numbers:

16	3	2	13
5	10	11	8
9	6	7	12
4	15	14	1

This particular arrangement of numbers can be seen in Albrecht Durer's "Melancholy" and the numbers in the middle lower cells 15 and 14 is the date of the painting 1514. It is not known whether this was intentional or just coincidence.

This painting can be seen in some encyclopedias and other places. It is full of geometrical, astronomical and mathematical figures. Numerous people have tried to figure out the meaning of the painting, but never have. You might want to give it a look.

There are a number of ways to make magic squares and I will not go into that here. If you are interested in their construction you should look at the encyclopedia.

Suffice it to say that they are made according to "orders."

Cornelius Agrippa (1486-1535) constructed squares of the orders 3, 4, 5, 6, 7, 8 and 9, which were associated with the seven astrological planets, Saturn, Jupiter, Mars, the Sun, Venus, Mercury and the Moon.

I have not read his work, but would like to get hold of a copy of it if any reader of this work knows anything about it.

What caught my eye was that the arrangements of the planets as given above is the same arrangement shown by Karl Anderson in his "Astrology of the Old Testament," for the construction of the planetary hours. That is, assigning each hour of the day to a planet.

Also catching my eye was the fact that the order of six was

associated with the Sun and the order of nine was associated with the Moon. In Anderson's book he associated the number six with the Sun and the number nine with the Moon. I spoke about this in my Book X-- "Cubes and the Hexagon."

Let's move on.

Using any magic square, can you guess what the numbers will add to in any row, column are diagonal?

Look back at the square of 3 (3x3). You can see that the sum in any row, column or diagonal is 15.

If you had a square of 7 (7x7) what would be the sum of any given row, column or diagonal?

In the article I read in the encyclopedia on magic squares it did not say, but I figured it out for myself. And I figured it from something I already knew and by now you probably know it to.

Let's look at that square of 3 again.

8	1	6
3	5	7
4	9	2

We can see that each row, column and diagonal sum to 15. Does that give you a clue?

Since there are 3 rows totaling 15 each then the sum of all the rows must be 45. Since each column totals 15 and there are 3 columns then the sum of all the columns must be 45.

So the total of the whole square is 45. Sound familiar?

Yes! If we add 1 through 9 we get 45 and 45 is the triangle of 9! And since there are 3 numbers in each row, column, etc. we divide 45 by 3 and can see that each row, column, etc. is 15.

So, back to the question, in the magic square of 7, what would be the sum of a row, column or diagonal?

Yes, it would be the triangle of 49 (7X7) divided by 7 since there are 7 columns and 7 rows. Adding 1 through 49 we get 1225. Dividing by 7 we get 175. So each row, etc. of 7 numbers will add to 175.

The construction of the squares is not all that important here. I am doing this just to give you the idea of what magic squares are all about. Numbers are arranged in such a way that they form a PATTERN.

Now, let's move on in our search for Gann's magic square. As I mentioned above I have read about 1/3 of the 1965 edition of the

Encyclopedia Britannica.

The reason I read the 1965 version was the fact that it was the only version that the library had when I began searching through it on anything about numbers, Masonry, astrology, astronomy and any other subject I thought might help me in my Gann studies.

I also read several of the Time-Life books in the series "Mysteries of the Unknown" on Masonry, astrology, etc.

There were also regular math books, geometry books and about 1200 pages of Josephus.

I also read a couple of Masonic books. (No, those books are not found in the local library.)

Why was I looking at this stuff?

I was looking for anything that might give me a clue to Gann's work which seems to be written under "veils." I hoped somewhere along the line that I might find some reference to his circular charts, his Square of Nine, his Square of 4, the Hexagon Chart, the square of 12 chart, anything that might give me a clue to his work.

Several years ago I had read in some of the commodity magazines that Gann had brought the Square of Nine chart or the Square of Four chart from overseas. Some claimed he brought it from Mesopotamia, some from Egypt, some from India. etc.

He was supposed to have brought it to this country sometime in the 1930's.

But there was no reason for him to have done that. One of his charts was already in this country as early as 1912!

I had pretty much given up on my search, which had been going on for about 10 years, when I happen to send off for a book on numbers.

There was quite a bit of interesting information on numbers in the book, which was copyrighted in 1922. And there on the last page was the information I had been looking for.

Here is a picture of a drawing in the back of that book.

11	12	13	14	15	16	17	18
10	8	9	10	11	12	13	19
9	7	5	6	7	8	14	20
8	6	4	2	3	9	15	21
7	5	3	1	4	10	16	22
6	4	2	1	12	11	17	23
5	3	2	1	20	19	18	24
4	3	2	1	28	27	26	25

Can you identify it?

Maybe you can't. A friend of mine, a friend whom I have spoken of before in these writings and who had been studying Gann long before I started, looked at the drawing and could not identify it either until I pointed out what it represented.

Have you got it yet?

It is Gann's Square of Four chart!

Like my friend you might have a little difficulty in making the connection with the Square of Four chart at first.

For one thing it's 360 degree line runs down the page instead of across. This is because the way the first four numbers are written down. For another, the numbers run in the opposite direction. Gann's Square of Four chart runs counter clockwise and this one runs clockwise.

Probably one of the main difficulties for you and my friend is the way the numbers end on the 360 degree line.

Let's check those 360 degree numbers starting with 4 just like we would on Gann's Square of Four chart. The numbers are:

4, 12, 20, 28

PATTERN?

Yes, they are 4x1, 4x3, 4x5, 4x7

Remember 1+3+5+7 is the way squares are made and 4 times those numbers is how the 360 degree line on the Square of Four are made.

Let's add those numbers from the 360 degree line above:

4
4+12=16
16+20=36
36+28=64

Now check your 360 degree line on the Square of Four chart. The first four numbers are 4, 16, 36, 64!

So this chart is Gann's Square of Four chart!

We can see what the original writer did. He started with 1 and counted until he got to the 360 degree line and came to 4. Unlike Gann, who continued counting 5, 6, 7, etc., he simply started over again with the number 1 and counted until he got to the 360 degree line again. And then he started with 1 again, etc.

So let's take his chart and instead of laying it out as he did

we will do it like Gann, but leave the numbers in the exact position as he has them:

47	48	49	50	51	52	53	54
46	24	25	26	27	28	29	55
45	23	9	10	11	12	30	56
44	22	8	2	3	13	31	57
43	21	7	1	4	14	32	58
42	20	6	5	16	15	33	59
41	19	18	17	36	35	34	60
40	39	38	37	64	63	62	61

Now let's turn it around so that his 360 degree line runs across the page instead of up and down.

40	41	42	53	44	45	46	47
39	19	20	21	22	23	24	48
38	18	6	7	8	9	25	49
37	17	5	1	2	10	26	50
64	36	16	4	3	11	27	51
63	35	15	14	13	12	28	52
62	34	33	32	31	30	29	53
61	60	59	58	57	56	55	54

Now we can see that the chart runs in just the same way as Gann's except it runs clockwise.

You should note that Gann could have done the same thing.

You will also notice the astrological symbols which run from 1 to 12 with the numbers 1 to 4 inside it. I would assume that the numbers 1 to 4 represent the seasons and the numbers 1 to 12 are the 12 signs of the zodiac or the 12 months in the year.

Now, why do I believe that this is a magic square?

Because the writer said so!

Chapter 10--The 1922 Book

Since this writer's description is only part of a much larger description I will make this a chapter to itself so you can refer back to it to see how much was left out of the original. The quotes here is exactly like they were in the book. All capitalization, punctuation, spellings, etc. has been left the way it was in the book:

"THE MAGI DISCOVERED THAT THE ARITHMETICAL NUMBERS EXPRESSED BY THE CHRONOLOGICAL RELATIONS

OF THE SUN AND MOON AND THE EARTH WERE IDENTICAL WITH THOSE WHICH SOLVED THE GEOMETRICAL PROBLEM OF THE SQUARING OF THE CIRCLE.

"Occupying themselves with both arithmetical numbers and geometrical proportions, they discovered that the precision of the latter was an infallible guide to the application of the former, and so built up the exact science of arithmetic, concerning the origin of which there have been so many fruitless speculations.

"A few minutes' study forces one to the realization that here is to be found the most remarkable Magic Square of antiquity, a conviction which hours of experiment only serve to heighten.

"Naturally, acquaintance of the Pythagorean system of arithmetical metaphyics fits the possessor for readier perceptions than are possible without it, but enough is readily apparent to show to even the casual observer the extraordinary character of the combination."

Chapter 11--The 1912 Book

The 1922 book led me to another book, written in 1912. What had been said in the 1922 book was just a brief sketch of the 1912 book.

So let's look at what he really said. Once again I will put it just like he had it, capitalization, punctuation, spelling, etc. The only change I made was to break up some of the long paragraphs into some shorter ones for easier reading. I will let you read one long passage from that work and then we will go back through it for some comments:

"THE MAGI DISCOVERED THAT THE ARITHMETICAL NUMBERS EXPRESSED BY THE CHRONOLOGICAL RELATIONS OF THE SUN AND MOON TO THE EARTH WERE IDENTICAL WITH THOSE WHICH SOLVED THE GEOMETRICAL PROBLEM OF THE SQUARING OF THE CIRCLE.

"Occupying themselves with both arithmetical numbers and geometrical proportions, they discovered that the precision of the latter was an infallible guide to the application of the former, and so built up the exact science of arithmetic, concerning the origin of which there have been so many fruitless speculations.

"For this purpose they employed from the very first the division of the square by the cross, finding two systems of progression, each with a definite value and purpose and blending at frequent intervals, one employing a single square as its unit or nucleus and building up around it on a progressive ratio of 1-9-25, etc., the other dividing a square by a cross into a group of four central compartments and building upon a consequent ratio of 4-16-36, etc. (See Forty Seventh Problem), counting not only upon the total sums procured by each additional encircling row of squares, but the number in each row

required to complete the circuit.

"It is from this latter scale that the three systems of notation which have reigned throughout the world, the Quaternary (2--4--8--16 etc.,) employed by the Semites and the Chinese, the Decimal and the Duodecimal (by dozens) are derived.

"While the digital system of "fives" agrees with the Decimal system, it will be clearly perceived as this is examined into, that it was by no means its origin.

"In addition to the wonderful properties of the foregoing system was discovered a similar notation, built up by sub-division of the Equilateral Triangle by other equilateral triangles.

"The smallest number of Equilateral Triangles into which any one could be divided being four, the progression was found to be precisely the same as that of a square, starting from a central group of four, inasmuch as by numbering the Equilateral Triangles from left to right the last figure of each row always expresses the "square " of the downward counting number of the row, while each total is the same as the total of a square figure of an equal number of divisions per side.

"This coincidence was in itself enough to place the Equilateral Triangle on a parity with the square as a source of "sacred" numbers, but the multiple Equilateral Triangle, was discovered to embody many extraordinary arithmetical properties of its own not the least important of which was the development in the up-pointing Equilateral Triangles of the first four rows, of the famous TETRAX appropriated by Pythagoras as the basis of his own philosophical system.

"By the time this point was reached, the Magi had achieved great dexterity in demonstrating the manifold yet always orderly and mathematically exact relations between the various geometrical figures of equilateral proportions and the circle, executing elaborate calculations by horizontal, perpendicular and diagonal intersections of given squares which exhibited the results in pictures as well as sums.

"The discovery of the Tetrax, the sum of the first four digits equalling the whole number--1+2+3+4=10, (Expressed by the four angles of the Cross), and the infinity of multiplications by nine reducible to nine (9x9=81 etc.,) encouraged experiments in similar operations with the sums of numbers, so that certain numbers obtained significance not only with reference to their own properties but as the sums of dissimilar numbers added together.

"As the sum of 1 to 4 was 10, so the sum of 1 to 7 was 28, the sum of 1 to 8, 36, and the sum of 1 to 16, 136, all figures which came to have great significance in the Magian system.

"These priests, prophets, astronomers and astrologers, gradually came to concern themselves with everything which could be accounted for through correspondence of form, number, or proportion and their

great power was derived from their ability to successfully demonstrate a relation of all which came under their range of observation to the heavenly bodies.

"That the mystical should dominate in their appreciations is no more than natural. We shall see that without any charge of superstition they had a right to be awe stricken at some of their discoveries and we shall before we have finished our examination, rather ask if we have not the same right to be held in wonderment ourselves.

"The most wonderful of all their achievements was their determination of the almost supernatural qualities attached to the number 64 (sixty-four) which set out according to their system in chequered squares, was undoubtedly the so-called "Mosaic pavement."

"This is stated by the Bible, (Exodus XXIV, 10) to have been revealed to Moses and the Seventy Elders upon Mount Sinai, where the congregation of Israel received God's direct command to employ it as a PATTERN for the plan of their Tabernacle and it also reaches us from the ancient Babylonians, Chinese and Egyptians, as the familiar "draught", or Chess-Board.

"The number 64 is the heart of the entire Magian system, because around it and its central "four" the Tetrax, revolves the whole numerical and geometrical system, to which the Magi sought to reduce the universe and the centre of that is THE CROSS.

"It is essential that we do not forget in the midst of these arithmetical speculations, that the units with which we are dealing, are for the most part expressed by numbered squares.

"The reason for the selection of sixty-four, as the Divine number by the Magi, resided in the ascertained fact that upon the reduction of their premises to the test of numbers, as expressed either geometrically, or arithmetically, sixty-four proved to be the determinating factor of each and every one.

"Here are a few of the considerations involved: The chief significance of the number 64 aside from that of it being the cube of four, resides in its being the sum of 36 and 28.

"These numbers, according to the Magi, expressed the Sun and the Moon, respectively because the, by them computed, Solar year was one of Three Hundred and Sixty days, or 10 times 36, while the more closely computed Lunar year was one of thirteen times Twenty-eight, or Three Hundred and Sixty-four.

"These details may be verified by consulting any encyclopedic article, or book upon the Calendar, ancient and modern. The discrepancy between the figures quoted and the true year amounts to five days, in one case and one in the other, but these lost days were utilized as feast days in Solar or Lunar honor and compensated for by intercalary years and the employment of cycles in the course of which all irregularities righted themselves.

"The real reason of this approximation, however, was to bring the annual revolution of the universe into accord with the Quadrature of the Circle.

A curious corroboration of this fact exists to this day in the ancient Jewish celebration of c'Hanukah, a festival which so closely coincides with Christmastide that there can be no doubt of its Solar inspiration.

"The rite involves the burning of a given number of candles during eight days, starting with one on the first day, two on the second and so on to the eighth day, when one additional candle called the Shammas candle (Babylonian Shamash, the Sun) is placed in front.

"The significance of this scheme is entirely numerical. It is the addition of the digits 1 to 8, which we have already alluded to, which produces the Solar number 36, that upon which the initiates of the Pythagorean Mysteries were sworn to secrecy.

"The completed figure is that of an equilateral triangle, of eight units to one side. The triangle again represents Adonai, or Tammuz, in his Solar aspect and the eight "squared" by the equilateral triangle is sixty-four. Thirty-six upward pointing and twenty-eight downward pointing smaller triangles.

"On the final day, the addition of the single candle gives the last row the value of nine, which is the diminutive of 36, leaving in the background the full Lunar number of 28. This custom, which is undoubtedly the origin of the lighted candles of the Christmas Tree, must extend back to the remotest antiquity.

"The dimunition of 36 and 28 to 9 and 7 is a matter of relative proportion as well as of number, the latter being the lowest factors in which the same proportions are preserved and the lesson sought to be inculcated is that nothing is too great to be brought within the ken of human intellect by such reduction.

"There are not only one but two squarings of the circle. One in which the perimeter, or length of line of a given circle is shown to be equal to that of a given square. The second is the production of a circle the contained area of which is equal to that contained in a given square.

"The slight difference between the two circles which respond to one and the same square is in favor of the former.

"To discover the significance of the relative values of 9 and 7 in this respect we must turn to the pyramid system of the ancient Egyptians, who by the base line, sides, and vertical axes of these monuments expressed geometrical relations.

"The great Pyramid of Gizeh in this manner expressed the first named problem, in its base of 5 and sides of 4, (5 plus 4 equals 9), while the other, if expressed in the same manner would call for base of 4 and sides of 3, (4 plus 3 equals 7.)

The vertical axis is in each case the radius of the correct circle while the base line of the pyramid is that of the square.

"The same proportions, differently expressed, are the basis of the wonderful Pythagorean problem of the square on the hypothenuse, which conceals almost the entire Magian system.

"The agreement of 7x9--63, also comes so close to the united number as to nearly complete a numerical circle, 4x7+4x9=7x9+1=64.

"On the "Chess-board" system of numeration, 4--12--20--28, we have 4+12+20 presenting the number 36, as a "square" of 6 (6^) surrounded by 28 smaller squares.

"Another row of 36, around, gives us a total of ONE HUNDRED, the "square" of 10 and origin of the decimal system. Further instances abound in other and widely varying demonstrations.

"It was certainly among the Magi that those interesting numerical puzzles known as "Magic Squares" had their rise. Ostensibly the idea was to so align arithmetical numbers, displaying within a certain number of squares, that added in every sense, they would produce the same sum.

"The idea of the "Magic Square" was not, however, as might be supposed, due to human ingenuity, but is attributable entirely to a natural property of numbers, beginning with the zero (0), rows of which, in sequence, and aligned so as to constitute horizontal and perpendicular series, invariably offer an identical addition in every sense, thus constituting the ILU figure arithmetically as well as geometrically.

"No more perfect example of this principle could be offered than the thirty-five squares of our familiar monthly calendar, which always bring the same figures into perpendicular alignment.

"This calendar designed to exhibit, numerically tabulated with relation to the month, four weeks of seven days, together with the three, or four, remaining to complete the mensual period is founded on a most curious Cabalistic "square", involving the elements of a table of multiplication, subtraction, division and addition, through the prime factor 7.

"The number of squares involved is only thirty-five, but a remarkable metaphysical hint is given in the upper left hand square of nine figures, when the month begins on a Monday.

"The sums of the cruciform additions are each 24, three of them 1--8--15, 7--8--9, 2--8--14, but the remaining fourth is 8--16, clearly indicating an unrecorded thirtysixth figure--a zero, the symbol of the "Non-being-Being", which sustains such an important role in the theosophy of the ancient world.

"Upon the 35 square the cipher "0" does not exist until the relation between the 8 and the 16 shows that a symbol for non-existence must be placed in advance of the figure "1", to complete the divine symbol.

"The "0" possesses the same significance with reference to the "X" of 8--0, 7--1, and the cross of 80 of which the 2 is the apex. Thus the position of the zero "0" is shown clearly to precede "1" instead of following "9" and to demonstrate metaphysically the existence of non-existence prior to the development of "1" the Pythagorean "Monad", or first manifestation of existence.

"The square thus symbolizes the "Non-being-Being", the Trinity, the Circle and Diameter. Beginning and End, 7+0=7, the Lunar number, 8+1=9, the Solar Number. 1--0, "Ten", the Tetrax, also symbolized by 1--2--3--4, 1--7=28 (Lunar), 1--8=36 (Solar) and 7+8+1+0=16, the "Tetragrammaton".

"This is the true Cabalistic interpretation of the beginning of the Divine labor of Creation on the first day of the week, followed by a cessation of labor and repose upon the recurring period of the lunar septenary, which is the inspiration of the whole arrangement.

"The amplification of the diagram to forty compartments, for the sake of demonstrating the Cabalistic relation of the numbers, one to another, in no way obscures its identification, as the internal measure of fleeting time.

"Its base of eight squares and vertical axis of five squares will at once show it to be another of the mysteries embodied in the Great Pyramid of Gizeh.

"A most curious example of the Magic Square, from which is said to have been derived the Jewish appellation of the eternal Elohim, is a combined Magic Square and anagram of the Hebrew form of the word ALHIM, having a numerical expression of 40, 10, 5, 3, 1, or 4, 1, 5, 3, 1.

"Arranged in a square of 5x5, it reads as here exhibited:

3	1	4	1	5
1	4	1	5	3
4	1	5	3	1
1	5	3	1	4
5	3	1	4	5

"It will be seen that the play is upon the numbers 3, 4 and 5, that the word ALHIM reads from the bottom to the top and left to right as a cross. The centre is a Sun-Cross adding 9 in either sense, in the midst of a 9 square of 28, while the top horizontal and left perpendicular lines are 3--1--4--1--5 (decimally 3.1415), which is the mathematical formula of the II proportions. The central Cross also supplies another circle squaring formula to the initiate.

"There are several other Magic Squares extant which are of self-evident Magian origin, but none transcending in vital interest that which, way back at the dawn of civilization was deemed worthy to serve as a plan of the Heavens and key to the Firmament.

THE CELESTIAL SQUARE

"That the discovery of the arithmetical qualities of this square antedated the usage to which it was put there is not the shadow of a doubt.

"The latter is altogether arbitrary. Scientists have puzzled their brains for ages as to why there were just twelve signs of the Zodiac, precursurs of the twelve gods of Olympus, the twelve tribes of Israel and the twelve Apostles, but so far as we can inform ourselves, no wonderment has ever been expressed that there should be four seasons instead of two, why the Mexicans should have adopted a Zodiac of twenty animal figures and why the Chinese should have taken an inner Zodiac of twelve figures and an outer of twenty-eight constellations (the Astrological "Houses of the Moon"), together with a cycle of twelve years.

"The application is world wide, from Pekin to Peru, westwardly, but the correspondence with the Magian cosmogonic square of Sixty-four (4--12--20--28) was too strong to escape attention and the temptation to seek to discover if it was more than accidental, pressing.

"Recent experiments with the Magic Squares offered the suggestion of consecutively numbering the squares of each row according to their Zodiacal sequence, commencing with the central "4" and giving the number "1" to the first of the Seasons, the Spring Equinoctial. Directly beneath this would come Aries, placing Taurus, the second sign of the western Zodiac in the proper corner.

"Commencing the following two rows immediately below in turn, in each case brought the Equinoctial and Solstitial signs into their proper corners:

E	S
N	W

with the following result:

11	12	13	14	15	16	17	18
10	8	9	10	11	12	13	19
9	7	5	6	7	8	14	20
8	6	4	2	3	9	15	21
7	5	3	1	4	10	16	22
6	4	2	1	12	11	17	23
5	3	2	1	20	19	18	24
4	3	2	1	28	27	26	25

"A few minutes' study forces one to the realization that here is to be found the most remarkable Magic Square of antiquity, a conviction which hours of experiment only serve to heighten.

"Naturally, acquaintance of the Pythagorean system of arithmetical metaphyics fits the possessor for readier perceptions than are possible without it, but enough is readily apparent to show to even the casual observer the extraordinary character of the combination."

(As you can see there was quite a lot left out of the first author's description of this material. Go back and see what he said and then look at all the material in between.)

In the next chapter we will go through this bit by bit and see what we can pick up from it.

Chapter 12--Looking at the Material

So let's look at the material bit by bit:

"THE MAGI DISCOVERED THAT THE ARITHMETICAL NUMBERS EXPRESSED BY THE CHRONOLOGICAL RELATIONS OF THE SUN AND MOON TO THE EARTH WERE IDENTICAL WITH THOSE WHICH SOLVED THE GEOMETRICAL PROBLEM OF THE SQUARING OF THE CIRCLE.

(Note: In the 1922 book this was misquoted. The 1922 book said "relations of the sun and moon and the earth" and you will notice here the quote is "relations of the sun and moon "to" the earth.")

(No, I have not yet solved what he means here by the relations of the sun and moon, etc. to the squaring of the circle. Gann talks about the squaring of the circle in several places.)

"For this purpose they employed from the very first the division of the square by the cross, finding two systems of progression, each with a definite value and purpose and blending at frequent intervals, one employing a single square as its unit or nucleus and building up around it on a progressive ratio of 1-9-25, etc., the other dividing a square by a cross into a group of four central compartments and building upon a consequent ratio of 4-16-36, etc. (See Forty Seventh Problem), counting not only upon the total sums procured by each additional encircling row of squares, but the number in each row required to complete the circuit.

"It is from this latter scale that the three systems of notation which have reigned throughout the world, the Quaternary (2--4--8--16 etc.,) employed by the Semites and the Chinese, the Decimal and the

Duodecimal (by dozens) are derived.

"While the digital system of "fives" agrees with the Decimal system, it will be clearly perceived as this is examined into, that it was by no means its origin.

(Here you can see that the author has described both the Square of Nine chart (one employing a single square as its unit or nucleus and building up around it on a progressive ratio of 1-9-25, etc.

(And the Square of Four Chart (the other dividing a square by a cross into a group of four central compartments and building upon a consequent ratio of 4-16-36, etc.

(And both of these were described in a publication copyrighted in 1912 in the United States some 30 years before Gann supposedly brought them from Mesopotamia, India, etc.!

(I will not argue the fact that Gann did bring them from overseas. Maybe he did. But it was not necessary since they were already in this country and since both Gann and the author of this material were Masons I would imagine that Gann knew about his work.)

Let's continue with some more quotes from the author's work:

"In addition to the wonderful properties of the foregoing system was discovered a similar notation, built up by sub-division of the Equilateral Triangle by other equilateral triangles.

"The smallest number of Equilateral Triangles into which any one could be divided being four, the progression was found to be precisely the same as that of a square, starting from a central group of four, inasmuch as by numbering the Equilateral Triangles from left to right the last figure of each row always expresses the "square " of the downward counting number of the row, while each total is the same as the total of a square figure of an equal number of divisions per side.

(Since there is one triangle on the top and three under that and five under that, etc. we now know that if we number them left to right then in the right hand side we will always have a square number, 1, 4, 9, etc.)

"This coincidence was in itself enough to place the Equilateral Triangle on a parity with the square as a source of "sacred" numbers, but the multiple Equilateral Triangle, was discovered to embody many extraordinary arithmetical properties of its own not the least important of which was the development in the up-pointing Equilateral Triangles of the first four rows, of the famous TETRAX appropriated by Pythagoras as the basis of his own philosophical system.

(Here he is talking about the triangles stacked on top of each other, 1 on 2 and 2 on 3, much in the same way I described the stacking of cans in a store display to form a triangle in my Book VI- "The Triangular Numbers.")

"By the time this point was reached, the Magi had achieved great dexterity in demonstrating the manifold yet always orderly and mathematically exact relations between the various geometrical figures of equilateral proportions and the circle, executing elaborate calculations by horizontal, perpendicular and diagonal intersections of given squares which exhibited the results in pictures as well as sums.

"The discovery of the Tetrax, the sum of the first four digits equalling the whole number--1+2+3+4=10, (Expressed by the four angles of the Cross), and the infinity of multiplications by nine reducible to nine (9x9=81 etc.,) encouraged experiments in similar operations with the sums of numbers, so that certain numbers obtained significance not only with reference to their own properties but as the sums of dissimilar numbers added together.

(The Tetrax, or Tetractes as it is sometimes spelled, is that series of 10 dots by Pythagorus which are placed in the form of a triangle, one dot on top, two under that, etc. which can be shown with triangles or even cans in a store!)

"As the sum of 1 to 4 was 10, so the sum of 1 to 7 was 28, the sum of 1 to 8, 36, and the sum of 1 to 16, 136, all figures which came to have great significance in the Magian system.

(And here we see that without really saying it he is telling us that these are triangular numbers.)

"These priests, prophets, astronomers and astrologers, gradually came to concern themselves with everything which could be accounted for through correspondence of form, number, or proportion and their great power was derived from their ability to successfully demonstrate a relation of all which came under their range of observation to the heavenly bodies.

"That the mystical should dominate in their appreciations is no more than natural. We shall see that without any charge of superstition they had a right to be awe stricken at some of their discoveries and we shall before we have finished our examination, rather ask if we have not the same right to be held in wonderment ourselves.

"The most wonderful of all their achievements was their determination of the almost supernatural qualities attached to the number 64 (sixty-four) which set out according to their system in chequered squares, was undoubtedly the so-called "Mosaic pavement."

"This is stated by the Bible, (Exodus XXIV, 10) to have been revealed to Moses and the Seventy Elders upon Mount Sinai, where the congregation of Israel received God's direct command to employ it as a PATTERN for the plan of their Tabernacle and it also reaches us from the ancient Babylonians, Chinese and Egyptians, as the familiar "draught", or Chess-Board.

(Exodus XXIV, 10 says "And they saw the God of Israel: and there was under his feet as it were a paved work of a sapphire stone, and as it were the body of heaven in his clearness." How this is seen as a chess board, I don't know. I also don't know how it was used as a plan for the tabernacle. It requires some more study.)

"The number 64 is the heart of the entire Magian system, because around it and its central "four" the Tetrax, revolves the whole numerical and geometrical system, to which the Magi sought to reduce the universe and the centre of that is THE CROSS.

"It is essential that we do not forget in the midst of these arithmetical speculations, that the units with which we are dealing, are for the most part expressed by numbered squares.

"The reason for the selection of sixty-four, as the Divine number by the Magi, resided in the ascertained fact that upon the reduction of their premises to the test of numbers, as expressed either geometrically, or arithmetically, sixty-four proved to be the determinating factor of each and every one.

"Here are a few of the considerations involved: The chief significance of the number 64 aside from that of it being the cube of four, resides in its being the sum of 36 and 28.

(And by now you have probably figured out that 28 is the triangle of 7 and 36 is the triangle of 8 and when you add any two successive triangular numbers as explained in my Book VI-"The Triangular Numbers" you get a square. In this case the square is 64, the square of 8).

"These numbers, according to the Magi, expressed the Sun and the Moon, respectively because the, by them computed, Solar year was one of Three Hundred and Sixty days, or 10 times 36, while the more closely computed Lunar year was one of thirteen times Twenty-eight, or Three Hundred and Sixty-four.

"These details may be verified by consulting any encyclopedic article, or book upon the Calendar, ancient and modern. The discrepancy between the figures quoted and the true year amounts to five days, in one case and one in the other, but these lost days were utilized as feast days in Solar or Lunar honor and compensated for by intercalary years and the employment of cycles in the course of which all irregularities righted themselves.

"The real reason of this approximation, however, was to bring the annual revolution of the universe into accord with the Quadrature of the Circle.

"A curious corroboration of this fact exists to this day in the ancient Jewish celebration of c'Hanukah, a festival which so closely coincides with Christmastide that there can be no doubt of its Solar inspiration.

"The rite involves the burning of a given number of candles

during eight days, starting with one on the first day, two on the second and so on to the eighth day, when one additional candle called the Shammas candle (Babylonian Shamash, the Sun) is placed in front.

"The significance of this scheme is entirely numerical. It is the addition of the digits 1 to 8, which we have already alluded to, which produces the Solar number 36, that upon which the initiates of the Pythagorean Mysteries were sworn to secrecy.

"The completed figure is that of an equilateral triangle, of eight units to one side. The triangle again represents Adonai, or Tammuz, in his Solar aspect and the eight "squared" by the equilateral triangle is sixty-four. Thirty-six upward pointing and twenty-eight downward pointing smaller triangles.

"On the final day, the addition of the single candle gives the last row the value of nine, which is the diminutive of 36, leaving in the background the full Lunar number of 28. This custom, which is undoubtedly the origin of the lighted candles of the Christmas Tree, must extend back to the remotest antiquity.

"The dimunition of 36 and 28 to 9 and 7 is a matter of relative proportion as well as of number, the latter being the lowest factors in which the same proportions are preserved and the lesson sought to be inculcated is that nothing is too great to be brought within the ken of human intellect by such reduction.

(What he has done here is reduce the 36 to 9 and the 28 to 7 by dividing each by 4. The same ratio is retained.)

"There are not only one but two squarings of the circle. One in which the perimeter, or length of line of a given circle is shown to be equal to that of a given square. The second is the production of a circle the contained area of which is equal to that contained in a given square.

"The slight difference between the two circles which respond to one and the same square is in favor of the former.

"To discover the significance of the relative values of 9 and 7 in this respect we must turn to the pyramid system of the ancient Egyptians, who by the base line, sides, and vertical axes of these monuments expressed geometrical relations.

"The great Pyramid of Gizeh in this manner expressed the first named problem, in its base of 5 and sides of 4, (5 plus 4 equals 9), while the other, if expressed in the same manner would call for base of 4 and sides of 3, (4 plus 3 equals 7.)

"The vertical axis is in each case the radius of the correct circle while the base line of the pyramid is that of the square.

(Let' look at what he means here. He shows pictures of two pyramids. One is labeled the sun, the other is labeled the moon. The one labeled the sun has a base of 5 and a side of 4 and he probably

labels this the sun as 5 plus 4 is 9 and we saw how he reduced 36 (the number of the sun) to 9.

(First we will use his figures to get the "height" of the pyramid. This is what he calls the vertical axis. Then we will use that "height" as the radius of a circle.

(The hypotenuse is 4. So now we must find the two sides of a right triangle so that when the sides are squared and added together they equal the square on the hypotenuse which is 16.

(We only have the other number, the base, which is 5, so let's go inside the pyramid and find the distance from the center to an outside corner. If the base of the square is 5, then a diagonal going through the center equals 5 times the square root of 2. The square root of 2 is 1.4142135. And 5 times that is 7.0710627.

(So the diagonal of a square with a base of 5 is 7.0710627. But remember we are trying to find the distance from the center of the base out to one corner, so we divide 7.0710627 by 2 and get 3.5355313.

(Now we have the hypotenuse (the side of the pyramid) which is 4 and we have one of the legs of our right triangle which is 3.5355313.

(We now want to find the height of the pyramid which is a line drawn from the center (or half point of that diagonal we just found up to the apex where it joins the hypotenuse. We can do that by squaring the hypotenuse and squaring the one leg of the right triangle we have found and subtract them and take the square root.

(4 squared is 16. 3.5355313 squared is 12.499981. And 16 minus 12.499981 is 3.500019. And taking the square root of 3.500019 we get 1.8708337. And 1.8708337 is the height of the pyramid.

(Now let's do the other one where we have a base of 4 and a side of 3. Added together they make 7 which is 28 divided by 4 as we saw earlier.

(Again we need to find the height of the pyramid. Since the base is 4, then the diagonal of the square is 4 times the square root of 2 or 5.656854 and half of that is 2.828427, which is the measurement from the center of the pyramid out to one corner and forms one of the legs of a right angle triangle whose hypotenuse is 3.

(Now we will square that leg and get 7.9999992. Then we square the hypotenuse and get 9. Subtracting 7.9999992 from 9 we get 1.0000008. Taking the square root of 1.0000008 we get 1.0000003 which is the height of the pyramid.

(So now let's use each of those heights to find the answers to each of the problems of the squaring of the circle. The first height, 1.87, is to be used to find the circumference of a circle which would equal the perimeter of a square which has a side of 5. Therefore we are looking for a circumference which will equal 4x5

(four sides, each side is 5) or 20.

(The formula for finding the circumference is 2xradiusxPI. So 2x1.87x3.14159=11.74. Whoops. Something is wrong here. That is not even close to 20.

(So, let's do the one for the area. With a side of 5 the area of the square is 25. So we are looking for a circle that has an area of 25. The height for this problem was 1. The formula for finding the area of a circle is radius times radius times PI. So 1x1x3.14159=3.14159. Whoops again! That is no where near 25.

(So what is going on here? The problem is we took him at his word that this was based on proportions of a pyramid and to find the answers we had to go inside the pyramid and figure the height as being from the center of the pyramid up to the apex.

(But let's look at it from a different way. Let's just look at the two figures not as a three-demensional geometric figures, but as two-demensional ones. That is, let's look at them simply as triangles with two equal sides and a base.

(Let's do the first one again, the one where we are looking for the perimeter. It has sides of 4 and a base of 5. Let's find the height by drawing a line down from the apex which cuts the base in two which gives as a triangle with a hypotenuse of 4 and a base of 2.5.

(We square the hypotenuse (4x4) and get 16. We square the base (2.5x2.5) and get 6.25. We subtract our answers and get 9.75 and take the square root and get 3.1224989. That's our height. Now using our formula for circumference 2x3.1224989x3.14159=19.619 and that is awfully close to 20.

(Now, let's do the one for the area. The triangle has sides of 3 and a base of 4. Cutting the base in half we have 2. We square the 3 and get 9 and we square the 2 and get 4. We subtract our answer which is 5 and take the square root. Our answer is 2.236. So the height is the square root of 5.

(Our formula for finding the area is radius squared times PI. Since the radius is the square root of 5 when we square the square root of 5 we get 5, of course. Then multiplying 5 times 3.14159 we get 15.7 and we were looking for an area which would be 4x4 or 16. Again pretty close.

(So, if we don't do our math ourselves we can often be lead astray as we almost were in this case. Now on with his comments.)

"The same proportions, differently expressed, are the basis of the wonderful Pythagorean problem of the square on the hypothenuse, which conceals almost the entire Magian system.

"The agreement of 7x9--63, also comes so close to the united number as to nearly complete a numerical circle, 4x7+4x9=7x9+1=64.

(Don't know what he means by numerical circle here. 64 is the square of 8 and the cube of 4. He might mean that a cube is a numerical circle.)

"On the "Chess-board" system of numeration, 4--12--20--28, we have 4+12+20 presenting the number 36, as a "square" of 6 (6^) surrounded by 28 smaller squares.

"Another row of 36, around, gives us a total of ONE HUNDRED, the "square" of 10 and origin of the decimal system. Further instances abound in other and widely varying demonstrations.

"It was certainly among the Magi that those interesting numerical puzzles known as "Magic Squares" had their rise. Ostensibly the idea was to so align arithmetical numbers, displaying within a certain number of squares, that added in every sense, they would produce the same sum.

(Here he is referring to the making of magic squares as I mentioned earlier which were found in the encyclopedia.)

"The idea of the "Magic Square" was not, however, as might be supposed, due to human ingenuity, but is attributable entirely to a natural property of numbers, beginning with the zero (0), rows of which, in sequence, and aligned so as to constitute horizontal and perpendicular series, invariably offer an identical addition in every sense, thus constituting the ILU figure arithmetically as well as geometrically.

(I have no idea what he means here by an "ILU figure.")

"No more perfect example of this principle could be offered than the thirty-five squares of our familiar monthly calendar, which always bring the same figures into perpendicular alignment.

"This calendar designed to exhibit, numerically tabulated with relation to the month, four weeks of seven days, together with the three, or four, remaining to complete the mensual period is founded on a most curious Cabalistic "square", involving the elements of a table of multiplication, subtraction, division and addition, through the prime factor 7.

(Here he shows a "calendar" containing a rectangle of 7 across and 5 down.)

0	1	2	3	4	5	6	7
7	8	9	10	11	12	13	14
14	15	16	17	18	19	20	21
21	22	23	24	25	26	27	28
28	29	30	31	32	33	34	35

"The number of squares involved is only thirty-five, but a remarkable metaphysical hint is given in the upper left hand square of nine figures, when the month begins on a Monday.

(For a month that begins on a Monday, you can use January, 1996.)

(Here he has an 8 by 5 with the first column shaded. He says this is "The ancient Septenary Calendar Tablet we still use. The outlined figures at the left show the manner of its perpetuation by continually setting to the left the right perpendicular row.")

(Then he presents the nine numbers in the top right hand corner of the calendar. If you are looking at the January 1996 calendar there will be a space at the beginning which represents where Dec. 31, 1995 had been. Here he places a zero in that spot.)

0	1	2
7	8	9
14	15	16

"The sums of the cruciform additions are each 24, three of them 1--8--15, 7--8--9, 2--8--14, but the remaining fourth is 8--16, clearly indicating an unrecorded thirtysixth figure--a zero, the symbol of the "Non-being-Being", which sustains such an important role in the theosophy of the ancient world.

"Upon the 35 square the cipher "0" does not exist until the relation between the 8 and the 16 shows that a symbol for non-existence must be placed in advance of the figure "1", to complete the divine symbol.

"The "0" possesses the same significance with reference to the "X" of 8--0, 7--1, and the cross of 80 of which the 2 is the apex. Thus the position of the zero "0" is shown clearly to precede "1" instead of following "9" and to demonstrate metaphysically the existence of non-existence prior to the development of "1" the Pythagorean "Monad", or first manifestation of existence.

(The cross of 80 is made by adding the numbers down from 2 to 30 and adding the numbers across from 14 through 18.)

"The square thus symbolizes the "Non-being-Being", the Trinity, the Circle and Diameter. Beginning and End, 7+0=7, the Lunar number, 8+1=9, the Solar Number. 1--0, "Ten", the Tetrax, also symbolized by 1--2--3--4, 1--7=28 (Lunar), 1--8=36 (Solar) and 7+8+1+0=16, the "Tetragrammaton".

(Why he says that 16 is the "Tetragrammaton" I don't know. The "Tetragrammaton" was the four letter name used by the Hebrews for God. The letters were YHWH, which became Yahweh, which we now pronounce as Jehovah. Check your encyclopedia.)

"This is the true Cabalistic interpretation of the beginning of the Divine labor of Creation on the first day of the week, followed by a cessation of labor and repose upon the recurring period of the lunar septenary, which is the inspiration of the whole arrangement.

(Here he uses the word Cabalistic, meaning it comes from the Cabala, also spelled Kabbala and Quabbala. The Kabbala is mentioned many times in the Masonic book "Morals and Dogma.")

"The amplification of the diagram to forty compartments, for the sake of demonstrating the Cabalistic relation of the numbers, one to another, in no way obscures its identification, as the internal measure of fleeting time.

"Its base of eight squares and vertical axis of five squares will at once show it to be another of the mysteries embodied in the Great Pyramid of Gizeh.

(What he is saying here is that if you use 5 as the radius of a circle its circumference or perimeter will be equal to the perimeter of a square which has a side of 8. If the radius of the circle is 5 then the diameter is 10 and 10 times PI is 31.4l59, which is close to 32, the perimeter of a square which has a side of 8. That's close, but actually the ratio of the Great Pyramid of its height to its base is not 5 to 8.

(Actually it is 7 to 11. The height of the Great Pyramid is 5813 inches. Using this as the radius of a circle we find that the circumference is 36524.125. Converting an inch to a day that works out to 100 years! The side of the base of the pyramid is 9131.0312, which is one-quarter of 36524.125, its perimeter. Doing some arithmetic, you will find that those figures can be reduced to 7 for the height and 11 for the side of the base.

(The Egyptians had no knowledge of PI. PI is somewhere between 21/7 and 22/7. They used 22/7. So if we use the 7 for the radius of the circle, then its circumference is 44. And we can see that if we have a side of a base at 11, its perimeter is also 44.

(Somewhere in my books I noted that 44 was more than just a low on soybeans in 1932. I said it was also a pyramid number. Now you know!)

(But let's move on to our discussion of the material at hand.)

"A most curious example of the Magic Square, from which is said to have been derived the Jewish appellation of the eternal Elohim, is a combined Magic Square and anagram of the Hebrew form of the word ALHIM, having a numerical expression of 40, 10, 5, 3, 1, or 4, 1, 5, 3, 1.

(The 40, 10, 5, 3, 1, he gets by taking the Hebrew letters for ALHIM and converting them to a numerical value and then reduces all to single digits. I discussed reducing all numbers to single digits in my Book VIII-"The Single Digit Numbering System."

"Arranged in a square of 5x5, it reads as here exhibited:

3	1	4	1	5
1	4	1	5	3
4	1	5	3	1
1	5	3	1	4
5	3	1	4	1

"It will be seen that the play is upon the numbers 3, 4 and 5, that the word ALHIM reads from the bottom to the top and left to right as a cross:

	1	
1	5	3
	3	

"The centre is a Sun-Cross (above) adding 9 in either sense: in the midst of a 9 square of 28, while the top horizontal and left perpendicular lines are 3--1--4--1--5 (decimally 3.1415), which is the mathematical formula of the Pi proportions:

3	1	4	1	5
1	0	0	0	0
4	0	0	0	0
1	0	0	0	0
5	0	0	0	0

(I put in zeroes to fill the other squares for illustration.)

"The central Cross also supplies another circle squaring formula to the initiate.

(Looking at the central cross we can see that we get 8 if we add the numbers in the outside squares and that leaves 5 in the center square. So here again he is probably saying if we used 5 as the radius of a circle its circumference would be 31.4159 and 8 would be the side of a square which would have a perimeter of 32. This is the only thing I can see which he might mean here. Maybe you can see something else in it.)

"There are several other Magic Squares extant which are of self-evident Magian origin, but none transcending in vital interest that which, way back at the dawn of civilization was deemed worthy to serve as a plan of the Heavens and key to the Firmament.

THE CELESTIAL SQUARE

"That the discovery of the arithmetical qualities of this square antedated the usage to which it was put there is not the shadow of a

doubt.

"The latter is altogether arbitrary. Scientists have puzzled their brains for ages as to why there were just twelve signs of the Zodiac, precursurs of the twelve gods of Olympus, the twelve tribes of Israel and the twelve Apostles, but so far as we can inform ourselves, no wonderment has ever been expressed that there should be four seasons instead of two, why the Mexicans should have adopted a Zodiac of twenty animal figures and why the Chinese should have taken an inner Zodiac of twelve figures and an outer of twenty-eight constellations (the Astrological "Houses of the Moon"), together with a cycle of twelve years.

(I don't know what he is referring to by "the latter." Maybe he has left something out here. But you should note that 12 is a double triangle, 20 is a double triangle and 28 is a triangle.)

"The application is world wide, from Pekin to Peru, westwardly, but the correspondence with the Magian cosmogonic square of Sixty-four (4--12--20--28) was too strong to escape attention and the temptation to seek to discover if it was more than accidental, pressing.

"Recent experiments with the Magic Squares offered the suggestion of consecutively numbering the squares of each row according to their Zodiacal sequence, commencing with the central "4" and giving the number "1" to the first of the Seasons, the Spring Equinoctial. Directly beneath this would come Aries, placing Taurus, the second sign of the western Zodiac in the proper corner.

(When he says "recent experiments" you must remember this was written or copyrighted in 1912. So when these experiments were made is anybody's guess.)

"Commencing the following two rows immediately below in turn, in each case brought the Equinoctial and Solstitial signs into their proper corners:

E	S
N	W

with the following result:

11	12	13	14	15	16	17	18
10	8	9	10	11	12	13	19
9	7	5	6	7	8	14	20
8	6	4	2	3	9	15	21
7	5	3	1	4	10	16	22
6	4	2	1	12	11	17	23
5	3	2	1	20	19	18	24
4	3	2	1	28	27	26	25

"A few minutes' study forces one to the realization that here is

to be found the most remarkable Magic Square of antiquity, a conviction which hours of experiment only serve to heighten.

"Naturally, acquaintance of the Pythagorean system of arithmetical metaphyics fits the possessor for readier perceptions than are possible without it, but enough is readily apparent to show to even the casual observer the extraordinary character of the combination."

Chapter 13--More of the Celestial Square

We saw that much of what was in our last chapter was not in the quote in the 1922 book.

But there was more. Much more!

Showing a drawing of the Celestial Square, the magic square, what we now know to be Gann's Square of Four, he continues, and once again I will set it down verbatim and come back in the next chapter to go through it bit by bit:

"The same results which are otherwise obtainable and demonstrable through geometrical figures are here also presented through arithmetical numbers, the whole scheme being evidently intended to exhibit the creative functions of the numbers "3" and "4", the powers of the Tetrax, (1-2-3-4) and the revelation of the cross.

"The first figure which obtains our attention is the cross instituted by the fourth and fifth vertical lines with the fourth and fifth horizontal lines. The sum of each is 136, but so divided that the fifth vertical column contains 36 and the fourth 100.

"The sums of the fourth and fifth horizontal columns are both 68, totalling 136 but the left arm of the cross adds 36 and the right arm 100, while the halves of the upright bar each add up 68.

"The central cross is the Solar 36 exhibited as 10+26=36, 18+18=36, alternating in the same manner while the diagonals in the inner square are 22+14=36; the whole giving the complete ILU figure of 36, every number or group of four numbers constituting the centre of a perfect numerical Cross.

"The supreme secret of the entire square of 64 numbers is, however, revealed by its owns diagonals, which are 11+8+5+2+4+11+18+25=84, and 18+13+8+3+1+2+3+4 equalling 52, a total of again 136 as added but as multiplied 84x52 equalling 4638, which will be found also upon computation to be the sum of 364, or one cycle of 12 Lunar years.

"The addition of the vertical columns supply sums which are remarkable factors to the ancient calendar year of 360 days (especially the number 29, the "synodical" period between full

moons), while the horizontal additions are in precisely reversed halves, 116-92-76-68-68-76-92-116, a sum total of 704, again a number of marvellous significance when explained.

"The 'as above, below' additions of dissimilar numbers, occupying relative places in the upper and lower halves of the square is also a source of perpetual curiosity.

"Finally, as far as the writer has been able to discover, the sixteen cardinal point numbers which are the diagonals of the whole square constitute in themselves a 'Magic Square', no less remarkable, being as follows:

"The sum total, of course, 52+84=136. The additions are vertically and horizontally identical, though reversed. 10-26-42-58.

"The sums of the nine sets of four contiguous squares are 26-74-10-26-34-50-18-18-50, numbers which inter-add, combine and re-combine in changes upon the grand total of 136 (itself 1 plus 3 plus 6 equals 10) in a manner which can hardly be conceived by anyone who has not made the experiments.

"The central and outer parallells are always 68, as is also the sum of the two diagonals.

"It will not pass unnoticed by those acquainted with the formula of the squaring of the circle for equal perimeters that the base of the square being equal to 8 and the radius of the circle equal to 5 identical measures that the 84-52 of the figure to which we have been giving attention, is within a minute fraction of the same proportions besides espressing the "ILU" figure to perfection.

"This method of procuring numerical crosses being continuable to infinity gave the ancients' conception of the starry universe, of which they took it as a type and we have every reason to believe that this plan (possibly extended to 12x12, or the 144 square) was the basis of Saint John's mystery of the Heavenly City of the Apocalypse.

"That it was one of the numerous mysteries embodied in the Pythagorean problem (47th of Euclid) and which must have been the very centre of the philosophical speculations of the Pythagorean school at Crotona is self demonstrable.

"The tablet here given is restricted to the proportions of 64, of 8x8, as within those confines are found the considerations most important to our present essay.

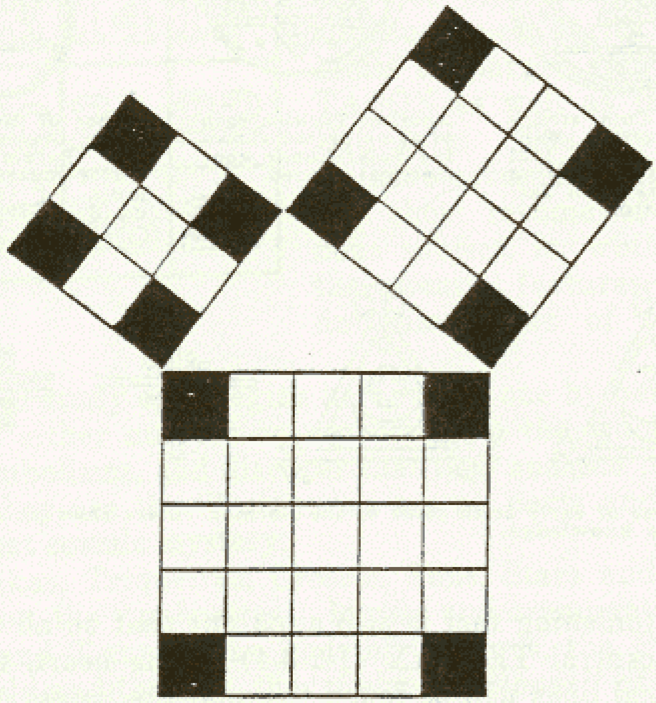
"As we have said, however, the system of which it is the centre is extensible to infinity with identical results.

"Every square, except those lying directly on the middle vertical line below the Zodiac, where highest and lowest figures meet, whether one, four, nine, sixteen, or other number bounded by four equal sides, is the centre of a numerical cross.

"The Pythagorean problem exhibits three such Crosses, which may be realized by merely omitting the corner squares. They may be utilized thus, as guides, in counting.

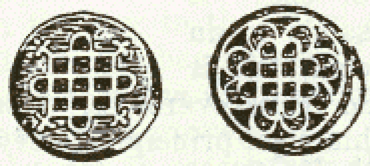
(Here he shows the 47th principle of Euclid with the corners of the squares of three, four and five cut out.)

Pythagorean problem exhibits three such Crosses, which may be realized by merely omitting the corner squares. They may be utilized thus, as guides, in counting.



The Clues to the Arithmetical Crosses of the Forty Seventh Problem.

Thick East Indian Native Copper Coins bearing the ancient Cruciform Symbols of the Magi.



Egyptian Mohammedan Coins with the Numerical Crosses of the Pythagorean Problem.

"The astonishing fact is also apparent that on all Crosses of which the central TETRAX (1-2-3-4) is the heart, the halves of the vertical lines will be found to equal the halves of the horizontal arm after the following formula:

"A-B, G-H and C-E, D-F are equal amounts, the sums of A-B and G-H will be unequal, the sums of C-E and D-F will be equal and those of C-D and E-F unequal, but C-D will equal A-B and G-H will equal E-F, while A-G and B-H equal C-E and D-F respectively.

x	x	x	x	A	G	x	x	x	x
x	x	x	x	14	15	x	x	x	x
x	x	x	x	10	11	x	x	x	x
x	x	x	x	6	7	x	x	x	x
C	8	6	4	2	3	9	15	21	E
D	7	5	3	1	4	10	16	22	F
x	x	x	x	1	12	x	x	x	x
x	x	x	x	1	20	x	x	x	x
x	x	x	x	1	28	x	x	x	x
x	x	x	x	B	H	x	x	x	x

"The fomulation of the rule by which this wonderful chart is governed may be possible to an advanced mathematician, but it seems to the writer and re-discoverer to, while making apparent many interesting arithmetical principles, defy exhaustive analysis.

"Many of the "Magic Squares" involved count, not only vertically and horizontally but diagonally, in the same sums, as wholes, equal or unequal parts.

"A Magic Square which exhibits the 68-136 potentiality in the very highest degree exists as the very heart of the Calendar, with the additional peculiarity, that it exhibits the larger sum as an OCTAGON as well as the usual ILU form.

5	6	7	8
12	13	14	15
19	20	21	22
26	27	28	29

"The ground which we have covered, in this necessarily short resume of a tremendous subject, is, while it covers the essential features, but an infinitesimal part of the stupendous whole.

"The real study only begins here, when, one by one, we apply the test of either number or proportion to the whole range of ancient symbolisms, and discover that they and the philosophies of which they are the illustrations are all parts and parcels of the one great cosmic mystery.

"Swastikas, Triquestras, Crosses, Suns, Stars and Crescents, Ankhs, Taus, the "palmettes", lotuses and ornamental traceries of

Palace and Temple, The gods of Olympus, the Pyramids of the old world and the new, the "Calendar-Stones" of the Aztecs, the "Prayer-sticks" of the Incas, the Totems of the frozen north, the Labarynth through which roamed the Cretan Minotaur, the winged Bulls of Sargon and Sennecherib, the hidden wisdom of the Mede, Persian, Assyrian, Babylonian, Chaldean, Israelite, Hindoo, Gaul, Viking, Mongol and painted savage are all bound up in the system which we have just dissected in part and which affords countless proofs of its authenticity in the sense claimed for it, now in our possession.

"Best of all, we find the entire unfolding of the theological system, which beginning with the forecasts of the Sabaean Magi, shaped the prophecies of Israel and culminated in the mystery of the fulfilling life, passion and death of Jesus, the Christ.

"We find therein the key to the tribal heraldic devices of the ancient world and the beginnings of modern Healdry.

"We learn the secret of the architecture of the temple and the orientation of the sacred grove.

"All these were derived in secret from the mysteries of Soli-Lunar geometry and it adds not a little to our wonderment to find in the revelations of the microscope concerning the structure of various kinds of matter, that no laws of structural proportions or types of form are to be dicovered higher than those wonderful figures worshipped by our ancestors thousands of years ago.

CROSSES AND SWASTIKAS

"The division of the perfect square into sixty-four quadrilateral divisions, is one which from the wide range of its applications to ancient symbolism, must have been held in peculiar reverence, by those who extracted from it so much pertaining to their most sacred contemplations.

"As we have already hinted, its identity with the legendary Mosaic pavement of Solomon's Temple, is far from problematical.

"In our easy familiarity with the more common mathematical processes, connected with our ordinary daily transactions, we seldom if ever stop to reflect upon the fact, that both the numbers we use and systems upon which we use them, had to be evolved and perfected, at some stage of the world's history.

"Judging by the mathematical perfection of most of the monuments of antiquity, which have remained to our day, the man of B. C. 5,000 was little intellectually inferior to his descendant of our own time.

"Having been enabled to to form an estimate of his reliance upon geometrical formula, as the basis of all truth, human and devine, let us see if many of our most familiar emblems, do not owe more than passing association to such convictions.

"We have no need to enter into a dissertation upon the Game of

Chess, to prove either the antiquity of that game or of its companion, Draughts, or "Checkers", for that of both is attested by history to extend backward to the dawn of civilization.

"We do ask, however, why the number "64", should have been selected not only as that of the squares of the Chess Board, but to figure in countless associations with religio-geometrical formula and we think we answer the question partly in our statement, that as the sum of 36 and 28, it became sacred to the Sun and the Moon, and consequently to all religion of Solar-Lunar inception, while its exact half, 32, has uses and a symbolical significance enirely its own, of the highest importance.

"The ancients had the same moral convictions as ourselves, in their case based on pure geometry, that the Supreme Being was made up of infinite space, infinite time, infinite wisdom, power, strength, and truth, the latter expressed above all mathmatically and geometrically.

"The mathematical axiom of truth, is that it must fit all other truths as untruths could only be made to fit other untruths, which must be manufactured to fit them.

"Therefore, geometrical symbols of Divinity must prove themselves, by their entire fidelity, not only the the known facts of the visisble and calculable universe, but thy their accordance, one with the other, so that whatever the apparent differences, the application of the Solar-Lunar mathematical, or geometric test would attest by the preciseness of its results, the principle of Divinity.

"The most ancient expression of the Supreme Being, is that of the "square", typifying the universe and divided into four equal parts by a cross, indicating intrinsically, the outstretching of arms from a centre to touch the limits of space as does the Sun, and developing by its relation to its sides a Swastika, typical of the eternal revolution of time, a circular movement, corresponding with the disc of the Sun.

"To entirely surround the four square, thus constituted with squares of exactly equal size, requires, as we have seen, just twelve and these are the squares to which were apportioned , the signs of the Zodiac, the entire sixteen constituting the famous "Tetragrammaton" of the Jewish "Kabbalah".

"We have noted that the total of these squares is one fourth of 64 and one twenty-fourth part of 384.

"Another boundary of squares, on the outside of this requires 20 to establish, which is an eighteenth of 360 and added to the 16 within makes 36, the 10th of the same number.

"Another row all around, adds 28 squares, a thirteenth of 364, bringing the sum of all to 64.

"The larger figure will be at once recognized as the basis of

most of the ancient calendars.

"It is not patent to our present argument, but important as showing the natural origin of the decimal system, that a single additional row of squares requires exactly 36 and that the total thereof is one hundred.

"This number will then be made up of four equal divions of 25 squares, each of which, taken in the same sense, will be found to be built up around one central square, on a scale of 1+8+16=25. We have reviewed the sacred signifiance of these squares, as expressed in numbers.

"It seems almost impossible to convert these 100, or 64 squares into anything but Calendrical figures, by the subtraction of small squares from the corners, so as to produce Latin Crosses, or by symmetrical diagonal intersection, the form of the so-called Maltese and other Crosses, which occasion so much surprise in those, who, supposing them to belong exclusively to modern Heraldry, find them as amulets, on the necks and wrists of Babylonian, Ninevite and Persian Monarchs of the earliest dynasties.

"There is no doubt, but that the original Cross and Swastika, were the lines indicating divisions, but by extension they came to have compartments of their own and we find them blocked out on the square of of 64, or in more numerous divisions as perfect geometrical symbols of the Chronological cult of the times which produced them.

"The whole family of Crosses and Swastikas, as well as of certain pointed crosses, which partake of both the nature of crosses and stars, belong in their entirety to the nature of Solar amulets, blocked out upon such squares.

"All speculation as to the reason for the selection of given numbers for the division of time is entirely silenced by this remarkable testimony, which embraces the most sacred symbolism of the ancient world and connects it with our own age, by an association at once touching and reassuring of unswerving purpose in the eternal intention.

From here the writer goes on to tell about crosses and swastikas being found in many parts of the world. Then I pick up his narrative again:

"There is no important excavation of an ancient site made, which does not reveal it and the time does not seem far distant when we shall be able to constitute a map of its geographical area, which will be greater that that of civilization.

"When shall we be able to determine the time when our ancsestors, Iranian, or Turanian, first evolved it!

"It seems beyond the possibility of doubt that the "Swastika", to preserve its Indian name, was above all and before all a symbol in the mysterious or mystic sense...

(Then he lists some more places where swastikas are found and we pick up his narrative again)

"The use of the Swastika in place of the Sun on coins and other objects has long been recognized by scholars, the only alternative thought of any value suggested, that given the employment by the Chinese of a square containing a Cross to indicate an enclosed space of earth, it might have meant by extension the terrestial world.

"This latter notion has more behind it than casually meets the eye.

"The Swastika is certainly a symbol of the revolution of some body or system.

"It too often alternates with wheel and cross amid the same attendant symbols for this not to be apparent, but its specialized form gives it the right to consideration upon its own individual merits.

"Our demonstration of its development, first from the linear elements of the crosssed square and then as a geometrical figure of deninite contents, as an unmistakable figure of the revolution of the whole Solar system, would lead us to regard it as a symbol of planetary revolution in general, applicable to any revolving body of the universal cosmogany, but of rourse more especially to the Sun.

"The whole problem hangs upon the amount of assumption which we are warranted in entertaining that all of the ancients were at all times densely ignorant of the present known facts of the procession of the universe.

"This is a question, which has been much under discusssion without being brought to any such satisfactory conclusion that Science has felt warranted in pronouncing dogmatically upon it.

"We however have the authority of many of the ancient writers not only for the globular form of the earth, but for the existence of conditions in far distant regions which are the direct result of this form of the earth couple with its relations to Sun and Moon as at present ascertained and also of the ancient knowledge of lands vulgarly held to be discovered at a much later period of the world's history.

"The earliest known teacher of the globular form of the Earth was Pythagoras Eudoxus of Cnidus who lived in circa 370-60 B. C. at which time he offered the mathematical proofs of his assertion and was the instigator of the division of both celestial and terrestrial plans into zones.

"A huge globe, so divided, was constructed at Pergamum, by one Crates of Mallos (160-50 B. C. and the representation of a celestial sphere in the hands of Urania, goddess of Mathematics, was ohly one of its significal applications in early times.

"The subject of the Swastika brings us to the consideration of one of the most remarkable of all Dr. Schliemann's discoveries at Hissarlik on the site of ancient Troy, that of terra-cotta spheres or small globes upon some of which are clearly indicated the Sun and Moon with many stars and others of which are marked with encircling zones or bands, exactly in number and position indicating the Artic, north temperate, equatorial, south temperate and antartic regions, the path of the sun around the equator being marked with a circle of Swastikas, and a single sign like a capital "N" laid on its side.

"There was a bitter controversy between Professor Schliemann and his critic, Dr. E. Brentano of Frankfor-on-the-Main , upon the subject of these clay balls, the latter vehemently contending that they so conclusively proved that the people who produced them were so well acquainted with the globular form of the earth that the locality claimed to be Homer's Troy by, Dr. Schliemann, must be comparatively modern.

"Mr. Edward Thomas, of London, who shares with Father Louis Gaillard, S. J., the reputation of special competence concerning Swastika signs, has said in his "Indian Swastika and Its Western Counterparts", 'As far as I have been able to trace or connect the various manifestations of this emblem, they one and all resolve themselves into the primitive conception of solar motion which was intuitively associated with the rolling or wheel like projection of the Sun, through the upper or visible arc of the heavens, as understood and accepted in the crude astronomy of the ancients.

"The earliest phase of astronomical science we are at persent (1880) in a position to refer to, with the still extant aid of indigenous diagrams, is the Chaldean.

"The representation of the Sun, in this system commences with a simple ring or outline circle, which is speedily advanced towards the impresssion of onward revolving motion by the insertion of a cross or four wheel like spokes within the circumference of the normal ring.

(Here again I will leave out some of his comments on where swastikas and crosses can be found and then pick up his words again)

"The writer possesses, himself, coins of the Veliocasses, a Gaulish tribe which settled before the dawn of North European history, in the valley of the Seine, just above the Parisii, which unites the five pointed geometrical pentalpha to an "ILU" Solar symbol, flanked by bird and reptile, precisely as we find this combination on the national emblems of Chinese and Japanese today.

What the Swastika Really Is

"It is astonishing how near humanity has come, again and again, to the real secret of the Swastika, without crossing the line which exits between conjecture and certainty.

"The Swastika is all that it has been deemed to be and something

more.

"Its symbolic associations with solar motion have been too remarkable not to have placed it in the category of solar symbols, but it has remained for us to indicate its true character and a fresh array of considerations which show it to be far more wonderul than anything so far surmised.

"No one can fail to recognize its numerical value as a calendrical symbol suggestive of the revolution of periods of time in the blocking out on our system of numericl squares of a figure of four season, twelve months and fifty-two weeks.

"We have entered, in our observations concerning the "Forty-seventh problem of Euclid" and its far reaching bearings upon the various geometrical formulae having to do with the Squaring of the Circle and also determined the reasons which led the ancients to divide the cube of "Four" (64) into a Solar 36 and a Lunar 28.

"Having ascertained the relative proportions of our Circle of equal area to our Square of "Sixty-four", blocking the latter out into a Swastika expressing a year of Fifty-two weeks and supposing it to be endowed with rotary motion, we see that as it turns, the inner angles of of the arms precisely trace the Circle, so that the Swastika becomes a most realistic image of the great Cabalistic secret, the Squaring of the Circle by the heavenly bodies in their annual revolution.

"The Asiatic form of Swastika, which is double jointed, proves to be so constructed that while the inner angle is inscribing the Circle of equal area, one of the outer ones is tracing that of equal perimeter or within a small fraction of it.

"A very little reflection will show that while the fundamental idea of the Swastika begins with the broken "Ilu" square, that it may be seen in the "Male principle" "Nine" of the Euclid problem, where even at that low stage of development it serves to connect the Sun with the creative power.

"The space between the two circles, much used by the devotees of Eastern religions and philosophical cults to express the realm of "Chaos" existent between Heaven and the Universe, became in the West the Zodiacal Circle, receiving the figures from the corresponding divisions of the earlier Zodiacal Square.

"This arrangement at once confers upon the Swastika the charcter of a symbol of the Four Seaons, a device which causes the second Zodiacal sign, Tarus to fall to a corner place.

"Now we well know from the general position that this lower left hand corner must correspond with the early part of the year, so if we are to determine the arms of the Swastika, as the Equnoctial and Sostitial points, we will see that a still deeper significance is intended; nothing more nor less that that great cyclical revolution of

the whole Universe, which, at intervals of thousands of years apart, carries the beignnings of the Equinoxes and Solstices, slowly from a position of the Sun in one sign of the Zodiac to one in another.

"Universal chronology and the length of time which separates us from the beginning of the world, was reckoned on the assumption that when God created the Universe, He started the great pendulum of Time swinging, with the Sun in the sign Aires.

"Hence the great esoteric connection of Ram and Lamb with various religions.

"In the course of several milleniusm, the Spring Equnoticial arm of the great cosmogonic Swastika had swung around to the sign of Taurus, the Bull, and this is the main evidence that the great geometrical revelation took place at some time during the "Tauric" period, when Circle squareing, the Zodiac and the Swastika, all coincided as we see them in the following figure.

"The Hon. E. M. Plunkett (Ancient Calendars and Constellations) says with regard to this sjubect--"The beginning of the Median year was fixed in the season of the Spring Equninox, and remaining true to that season, followed no star mark.

"'The great importance, however, of Tauric symbolism in Medean art, seems to point to the fact, that when the equinotial year was first established THE SPRING EQUINOTCIAL POINT WAS IN THE CONSTELLATION TAURUS.

"'astronomy teaches us , that was the case, speaking in round numbers, from 2000 to 4000 BC.'

"The Swastika "of the double Circle" is even more precise in its Solar-Lunar numberation than the simpler form, for laid out on a square of 16x16 or 256, it divides that volume into four arms of 28 each, without counting the centre 4, which added to the spaces between the arms gives us four sections of 36 each."

And thus ends the book.

Chapter 14--Some More Explanations

Now let's go back over what we saw in Chapter 13 and see what we can learn.

"The same results which are otherwise obtainable and demonstrable through geometrical figures are here also presented through arithmetical numbers, the whole scheme being evidently intended to exhibit the creative functions of the numbers "3" and "4", the powers of the Tetrax, (1-2-3-4) and the revelation of the cross.

"The first figure which obtains our attention is the cross instituted by the fourth and fifth vertical lines with the fourth and fifth horizontal lines. The sum of each is 136, but so divided that the fifth vertical column contains 36 and the fourth 100.

"The sums of the fourth and fifth horizontal columns are both 68, totalling 136 but the left arm of the cross adds 36 and the right arm 100, while the halves of the upright bar each add up to 68. (We can see this in the chart below)

x	x	x	14	15	x	x	x
x	x	x	10	11	x	x	x
x	x	x	6	7	x	x	x
8	6	4	2	3	9	15	21
7	5	3	1	4	10	16	22
x	x	x	1	12	x	x	x
x	x	x	1	20	x	x	x
x	x	x	1	28	x	x	x

"The central cross is the Solar 36 exhibited as 10+26=36, 18+18=36, alternating in the same manner...(see chart below)

x	6	7	x
4	2	3	9
3	1	4	10
x	1	12	x

... while the diagonals in the inner square are 22+14=36; (see chart below)

5	x	x	8
x	2	3	x
x	1	4	x
2	x	x	11

the whole giving the complete ILU figure of 36, every number or group of four numbers constituting the centre of a perfect numerical Cross.

"The supreme secret of the entire square of 64 numbers is, however, revealed by its owns diagonals, which are 11+8+5+2+4+11+18+25=84, and 18+13+8+3+1+2+3+4 equalling 52, a total of again 136 as added but as multiplied 84x52 equalling 4638, which will be found also upon computation to be the sum of 364x12, or one cycle of twelve Lunar years. (see chart below)

11	x	x	x	x	x	x	18
x	8	x	x	x	x	13	x
x	x	5	x	x	8	x	x
x	x	x	2	3	x	x	x

x	x	x	1	4	x	x	x
x	x	2	x	x	11	x	x
x	3	x	x	x	x	18	x
4	x	x	x	x	x	x	25

"The addition of the vertical columns supply sums which are remarkable factors to the ancient calendar year of 360 days (especially the number 29, the "synodical" period between full moons), while the horizontal additions are in precisely reversed halves, 116-92-76-68-68-76-92-116, a sum total of 704, again a number of marvellous significance when explained.
(He doesn't explain the significance of 704. I have played around with the number and the only thing I can come up with and it might be the answer is the fact that it is 8 times 88. Eighty-eight days is the heliocycle of Mercury. 704 is also 21 times 64 or the triangle of 6 times the square of 8. This has the same relationship as the triangle of 4 (10) times the square of 6 (36) which equals 360.)

"The 'as above, below' additions of dissimilar numbers, occupying relative places in the upper and lower halves of the square is also a source of perpetual curiosity.

"Finally, as far as the writer has been able to discover, the sixteen cardinal point numbers which are the diagonals of the whole square constitute in themselves a 'Magic Square', no less remarkable, being as follows:

N	E	W	S
4	11	18	25
3	8	13	18
2	5	8	11
1	2	3	4

"The sum total, of course, 52+84=136. The additions are vertically and horizontally identical, though reversed. 10-26-42-58.

"The sums of the nine sets of four contiguous squares are 26-74-10-26-34-50-18-18-50, numbers which inter-add, combine and re-combine in changes upon the grand total of 136 (itself 1 plus 3 plus 6 equals 10) in a manner which can hardly be conceived by anyone who has not made the experiments.

"The central and outer parallels are always 68, as is also the sum of the two diagonals.

R1	4	11	18	25
R2	3	8	13	18
R3	2	5	8	11
R4	1	2	3	4

Row 1 and 4 add to 68.
Row 2 and 3 add to 68.

C1	C2	C3	C4
4	11	18	25
3	8	13	18
2	5	8	11
1	2	3	4

Columns 1 and 4 = 68
Columns 2 and 3 = 68

4	x	x	25
x	8	13	x
x	5	8	x
1	x	x	4

The diagonals 1+5+13+25
and 4+8+8+4 = 68

"It will not pass unnoticed by those acquainted with the formula of the squaring of the circle for equal perimeters that the base of the square being equal to 8 and the radius of the circle equal to 5 identical measures that the 84-52 of the figure to which we have been giving attention, is within a minute fraction of the same proportions besides expressing the "ILU" figure to perfection.

C1	C2	C3	C4
4	11	18	25
3	8	13	18
2	5	8	11
1	2	3	4

Columns 1 and 3 = 52
Columns 2 and 4 = 84

"This method of procuring numerical crosses being continuable to infinity gave the ancients' conception of the starry universe, of which they took it as a type and we have every reason to believe that this plan (possibly extended to 12x12, or the 144 square) was the basis of Saint John's mystery of the Heavenly City of the Apocalypse.

"That it was one of the numerous mysteries embodied in the Pythagorean problem (47th of Euclid) and which must have been the very centre of the philosophical speculations of the Pythagorean school at Crotona is self demonstrable.

"The tablet here given is restricted to the proportions of 64, of 8x8, as within those confines are found the considerations most important to our present essay.

"As we have said, however, the system of which it is the centre is extensible to infinity with identical results.

"Every square, except those lying directly on the middle vertical line below the Zodiac, where highest and lowest figures

meet, whether one, four, nine, sixteen, or other number bounded by four equal sides, is the centre of a numerical cross.

"The Pythagorean problem exhibits three such Crosses, which may be realized by merely omitting the corner squares. They may be utilized thus, as guides, in counting.

"The astonishing fact is also apparent that on all Crosses of which the central TETRAX (1-2-3-4) is the heart, the halves of the vertical lines will be found to equal the halves of the horizontal arm after the following formula:

"A-B, G-H and C-E, D-F are equal amounts, the sums of A-B and G-H will be unequal, the sums of C-E and D-F will be equal and those of C-D and E-F unequal, but C-D will equal A-B and G-H will equal E-F, while A-G and B-H equal C-E and D-F respectively.
(Note: He made some mistakes here. It might take awhile like it did me but you can figure it out)

x	x	x	x	A	G	x	x	x	x
x	x	x	x	14	15	x	x	x	x
x	x	x	x	10	11	x	x	x	x
x	x	x	x	6	7	x	x	x	x
C	8	6	4	2	3	9	15	21	E
D	7	5	3	1	4	10	16	22	F
x	x	x	x	1	12	x	x	x	x
x	x	x	x	1	20	x	x	x	x
x	x	x	x	1	28	x	x	x	x
x	x	x	x	B	H	x	x	x	x

"The formulation of the rule by which this wonderful chart is governed may be possible to an advanced mathematician, but it seems to the writer and re-discoverer to, while making apparent many interesting arithmetical principles, defy exhaustive analysis.

"Many of the "Magic Squares" involved count, not only vertically and horizontally but diagonally, in the same sums, as wholes, equal or unequal parts.

"A Magic Square which exhibits the 68-136 potentiality in the very highest degree exists at the very heart of the Calendar, with the additional peculiarity, that it exhibits the larger sum as an OCTAGON as well as the usual ILU form.

"The ground which we have covered, in this necessarily short resume of a tremendous subject, is, while it covers the essential features, but an infinitesimal part of the stupendous whole.

"The real study only begins here, when, one by one, we apply the test of either number or proportion to the whole range of ancient

symbolisms, and discover that they and the philosophies of which they are the illustrations are all parts and parcels of the one great cosmic mystery.

(Before we move on let's study that chart that shows the numbers on the diagonals, the one this author had marked as north, south. east and west. We will move on to the author's material later.

I want to stop here as there is a PATTERN in this material that the author never mentions, but was probably much aware of as Gann never mentions a lot of things in his material though he was aware of it.

I found the PATTERN here by playing with the numbers since I had a suspicion as to what they would show.

Let's look at the numbers again:

4	11	18	25
3	8	13	18
2	5	8	11
1	2	3	4

We now know that the numbers in the chart above when added equal 136.

Does that ring any bells with you?

We can see that the chart is a 4x4 and 4x4 is 16.

Ring any bells now?

136 is the triangle of 16!

Does that suggest anything to you?

Let's start at 1 and build some squares from 1 to 4 to see if we can discover a PATTERN, a PATTERN that the author did not show me, but a PATTERN I found myself since I had a suspicion it was there!

First we put down the square of 1

1

That didn't show us a lot but remember we usually have to start with 1 and as I have shown before, the number 1 can be lots of things. it can be a square, a triangle, a cube, etc.

Now lets take the material from the author's drawing and make a 2x2.

2	5

1	2

We see that the numbers add to 10.

Does that tell you anything?

If not let's build the next square, a 3x3, using the author's material again.

3	8	13
2	5	8
1	2	3

If we add all the numbers we get a total of 45. Is the light dawning now?

Okay, let's go ahead and put down the original.

4	11	18	25
3	8	13	18
2	5	8	11
1	2	3	4

If you don't have the answer yet, why not back off for awhile and run it through your mind before seeing the answer below.

Got it now?

Let's put down each of the four squares and what they total.

1x1=1 and has a total of 1
2x2=4 and has a total of 10
3x3=9 and has a total of 45
4x4=16 and has a total of 136.

From what I told you above about 16 and 136, do you get it now?

That's right! Each of those totals is a triangular number.

And 1 is the triangle of 1, 10 is the triangle of 4, 45 is the triangle of 9 and 136 is the triangle of 16.

So what can we say about those triangular numbers? They are all triangles of squares!

If we continued to make these squares in the manner that the first four squares were made, could you guess what the total would be.

The next square after the 4x4 would be a 5x5. If we continued with the PATTERN what would be the total of that square? If you said 325 you would be right. 5x5 is 25 and the triangle of 25 is 25x26/2 which is 325.

But you may ask what are the numbers that are needed in the square so that the total comes out to 325?

Let's look at the 4x4 again.

4	11	18	25
3	8	13	18
2	5	8	11
1	2	3	4

Do you see the PATTERN?

In the first column. we see 1, 2, 3, 4. In the second we see 2, 5, 8, 11. In the third column we see 3, 8, 13, 18 and in the fourth we see 4, 11, 18, 25.

Do you see it now?

Note that in the first column the difference in numbers is 1, in the second, it is 3, in the third it is 5 and in the fourth it is 7.

1, 3, 5, 7! Those are the odd numbers in order. From our work in "On the Square" we also know that the odd numbers add up to squares.

So, why don't you get a piece of paper and write down the numbers that make up the 4x4 and then extend that to a 5x5 and fill in the numbers.

Since the difference in the numbers in the last column in the 4x4 was 7, the difference in the numbers in the column going up from 5 would be 9. So you would put down 5, 14, 23, 32 and 41.

You have probably seen from the other squares that the numbers going up the columns or going across the rows are the same. So starting at 5 in the upper left you would fill in 14, 23 and 32.

5	14	23	32	41
4	11	18	25	32
3	8	13	18	23
2	5	8	11	14
1	2	3	4	5

Now why don't you go ahead and extend our work until we have a square of 6.

6	17	28	39	50	61
5	14	23	32	41	50
4	11	18	25	32	39
3	8	13	18	23	28
2	5	8	11	14	17

1	2	3	4	5	6

And then we will extend that until we have a square of 7.

7	20	33	46	59	72	85
6	17	28	39	50	61	72
5	14	23	32	41	50	59
4	11	18	25	32	39	46
3	8	13	18	23	28	33
2	5	8	11	14	17	20
1	2	3	4	5	6	7

And we will extend that until we have a square of 8.

8	23	38	53	68	83	98	113
7	20	33	46	59	72	85	98
6	17	28	39	50	61	72	83
5	14	23	32	41	50	59	68
4	11	18	25	32	39	46	53
3	8	13	18	23	28	33	38
2	5	8	11	14	17	20	23
1	2	3	4	5	6	7	8

And we will extend that until we have a square of 9.

9	26	43	60	77	94	111	128	145
8	23	38	53	68	83	98	113	128
7	20	33	46	59	72	85	98	111
6	17	28	39	50	61	72	83	94
5	14	23	32	41	50	59	68	77
4	11	18	25	32	39	46	53	60
3	8	13	18	23	28	33	38	43
2	5	8	11	14	17	20	23	26
1	2	3	4	5	6	7	8	9

And we will extend that until we have a square of 10.

10	29	48	67	86	105	124	143	162	181
9	26	43	60	77	94	111	128	145	162
8	23	38	53	68	83	98	113	128	143
7	20	33	46	59	72	85	98	111	124
6	17	28	39	50	61	72	83	94	105
5	14	23	32	41	50	59	68	77	86
4	11	18	25	32	39	46	53	60	67
3	8	13	18	23	28	33	38	43	48
2	5	8	11	14	17	20	23	26	29
1	2	3	4	5	6	7	8	9	10

And we will extend that until we have a square of 11.

11	32	53	74	95	116	137	158	179	200	221
10	29	48	67	86	105	124	143	162	181	200
9	26	43	60	77	94	111	128	145	162	179
8	23	38	53	68	83	98	113	128	143	158
7	20	33	46	59	72	85	98	111	124	137
6	17	28	39	50	61	72	83	94	105	116
5	14	23	32	41	50	59	68	77	86	95
4	11	18	25	32	39	46	53	60	67	74
3	8	13	18	23	28	33	38	43	48	53
2	5	8	11	14	17	20	23	26	29	32
1	2	3	4	5	6	7	8	9	10	11

And finally we will extend that until we have a square of 12.

12	35	58	81	104	127	150	173	196	219	242	265
11	32	53	74	95	116	137	158	179	200	221	242
10	29	48	67	86	105	124	143	162	181	200	219
9	26	43	60	77	94	111	128	145	162	179	196
8	23	38	53	68	83	98	113	128	143	158	173
7	20	33	46	59	72	85	98	111	124	137	150
6	17	28	39	50	61	72	83	94	105	116	127
5	14	23	32	41	50	59	68	77	86	95	104
4	11	18	25	32	39	46	53	60	67	74	81
3	8	13	18	23	28	33	38	43	48	53	58
2	5	8	11	14	17	20	23	26	29	32	35
1	2	3	4	5	6	7	8	9	10	11	12

In every one of these cases the total is the triangle of the square in question. It works every time!

Look at the square of 12 below. You will see that I have numbers out at the right side of the square. I did that to double check on the totals.

As I did that I also discovered another PATTERN.

You want to give it a try before I proceed to see if you can discover the PATTERN for yourself?

I'll take a brief rest while you do that.

Back already?

12	35	58	81	104	127	150	173	196	219	242	265	=	1662
11	32	53	74	95	116	137	158	179	200	221	242	=	1518
10	29	48	67	86	105	124	143	162	181	200	219	=	1374

9	26	43	60	77	94	111	128	145	162	179	196	=	1230
8	23	38	53	68	83	98	113	128	143	158	173	=	1086
7	20	33	46	59	72	85	98	111	124	137	150	=	942
6	17	28	39	50	61	72	83	94	105	116	127	=	798
5	14	23	32	41	50	59	68	77	86	95	104	=	654
4	11	18	25	32	39	46	53	60	67	74	81	=	510
3	8	13	18	23	28	33	38	43	48	53	58	=	366
2	5	8	11	14	17	20	23	26	29	32	35	=	222
1	2	3	4	5	6	7	8	9	10	11	12	=	78

Total = 10440 = Triangle of Square of 12 (144)

Okay. Let's look at your work. On the last row we see that the total is 78. And since we got that total by adding 1 through 12 we know that 78 is the triangle of 12. Then you subtracted 78 from the next row and found that the difference was 144. Then you subtracted the second row from the third and found the difference was 144. And you did that again and again finding that the difference in all cases was 144. And we know that 144 is the square of 12 and the square of 12 is the square in question.

Does that give you any ideas about PATTERNS?

Well, let's check another one, say the square of 5.

5	14	23	32	41	=	115
4	11	18	25	32	=	90
3	8	13	18	23	=	65
2	5	8	11	14	=	40
1	2	3	4	5	=	15

Total = 325 = Triangle of Square of 5 (25)

We see that the bottom row totals 15. And we know that is the triangle of 5. When we subtract the bottom row from the next we find that the difference is 25. And we find the difference is 25 between all the other rows.

Got it now?

That's right. We can take any number and find its triangle and its square and starting with the triangle we can add the squares to it until we have the triangle of the square. How many terms would we need? The terms would be the square root of the square in question.

With the square of 5 we would need 5 terms.

We would put down the triangle of 5 which is 15 and would keep adding the square of 5 or 25 to that until we have five terms.

15+25+25+25+25 or
15

40
65
90
115
so that each succeeding number is 25 more than the one before it beginning with 15.

Then when we have all five terms down we add up our answers and get 325 and we have already learned that 325 is the triangle of 25 (the square of 5).

We can do it with a smaller number. We know that the triangle of 4 (which is the square of 2) is 10 and therefore 10 is the triangle of a square.

Since 2 is the square root of 4 we only need two terms.

The triangle of two is 3. So we put that down:
3

and the square of 2 is 4 so we add 4 to 3 and get 7.

3
4

7

Then we take our 3 which is the triangle of 2 and we always start from the triangle of our square root and our 7 which we got by adding the square to it and we have our two terms, 3 and 7 and three plus 7 is 10, the triangle of the square of 2.

Try a few yourself and see that it works every time!

Why should we be interested in the triangle of the squares? For one thing it is the PATTERN that we found while looking at this author's chart.

For another it is because of a number that Gann zeroed in on.

In my discussion of the triangular numbers in Book VI, I noted that Gann had mentioned the number 325 and said there was a change in cycles here and it was where two 45-degree angles crossed. It is one of the few numbers that Gann has anything specific to say about.

I never could figure out what he meant by two 45-degree angles crossing here, but I did point out that it was a triangular number.

But now we know it is more than that. It is not just a triangle of a number, but is a triangle of a square, the square of 25.

And now we see from the Magic Square that the triangles of the squares is made from the Magic Square. Do I know how Gann used these numbers? No I don't. But it is a very interesting PATTERN which needs more study.

Now we will pick up the author's material again in the next chapter.

Chapter 15--The Swastika

(Before I go on with the author's material I must say something here lest anyone be offended.

I know that the swastika was the dreaded symbol of Nazi Germany. But the swastika was around thousands of years before the advent of Adolph Hitler.

If you look in an encyclopedia you will find that it was an ancient cross. And in some places I have read that it was the symbol of the sun.

The material that we are looking at here was written in 1912, about 18 years before Hitler came to power and adopted it for his Nazi party.

So with that in mind let us look at it through the eyes of this author that we are studying and not think about it in terms of its present day hated symbol.)

"Swastikas, Triquestras, Crosses, Suns, Stars and Crescents, Ankhs, Taus, the "palmettes", lotuses and ornamental traceries of Palace and Temple, The gods of Olympus, the Pyramids of the old world and the new, the "Calendar-Stones" of the Aztecs, the "Prayer-sticks" of the Incas, the Totems of the frozen north, the Labarynth through which roamed the Cretan Minotaur, the winged Bulls of Sargon and Sennecherib, the hidden wisdom of the Mede, Persian, Assyrian, Babylonian, Chaldean, Israelite, Hindoo, Gaul, Viking, Mongol and painted savage are all bound up in the system which we have just dissected in part and which affords countless proofs of its authenticity in the sense claimed for it, now in our possession.

"Best of all, we find the entire unfolding of the theological system, which beginning with the forecasts of the Sabaean Magi, shaped the prophecies of Israel and culminated in the mystery of the fulfilling life, passion and death of Jesus, the Christ.

"We find therein the key to the tribal heraldic devices of the ancient world and the beginnings of modern Hearaldry.

"We learn the secret of the architecture of the temple and the orientation of the sacred grove.

"All these were derived in secret from the mysteries of Soli-Lunar geometry and it adds not a little to our wonderment to find in the revelations of the microscope concerning the structure of various kinds of matter, that no laws of structural proportions or types of form are to be discovered higher than those wonderful figures worshipped by our ancestors thousands of years ago.

CROSSES AND SWASTIKAS

"The division of the perfect square into sixty-four quadrilateral divisions, is one which from the wide range of its applications to ancient symbolism, must have been held in peculiar reverence, by those who extracted from it so much pertaining to their most sacred contemplations.

"As we have already hinted, its identity with the legendary Mosaic pavement of Solomon's Temple, is far from problematical. (I have read this in the bible and do not see how this is connected with the Mosaic pavement)

"In our easy familiarity with the more common mathematical processes, connected with our ordinary daily transactions, we seldom if ever stop to reflect upon the fact, that both the numbers we use and systems upon which we use them, had to be evolved and perfected, at some stage of the world's history.

"Judging by the mathematical perfection of most of the monuments of antiquity, which have remained to our day, the man of B. C. 5,000 was little intellectually inferior to his descendant of our own time.

"Having been enabled to form an estimate of his reliance upon geometrical formula, as the basis of all truth, human and devine, let us see if many of our most familiar emblems, do not owe more than passing association to such convictions.

"We have no need to enter into a dissertation upon the Game of Chess, to prove either the antiquity of that game or of its companion, Draughts, or "Checkers", for that of both is attested by history to extend backward to the dawn of civilization.

(Here he is referring to the fact that both chess and checkers is played on a board with 64 squares.)

"We do ask, however, why the number "64", should have been selected not only as that of the squares of the Chess Board, but to figure in countless associations with religio-geometrical formula and we think we answer the question partly in our statement, that as the sum of 36 and 28, it became sacred to the Sun and the Moon, and consequently to all religion of Solar-Lunar inception, while its exact half, 32, has uses and a symbolical significance entirely its own, of the highest importance.

(The only thing I can think of which is related to the number 32 is the fact that it is a double square, being two times 16 (4x4). It is also mentioned in Masonry that when added to 40 it equals 72. And much is made of that number in Masonry.)

"The ancients had the same moral convictions as ourselves, in their case based on pure geometry, that the Supreme Being was made up of infinite space, infinite time, infinite wisdom, power, strength, and truth, the latter expressed above all mathematically and

geometrically.

"The mathematical axiom of truth, is that it must fit all other truths as untruths could only be made to fit other untruths, which must be manufactured to fit them.

"Therefore, geometrical symbols of Divinity must prove themselves, by their entire fidelity, not only to the known facts of the visible and calculable universe, but by their accordance, one with the other, so that whatever the apparent differences, the application of the Solar-Lunar mathematical, or geometric test would attest by the preciseness of its results, the principle of Divinity.

"The most ancient expression of the Supreme Being, is that of the "square", typifying the universe and divided into four equal parts by a cross, indicating intrinsically, the outstretching of arms from a centre to touch the limits of space as does the Sun, and developing by its relation to its sides a Swastika, typical of the eternal revolution of time, a circular movement, corresponding with the disc of the Sun.

"To entirely surround the four square, thus constituted with squares of exactly equal size, requires, as we have seen, just twelve and these are the squares to which were apportioned, the signs of the Zodiac, the entire sixteen constituting the famous "Tetragrammaton" of the Jewish "Kabbalah".

(I'm not sure what he is saying here about the entire sixteen constituting the famous "Tetragrammaton" as the Tetragrammaton is described in the encyclopedia as the "four" letters used by the Hebrews to express the name of God. Those four letters were YHWH which we call Yahweh or Jehovah. So I'm not sure how he gets 16 out of 4 other than the fact that 16 is the square of four.)

"We have noted that the total of these squares is one fourth of 64 and one twenty-fourth part of 384.

(He does not say what 384 represents, but in my reading I ran across the fact that 384 in some cultures represented cycles of Venus. Venus has 8 year cycles, that is it takes 8 years for Venus to come back to the same place in the sky. The ancients had rocks or mountains and used a certain point on the mountain to mark the return of Venus to a certain point just over that mountain every 8 years. The number 384 marks 48 cycles of 8 years. Why they marked 48 cycles of 8 years I do not know. See my Book V--"The Cycle of Venus." Also see in my Appendix my work about the Mayan calendar and the possibility there for the number 384 and how it relates to the number 360.)

"Another boundary of squares, on the outside of this requires 20 to establish, which is an eighteenth of 360 and added to the 16 within makes 36, the 10th of the same number.

"Another row all around, adds 28 squares, a thirteenth of 364, bringing the sum of all to 64.

"The larger figure will be at once recognized as the basis of most of the ancient calendars.

"It is not patent to our present argument, but important as showing the natural origin of the decimal system, that a single additional row of squares requires exactly 36 and that the total thereof is one hundred.

"This number will then be made up of four equal divisions of 25 squares, each of which, taken in the same sense, will be found to be built up around one central square, on a scale of 1+8+16=25. We have reviewed the sacred significance of these squares, as expressed in numbers.

(And here we can see that he is describing 4 divisions which equal 25 and can be made like the Square of Nine or Cycle of Eight or Octagon chart.)

13	14	15	16	17	13	14	15	16	17
12	3	4	5	18	12	3	4	5	18
11	2	1	6	19	11	2	1	6	19
10	9	8	7	20	10	9	8	7	20
25	24	23	22	21	25	24	23	22	21
13	14	15	16	17	13	14	15	16	17
12	3	4	5	18	12	3	4	5	18
11	2	1	6	19	11	2	1	6	19
10	9	8	7	20	10	9	8	7	20
25	24	23	22	21	25	24	23	22	21

"It seems almost impossible to convert these 100, or 64 squares into anything but Calendrical figures, by the subtraction of small squares from the corners, so as to produce Latin Crosses, or by symetrical diagonal intersection, the form of the so-called Maltese and other Crosses, which occasion so much surprise in those, who, supposing them to belong exclusively to modern Heraldry, find them as amulets, on the necks and wrists of Babylonian, Ninevite and Persian Monarchs of the earliest dynasties.

"There is no doubt, but that the original Cross and Swastika, were the lines indicating divisions, but by extension they came to have compartments of their own and we find them blocked out on the square of 64, or in more numerous divisions as perfect geometrical symbols of the Chronological cult of the times which produced them.

"The whole family of Crosses and Swastikas, as well as of certain pointed crosses, which partake of both the nature of crosses and stars, belong in their entirety to the nature of Solar amulets, blocked out upon such squares.

"All speculation as to the reason for the selection of given numbers for the division of time is entirely silenced by this remarkable testimony, which embraces the most sacred symbolism of the

ancient world and connects it with our own age, by an association at once touching and reassuring of unswerving purpose in the eternal intention.

(From here the writer goes on to tell about crosses and swastikas being found in many parts of the world. Then I pick up his narrative again:)

"There is no important excavation of an ancient site made, which does not reveal it and the time does not seem far distant when we shall be able to constitute a map of its geographical area, which will be greater than that of civilization.

"When shall we be able to determine the time when our ancestors, Iranian, or Turanian, first evolved it!

"It seems beyond the possibility of doubt that the 'Swastika', to preserve its Indian name, was above all and before all a symbol in the mysterious or mystic sense...

(Then he lists some more places where swastikas are found and we pick up his narrative again:)

"The use of the Swastika in place of the Sun on coins and other objects has long been recognized by scholars, the only alternative thought of any value suggested, that given the employment by the Chinese of a square containing a Cross to indicate an enclosed space of earth, it might have meant by extension the terrestial world.

"This latter notion has more behind it than casually meets the eye.

"The Swastika is certainly a symbol of the revolution of some body or system.

"It too often alternates with wheel and cross amid the same attendant symbols for this not to be apparent, but its specialized form gives it the right to consideration upon its own individual merits.

"Our demonstration of its development, first from the linear elements of the crossed square and then as a geometrical figure of definite contents, as an unmistakable figure of the revolution of the whole Solar system, would lead us to regard it as a symbol of planetary revolution in general, applicable to any revolving body of the universal cosmogany, but of rourse more especially to the Sun.

(In that last line he says "rourse" but I would conclude that is a misspelling for "course.")

"The whole problem hangs upon the amount of assumption which we are warranted in entertaining that all of the ancients were at all times densely ignorant of the present known facts of the procession of the universe.

"This is a question, which has been much under discussion without being brought to any such satisfactory conclusion that Science has felt warranted in pronouncing dogmatically upon it.

"We however have the authority of many of the ancient writers not only for the globular form of the earth, but for the existence of conditions in far distant regions which are the direct result of this form of the earth couple with its relations to Sun and Moon as at present ascertained and also of the ancient knowledge of lands vulgarly held to be discovered at a much later period of the world's history.

"The earliest known teacher of the globular form of the Earth was Pythagoras Eudoxus of Cnidus who lived in circa 370-60 B. C. at which time he offered the mathematical proofs of his assertion and was the instigator of the division of both celestial and terrestrial plans into zones.

"A huge globe, so divided, was constructed at Pergamum, by one Crates of Mallos (160-50 B. C.) and the representation of a celestial sphere in the hands of Urania, goddess of Mathematics, was only one of its significal applications in early times.

"The subject of the Swastika brings us to the consideration of one of the most remarkable of all Dr. Schliemann's discoveries at Hissarlik on the site of ancient Troy, that of terra-cotta spheres or small globes upon some of which are clearly indicated the Sun and Moon with many stars and others of which are marked with encircling zones or bands, exactly in number and position indicating the Artic, north temperate, equatorial, south temperate and antartic regions, the path of the sun around the equator being marked with a circle of Swastikas, and a single sign like a capital "N" laid on its side.

(If I am not mistaken this Dr. Schliemann's work on looking for the site of ancient Troy was recently profiled in a TV program on the Discovery Channel or the A&E Channel. At least it was someone looking for ancient Troy and it might have been him.)

"There was a bitter controversy between Professor Schliemann and his critic, Dr. E. Brentano of Frankfort-on-the-Main, upon the subject of these clay balls, the latter vehemently contending that they so conclusively proved that the people who produced them were so well acquainted with the globular form of the earth that the locality claimed to be Homer's Troy, by Dr. Schliemann, must be comparatively modern.

"Mr. Edward Thomas, of London, who shares with Father Louis Gaillard, S. J., the reputation of special competence concerning Swastika signs, has said in his "Indian Swastika and Its Western Counterparts", 'As far as I have been able to trace or connect the various manifestations of this emblem, they one and all resolve themselves into the primitive conception of solar motion which was intuitively associated with the rolling or wheel like projection of the Sun, through the upper or visible arc of the heavens, as understood and accepted in the crude astronomy of the ancients.

"The earliest phase of astronomical science we are at present (1880) in a position to refer to, with the still extant aid of indigenous diagrams, is the Chaldean.

"The representation of the Sun, in this system commences with a simple ring or outline circle, which is speedily advanced towards the impression of onward revolving motion by the insertion of a cross or four wheel like spokes within the circumference of the normal ring. (Here again I will leave out some of his comments on where swastikas and crosses can be found and then pick up his words again:)

"The writer possesses, himself, coins of the Veliocasses, a Gaulish tribe which settled before the dawn of North European history, in the valley of the Seine, just above the Parisii, which unites the five pointed geometrical pentalpha to an "ILU" Solar symbol, flanked by bird and reptile, precisely as we find this combination on the national emblems of Chinese and Japanese today.

What the Swastika Really Is

"It is astonishing how near humanity has come, again and again, to the real secret of the Swastika, without crossing the line which exits between conjecture and certainty.

"The Swastika is all that it has been deemed to be and something more.

"Its symbolic associations with solar motion have been too remarkable not to have placed it in the category of solar symbols, but it has remained for us to indicate its true character and a fresh array of considerations which show it to be far more wonderful than anything so far surmised.

"No one can fail to recognize its numerical value as a calendrical symbol suggestive of the revolution of periods of time in the blocking out on our system of numerical squares of a figure of four season, twelve months and fifty-two weeks.

"We have entered, in our observations concerning the "Forty-seventh problem of Euclid" and its far reaching bearings upon the various geometrical formulae having to do with the Squaring of the Circle and also determined the reasons which led the ancients to divide the cube of "Four" (64) into a Solar 36 and a Lunar 28.

"Having ascertained the relative proportions of our Circle of equal area to our Square of "Sixty-four", blocking the latter out into a Swastika expressing a year of Fifty-two weeks and supposing it to be endowed with rotary motion, we see that as it turns, the inner angles of the arms precisely trace the Circle, so that the Swastika becomes a most realistic image of the great Cabalistic secret, the Squaring of the Circle by the heavenly bodies in their annual revolution.

"The Asiatic form of Swastika, which is double jointed, proves

to be so constructed that while the inner angle is inscribing the Circle of equal area, one of the outer ones is tracing that of equal perimeter or within a small fraction of it.

"A very little reflection will show that while the fundamental idea of the Swastika begins with the broken "Ilu" square, that it may be seen in the "Male principle" "Nine" of the Euclid problem, where even at that low stage of development it serves to connect the Sun with the creative power.

"The space between the two circles, much used by the devotees of Eastern religions and philosophical cults to express the realm of "Chaos" existent between Heaven and the Universe, became in the West the Zodiacal Circle, receiving the figures from the corresponding divisions of the earlier Zodiacal Square.
"This arrangement at once confers upon the Swastika the character of a symbol of the Four Seasons, a device which causes the second Zodiacal sign, Tarus to fall to a corner place.

"Now we well know from the general position that this lower left hand corner must correspond with the early part of the year, so if we are to determine the arms of the Swastika, as the Equinoctial and Solstitial points, we will see that a still deeper significance is intended; nothing more nor less than that great cyclical revolution of the whole Universe, which, at intervals of thousands of years apart, carries the beginnings of the Equinoxes and Solstices, slowly from a position of the Sun in one sign of the Zodiac to one in another.

"Universal chronology and the length of time which separates us from the beginning of the world, was reckoned on the assumption that when God created the Universe, He started the great pendulum of Time swinging, with the Sun in the sign Aires.

"Hence the great esoteric connection of Ram and Lamb with various religions.

"In the course of several milleniumms, the Spring Equnoticial arm of the great cosmogonic Swastika had swung around to the sing of Taurus, the Bull, and this is the main evidence that the great geometrical revelation took place at some time during the "Tauric" period, when Circle squareing, the Zodiac and the Swastika, all coincided as we see them in the following figure.

"The Hon. E. M. Plunkett (Ancient Caldendars and Constellations) says with regard to this subject--"The beginning of the Median year was fixed in the season of the Spring Equinox, and remaining true to that season, followed no star mark.

"'The great importance, however, of Tauric symbolism in Medean art, seems to point to the fact, that when the equinoctical year was first established, THE SPRING EQUINOTCIAL POINT WAS IN THE CONSTELLATION TAURUS.

"'Astronomy teachers us, that was the case, speaking in round numbers, from 2000 to 4000 BC.'

"The Swastika "of the double Circle" is even more precise in its Solar-Lunar numeration than the simpler form, for laid out on a square of 16x16 or 256, it divides that volume into four arms of 28 each, without counting the centre 4, which added to the spaces between the arms gives us four sections of 36 each."

And thus ends the book.

Chapter 16--Any Clues In the Magic Square?

Are there any clues to Gann's work in the magic square?

I don't honestly know.

But I do know this. From what we have seen there is no doubt that the writer's magic square is the very same thing that Gann used for his Square of Four and I believe you will agree with me that I have proved it.

There was no clue there as to how Gann used his knowledge of the magic square for his Square of Four.

But after reading this material on the magic square it gave me an idea. Maybe it has already given you one!

I used to play around with the Square of Nine (Cycle of Eight). I reduced the numbers to single digits.

I marked out the teleois numbers.

I also marked out the numbers in sequences of the odd numbers that make squares. I told how the odd numbers are used to make squares in Book IV-"One the Square."

So I would mark 1 as 1. Then mark 2, 3, 4, as 1, 2, 3 and then mark 5, 6, 7, 8 and 9 as 1, 2, 3, 4 and 5, etc. with my last odd number alternately ending up on the 315 degree line and on the line one digit short of the 135 degree line.

True, there was a PATTERN there, but it didn't lead to anything else.

But after reading the material on the magic square and how it was laid out as opposed to the way Gann laid it out, I got the idea for laying out the Square of Nine (Cycle of Eight) along the same PATTERN.

In doing the magic square the writer numbered around until he reached the 360 degree line and then started numbering at 1 again as we have seen.

I have proved to you earlier that the line one unit short of the 315 line, the line that runs down 8, 24, 48, etc. is really the 360 degree line on the Square of Nine (Cycle of Eight) chart and not the line that runs to the March 20 date.

So I numbered the chart starting at 1 and numbering through 8. Then I numbered 9 as 1, 10 as 2 and on around to 16. And I did the rest as shown on the accompanying chart.

13	14	15	16	17	18	19	20	21	22	23	24	25
12	11	12	13	14	15	16	17	18	19	20	21	26
11	10	9	10	11	12	13	14	15	16	17	22	27
10	9	8	7	8	9	10	11	12	13	18	23	28
9	8	7	6	5	6	7	8	9	14	19	24	29
8	7	6	5	4	3	4	5	10	15	20	25	30
7	6	5	4	3	2	1	6	11	16	21	26	31
6	5	4	3	2	1	8	7	12	17	22	27	32
5	4	3	2	1	16	15	14	13	18	23	28	33
4	3	2	1	24	23	22	21	20	19	24	29	34
3	2	1	32	31	30	29	28	27	26	25	30	35
2	1	40	39	38	37	36	35	34	33	32	31	36
1	48	47	46	45	44	43	42	41	40	39	38	37

I have colored the cardinal points to just provide a reference.

See anything interesting?

Let's take out the numbers except those on the 45 degree lines and give it another look.

13	x	x	x	x	x	19	x	x	x	x	x	25
x	11	x	x	x	x	16	x	x	x	x	21	x
x	x	9	x	x	x	13	x	x	x	17	x	x
x	x	x	7	x	x	10	x	x	13	x	x	x
x	x	x	x	5	x	7	x	9	x	x	x	x
x	x	x	x	x	3	4	5	x	x	x	x	x
7	6	5	4	3	2	1	6	11	16	21	26	31
x	x	x	x	x	1	8	7	x	x	x	x	x
x	x	x	x	1	x	15	x	13	x	x	x	x
x	x	x	1	x	x	22	x	x	19	x	x	x
x	x	1	x	x	x	29	x	x	x	25	x	x
x	1	x	x	x	x	36	x	x	x	x	31	x
1	x	x	x	x	x	43	x	x	x	x	x	37

The pythagoran over lay on this chart would show that numbers on 45 degree lines on the cardinal arms will be equal in this manner:
4+6=2+8
7+11=3+15

10+16=4+22
ect.

See anything now?

Let's look at the numbers that run straight out to the left starting with the number 1.

We have 1, 2, 3, 4, 5, 6, etc.

Now go up to the next 45 degree line and start at 1 again.

We have 1, 3, 5, 7, 9, 11, etc.

Now go up the next 45 degree line from 1.

We have 1, 4, 7, 10, 13, 16, etc.

Now go up the next 45 degree line from 1.

We have 1, 5, 9, 13, 17, 21, etc.

Then go out to the right on the next 45 degree line from 1.

We have 1, 6, 11, 16, 21, 26, etc.

Then go down on the next 45 degree line from 1.

We have 1, 7, 13, 19, 25, 31, etc.

Then go straight down on the next 45 degree line from 1.

We have 1, 8, 15, 22, 29, 36, etc.

Do you have it now?

The numbers we have seen on these angles are the very same numbers that are used to make the different sided figures: triangles, squares, pentagons, hexagons, 7-sided gons, 8-sided gons and 9-sided gons!

We saw these same figures discussed in my Book VI--"The Triangular Numbers" which explained how to make the various sided figures.

Lets review those numbers again from that book:

3-Sides	4-Sides	5-Sides	6-Sides
Triangle	Square	Pentagon	Hexagon
1	1	1	1
2	3	4	5
3	5	7	9
4	7	10	13

5	9	13	17

Since I don't know the names of the other sided figures except for the octagon we will just call them gons:

7-Sided	8-Sided	9-Sided
7-Gon	Octagon	9-Gon
1	1	1
6	7	8
11	13	15
16	19	22
21	25	29

As you can see they are the very same numbers that run on the angles of the Square of Nine (Cycle of Eight) chart when I redrew the chart.

Now, let's take out the headings so we can group our numbers a little closer together:

1	1	1	1	1	1	1
2	3	4	5	6	7	8
3	5	7	9	11	13	15
4	7	10	13	16	19	22
5	9	13	17	21	25	29
6	11	16	21	26	31	36
7	13	19	25	31	37	43
8	15	22	29	36	43	50

There is a PATTERN here that I noticed when I first looked at that ancient man's work. Yes I know. There is a PATTERN in the fact that the first row has a difference of 1 in the numbers and the second has a difference of 2 in the numbers, etc.

But there is also a couple of other PATTERNS. Look at the numbers running down from 1, 3, etc. and then note that the numbers 3, 5, 7 also run across the screen. Pick out another column l, 5, 9, 13. Then look at the row 5, 9, 13 going across.

So the numbers are the same going down as they are going across.

Also start with the number 4 in the left hand column and go down a 45 degree line and we have 9, 16, 25, 36, 49. Squares!

And indeed it seems we have a PATTERN. At least a partial one. There is something "missing" to make it complete.

Do you see it?

In the first place the columns and rows do not agree. The column with the 1, 5 is the fourth column and the row that starts with 5 is of course the fifth row.

Also when we went down on the 45 degree angle from 4 in which we saw the squares in order there was no square of 1.

That ancient writer had no 1's in a column to the left of the present column which contains 1, 2, 3, 4. This would complete the PATTERN.

But wait!

Look back at the Square of Nine (Cycle of Eight) I have redrawn. Running down on what used to be the odd squares line is now a series of 1's.

And if you noticed before we only accounted for 7 of the 8 45-degree angles.

And we can see that if we start with any of those 1's and go straight up to the March 20 line and on up to the next 45 degree line and then on around we will also have the numbers to make one of the gons.

So let's go back to that set of numbers which make the gons and this time add a column of 1's:

1	1	1	1	1	1	1	1
1	2	3	4	5	6	7	8
1	3	5	7	9	11	13	15
1	4	7	10	13	16	19	22
1	5	9	13	17	21	25	29
1	6	11	16	21	26	31	36
1	7	13	19	25	31	37	43
1	8	15	22	29	36	43	50

And now our PATTERN is complete. The numbers running down the columns correspond to the same number row going across. Also we have a square of 1 to go down the 45 degree line, 1, 4, 9, 16, etc.

So we have done something here that even that old ancient writer didn't do, we supplied a column of 1's to make the PATTERN complete.

But can we prove that a column of 1's should be there?

You might recall in my discussion of the different gons in my book on the triangular numbers that there was an easy way to find out what numbers should be used to make up any gon.

I said that even though the ancient writer never pointed it out I had discovered that easy way.

You simply use a difference in numbers that is two less than the side of the gon you want to make.

If you wanted to make a 33-gon (a 33-sided figure) you would subtract 2 from 33 and get 31 and that would be the difference in numbers starting with 1 that would be needed to make a 33-sided figure. In other words you would start with 1 and add 31 to get the next number which is 32 and then add 31 to 32 to get the next number or 63.

We can see that easier with the square. The square, a 4-gon, has 4 sides. So if we subtract 2 from 4 we get 2, which is the difference in numbers starting at 1 that we use to make the squares. So 1 plus 2 is 3 and 3 plus 2 is 5. And 1, 3, 5, etc. are the numbers we add together to make the squares.

Then there is the triangle, a 3-gon. It has 3 sides so we subtract 2 from 3 and get 1 and 1 is the difference in numbers that we use to find the numbers to make the triangle or triangular numbers. Starting at 1 we add 1 to get 2 and add 1 to 2 and get 3, etc. And those numbers, 1, 2, 3 are the numbers we add to get the triangular numbers.

Now since our series of 1's come just before the triangle we must be finding a two-sided figure, a two-gon. So we subtract 2 from 2 and get 0 or zero and this is the difference in the numbers used to make the two-sided figure. So starting at 1 we add 0 and get 1, add 0 and get 1, etc. So you see we get a series of 1's since the difference is 0.

Now there may not be any geometrical figures with two sides in actuality, but we have proved in theory that there is a two-sided figure and it is made with a series of 1's.

AND THAT MAKES UP OUR NUMBERING SYSTEM WHICH WE CALL UNITS!

And we have proved something that the ancient writer never told us. But like the Bible and Gann said, "Prove all things."

We have also discovered something else.

The Missing Link!

Chapter 17-The Missing Link

You might recall that earlier in this book that I showed how the different cycles of numbers could be made.

If we wanted to make the cycle of four we could do it like in the example below:

1	6	15	28
2	8	18	32
3	10	21	36
4	12	24	40

In the case above we made this cycle based on triangular difference of numbers in the columns. We showed this by putting the numbers that make up the triangular numbers over the columns like so:

1	2	3	4
1	6	15	28
2	8	18	32
3	10	21	36
4	12	24	40

And we saw that the 360 degree line along the bottom was 4 times the triangles in order 4x1, 4x3 (three is the triangle of 2), 4x6 (6 is the triangle of 3) and 4x10 (10 is the triangle of 4).

And if we wanted to make up a cycle based on the numbers that make up "squares" such as Gann's Square of Four we would do it like this:

1	3	5	7
1	7	21	43
2	10	26	50
3	13	31	57
4	16	36	64

And we can see along the bottom that the numbers are 4 times the squares in order 4x1, 4x4, 4x9, 4x16.

You might remember that I said in Chapter 8 that I had a problem with a "regular" square though since there were no "gon" numbers to make a regular square. But now we know there are!

And we can see that if we put the numbers that make the 2-gon across the top of our square. I had mentioned a square of 12. But any other square can me made the same so again we will use a 4:

1	1	1	1
1	5	9	13
2	6	10	14
3	7	11	15
4	8	12	16

So the difference between the numbers in any column is 1 and our missing link has been found!

Chapter 18-Red Flag! Number 325!

When I find PATTERNS, I start looking for other PATTERNS. For some reason I started counting down on the 45 degree angle that goes straight down from 1 through 8, etc. As I added the numbers I came to 325.

That sent up a red flag.

You might recall that Gann mentioned the number 325 and said the cycle changes here where two 45 degree lines cross. I never could understand what he meant by that, but here was that number again. And then when I went on down with the count I ended up at 1089 and that is the square of 33 (33X33-1089) and that is where the chart ends. Hmmmm. Very interesting.

So, I added the numbers again. That is the numbers that run from 1 through 8 and straight on down. This time I checked out the answers each time I added a number.

Are you still with me. Let's add them and see where the answers fall on the Square of Nine chart (the Cycle of 8):
The first column are the numbers running down from 1 through 8, etc. The second column is a running total as we add.

1	1
8	9
15	24
22	46
29	75
36	111
43	154
50	204
57	261
64	325
71	396
78	474
85	559
92	661
99	760
106	866
113	979
120	1089

Did you follow the answers on the Square of Nine chart?

Did you see anything interesting?

You might have noticed that all the answers fell on a 22.5 degree angle or 45 degree angle (which is 22.5 degrees from the

22.5 angle).

They fell counter clockwise on the angles.

And each time the numbers went out one square and hit on the next 22.5 degree angle. Let's look at that. In the right hand column I have put in the number of the angle:

Number	Total	Angle
1	1	315
8	9	315
15	24	292.5
22	46	270
29	75	247.5
36	111	225
43	154	202.5
50	204	180
57	261	157.5
64	325	135
71	396	112.5
78	474	90
85	559	67.5
92	661	45
99	760	22.5
106	866	360
113	979	337.5
120	1089	315

Note that the first two numbers are on the same angle as the last number and we are back to where we started.
As I was doing this I noticed that when I added 64 which is the square of 8, I came to 325 and 325 is 180 degrees from 1089. That led to another possible PATTERN.

Chapter 19-Answers on the Diagonal

I remembered that when I wanted to find a diagonal of a square in my mind, I simply added 1 less than the square root each time and I would be on a number on the diagonal. I discussed this in Book VIII-"The Single Digit Numbering System."

It goes something like this. If you want to find the diagonal of a square such as 8, you would add 7 to that and get 15, the next number on the diagonal and add 7 to 15 and get 22 which is the next number on the diagonal, etc.

Since these are the same numbers we used for finding the numbers on the Square of Nine we could come up with another PATTERN.

So let's put down a regular square of eight:

1	9	17	25	33	41	49	57
2	10	18	26	34	42	50	58
3	11	19	27	35	43	51	59
4	12	20	28	36	44	52	60
5	13	21	29	37	45	53	61
6	14	22	30	38	46	54	62
7	15	23	31	39	47	55	63
8	16	24	32	40	48	56	64

You recall that the numbers we used to add to get the numbers on the square of 9 that got us to 325 were:

1
8
15
22
29
36
43
50
57
64

So looking at our regular square we can find these same numbers.

As we can see the numbers we added to find the numbers on the Square of nine are the 1 at the top, the 8 at the bottom and the numbers on the diagonal 15, 22, etc. up to 59 and then 64 at the bottom. (I have colored them to make it easier to grasp.)

As I said before these numbers added up to 325 which was 180 degrees from 1089 so I extended the square of 8 until I ended up at 1089. The extension is seen below:

1	9	17	25	33	41	49	57	65	73	81	89	97	105	113
2	10	18	26	34	42	50	58	66	74	82	90	98	106	114
3	11	19	27	35	43	51	59	67	75	83	91	99	107	115
4	12	20	28	36	44	52	60	68	76	84	92	100	108	116
5	13	21	29	37	45	53	61	69	77	85	93	101	109	117
6	14	22	30	38	46	54	62	70	78	86	94	102	110	118
7	15	23	31	39	47	55	63	71	79	87	95	103	111	119
8	16	24	32	40	48	56	64	72	80	88	96	104	112	120

We can see if we draw another diagonal starting at 64 and going up through 71, 78, etc. it will go up to 113. Then if we add 120 at the end of the series of numbers we will come to 1089. To recap add 1 to the 8 and then the numbers on the diagonal to 57, then add the 64 and the numbers on the diagonal up to 113 and then add 120 we will have added up to 1089.

And every time we add a number we find ourselves on one of the 22.5 angles on the Square of Nine chart!

So here was another **PATTERN**.

I wondered if I could use the **PATTERN** on any series of numbers.

I had noticed something when I looked at the series above. Maybe you have already seen it.

I noticed that the last number in the series was 120. And that number is the triangle of 15. I noticed in the first column that the last two numbers were 7 and 8 and when added they equal 15. Then I noticed that the total number of columns is also 15.

I wondered if the same **PATTERN** would hold for another series of numbers.

So let's recap what we have learned about our "rectangle of eight" above:

The numbers used on the square of nine chart were the numbers that make up a 9-gon that when added gave us the numbers on the Square of Nine chart that fell on the angles.

Those angles were the 22.5 degree angles, which is 360 degrees divided by 16 and 16 is 2 times 8.

When we added 64, the square of 8 to our series we arrived at the 180 degree point (325 is 180 degrees of 1089).

On our rectangle we added 1 to 8 and then the numbers on the diagonal up to the top and then went down to 64 and added that and then we added the numbers on that diagonal up to 113 and then added 120 to end the series.

We noted that the last number in the series was 120 which is the triangle of 15 and noted that the last two numbers in the first column 7 and 8 added to 15 and that there were 15 columns.

So our series of numbers should follow that same **PATTERN** if we use another series of numbers.

Chapter 20-Checking It Out on the Hexagon

We saw earlier that the Square of Nine, Octagon, Cycle of Eight or 9-gon chart, call it what you like but I will call it the Square of Nine since that is what it is commonly called, and the Hexagon chart are constructed in the same manner.

It is also a chart we have at hand so we can check our results against it. So let's put down a rectangle of 6.

Let's look at the first column of numbers:

1
2
3
4
5
6
We can see that the last two numbers are 5 and 6 and 5 plus 6 is eleven so if we were right about the rectangle of 8, then in the rectangle of 6 we should have 11 columns and the last number in the column will be the triangle of 11 which is 66.

And that is pretty evident since there are 6 in each row and 11 across would be 66. So let's put down the whole rectangle.

1	7	13	19	25	31	37	43	49	55	61
2	8	14	20	26	32	38	44	50	56	62
3	9	15	21	27	33	39	45	51	57	63
4	10	16	22	28	34	40	46	52	58	64
5	11	17	23	29	35	41	47	53	59	65
6	12	18	24	30	36	42	48	54	60	66

Now I will let you do the adding. Add the 1 to the 6 and get seven and then add the numbers on the diagonal 11,16, 21, 26 and 31. Then drop down and add 36. And then add the numbers on the diagonal up through 41, 46, 51, 56 and 61 and then go down and add 66.

Look at your numbers on the Hexagon chart as you make each addition. What happened?

Exactly what it did on the Square of Nine Chart! The numbers fell on an angle. This time they fell on the 30 degree angles. And each time they went out to the next square or circle or hexagon, which ever way you want to call it.

So we have seen that the same PATTERN works for both the Square of Nine and the Hexagon Chart.

Chapter 21-Same PATTERN On Other Charts

We don't have any other charts to check our work, but we can be assured that the same PATTERN would exist for any other chart if we could draw out those charts.

Remember that what ever number PATTERN we use the PATTERN will be for the "gon" which is one more unit than the rectangle we are using. The "8" rectangle makes the 9-gon and the "6" rectangle makes the 7-gon since the numbers we are using make those gons.

Let's review the numbers that make the polygons again.

The sides of the polygon go across the top. The numbers under those are the numbers used to make the polygon. For example under 4, a four-sided figure or a square, the numbers are 1, 3, 5, etc. When added they made squares. 1 is the square of 1. 1 plus 3 is 4, the square of 2. l plus 3 plus 5 is 9, the square of 3, etc.

2	3	4	5	6	7	8	9
1	1	1	1	1	1	1	1
1	2	3	4	5	6	7	8
1	3	5	7	9	11	13	15
1	4	7	10	13	16	19	21
1	5	9	13	17	21	25	29
1	6	11	16	21	26	31	36
1	7	13	19	25	31	37	43
1	8	15	22	29	36	43	50
1	9	17	25	33	41	49	57
1	10	19	28	37	46	55	64

Note: If you know the last term such as 64 above, you can add 1, divide by 2 and multiply it by the number of terms and get the answer, the same as if you had added them. Take 64 and add 1 to get 65. Divide by 2 to get 32.5 and multiply by 10 and get 325. This is the same as adding all the numbers under the 9-gon. I had known this for squares, but had not known it earlier that it worked for all the polygons!

Now, let's do a few more rectangles. Remember we start with a square and when we reach the end of the square we are on the 180 degree angle. And then we extend our square to make a rectangle. The last number in our rectangle will be always be a triangular number. And that number will be the triangle of the sum of our "square" or "rectangular" number plus 1 less than that square. In the case of the 8 it was the triangle of 8 plus (8-1) or 7 or the triangle of 15.

For 2 it would be the triangle of 2 plus (2-1) or 1 or the triangle of 3 which is 6. So let's look at some of those rectangles:

1	3	5
2	4	6

1	4	7	10	13
2	5	8	11	14
3	6	9	12	15

We can see that the last number in the 2-rectangle is the triangle of 3 and the last number in the 3-rectangle is the triangle of 5. We see here a PATTERN that the triangles will always be a triangle of an odd number since when we add 1 and 2 we get 3, when we add 2 and 3 we get 5. So the next rectangle, the one of four, should have the triangle of 7 at the end since 3 and 4 are 7.

And we see below that we were right!

1	5	9	13	17	21	25
2	6	10	14	18	22	26
3	7	11	15	19	23	27
4	8	12	16	20	24	28

It is the triangle of 7. Again note that in each of these three groups the root of the triangle came be found by adding the last two numbers in the first row. 1 plus 2 is 3. 2 plus 3 is 5. 3 plus 4 is 7. And the triangle of 3 is 6, the triangle of 5 is 15 and the triangle of 7 is 28.

And we had 3 columns, 5 columns and 7 columns.

Now let's list some other rectangles:

1	6	11	16	21	26	31	36	41
2	7	12	17	22	27	32	37	42
3	8	13	18	23	28	33	38	43
4	9	14	19	24	29	34	39	44
5	10	15	20	25	30	35	40	45

Yes it works. 4 plus 5 is 9 which is the root of the triangle of 45 and there are 9 columns.

Now, we'll do the 8-gon.

1	8	15	22	29	36	43	50	57	64	71	78	85
2	9	16	23	30	37	44	51	58	65	72	79	86
3	10	17	24	31	38	45	52	59	66	73	80	87
4	11	18	25	32	39	46	53	60	67	74	81	88
5	12	19	26	33	40	47	54	61	68	75	82	89
6	13	20	27	34	41	48	55	62	69	76	83	90
7	14	21	28	35	42	49	56	63	70	77	84	91

I colored just half here. Let you figure out the rest.

Chapter 22-The Numbers on the Angles

I have done this work to show you the relationship of a rectangle of numbers to the polygons and how the polygon numbers fall on the angles on the Square of Nine Chart and on the Hexagon Chart. Earlier we put down the numbers and put the angles out at the side to show how they fell on the individual angles and then came back to the angle where they started.

Let's look at the work we did on the 9-gon, the work that gave us the angles for the Square of Nine or Cycle of Eight or Octagon.

Number	Total	Angle
1	1	315
8	9	315
15	24	292.5
22	46	270
29	75	247.5
36	111	225
43	154	202.5
50	204	180
57	261	157.5
64	325	135
71	396	112.5
78	474	90
85	559	67.5
92	661	45
99	760	22.5
106	866	360
113	979	337.5
120	1089	315

As we did the 7-gon, Cycle of Six or Hexagon, I had you follow the results on the angles. Let's put those down.

1	1	360
6	7	360
11	18	30
16	34	60
21	55	90
26	81	120
31	112	150
36	148	180
41	189	210
46	235	240
51	286	270
56	342	300
61	403	330
66	469	360

Look in the first column and count the number of terms both for the 9-gon and the 7-gon.

In the 9-gon, Cycle of 8, it takes 10 terms to get to the square of 8 or 64 and it takes 18 terms to get to the end.

In the 7-gon, the Cycle of 6, it takes 8 terms to get to 36 the

square of 6 and 14 terms to get to the end.

PATTERN?

Yes. We can see that in the Cycle of 6 it takes 8 terms to get to 36 and 8 is two more than the cycle number, which is 6. And we see that in the Cycle of 6 it take 14 terms to get to the end and 14 is two times the cycle number, which is 6, plus 2, that is 12 plus 2.

We can see that in the Cycle of 8 it takes 10 terms to get to 64 and 10 is 2 more than the cycle number of 8. And to get to the end takes 18 terms which is 2x8 plus 2.

And we have noticed that the amount of angles the numbers will fall on is twice the cycle number. In the cycle of 8 the numbers fell on 16 angles and on the cycle of 6 the numbers fell on 12 angles.

So the number of angles our results will fall on will be twice the cycle number.

So with that in mind we could make up a whole list of cycles without having to lay out a rectangle.

And there are several things we will know before we start:

(1) The numbers we use to make up the cycles will be for the "gons" which are 1 unit more than the cycle. For the Cycle of 8 we would use the numbers that make up the 9-gon, etc.

(2) The number of terms to make the complete cycle will be 2 times the cycle number plus 2. In the case of the Cycle of 8 it was 18 which is 2x8 plus 2.

(3) When we reach the half-way point, the 180 degree line, we will be adding the square of the cycle number and the number of terms to reach that square will be two more than the cycle number. In the case of the Cycle of 8 it will be 8+2 or 10 terms.

(4) The number of angles we will have will be 2 times the cycle number. In the case of the Cycle of 8 it will be 16.

(5) The first two numbers will both be on the 360 degree line and the last number will be on the 360 degree line.

Chapter 23-Some Other Cycles

So now let's make up some cycles and see how they follow the things we know.

So, the 5-gon would represent the Cycle of four and there would be 8 45-degree lines.

Like the 7-gon we will start with the 0 or 360 degree line:

1	1	360
4	5	360
7	12	45
10	22	90
13	35	135
16	51	180
19	70	225
22	92	270
25	117	325
28	145	360

Now, let's do the 3-gon (the Cycle of 2). The answers will fall on the four 90-degree angles:

1	1	360
2	3	360
3	6	90
4	10	180
5	15	270
6	21	360

Chapter 24-Why the Square of 9 Chart Ends at 1089!

After going back over the material I finally discovered why Gann's Square of Nine chart (the Cycle of 8) ends at 1089 (the square of 33).

We can see that when we did the 9-gon and came back to the 315 degree angle we were at 1089. At first I thought that was just coincidental. But looking at the 7-gon (the cycle of six or the hexagon chart, it dawned on me that both of them follow the same PATTERN.

On the 9-gon 1089 is 8 times 136 plus 1 and 136 is the triangle of 16 which is 2 times 8!

On the 7-gon 469 is 6 times 78 plus 1 and 78 is the triangle of 12 and 12 is 2 times 6!

So the final number in our examples above is always the cycle number times the triangle of double the cycle number plus 1.

In our 3-gon above the cycle number is 2. We find the triangle of double that number (4) which is 10. Multiply times 2 and add 1 and we have 21 for our final number.

In the 5-gon the cycle number is 4. We find the triangle of double that number (8) which is 36. Multiply by 4 and add 1 and we have 145 which is the final number in that series.

Let's do the 4-gon (cycle of 3). Before we even do it we will know that its ending number will be the triangle of six times 3 plus 1. The triangle of 6 is 21. Three times that is 63 and when we add 1 we get 64. Since this is the Cycle of 3 we will have six 60 degree angles.

Again the first two numbers and the last number will both fall on the same angle so there are more than six numbers below:

1	1	360
3	4	360
5	9	60
7	16	120
9	25	180
11	36	240
13	49	300
15	64	360

We were right when we said our ending number would be 64.

Let's do the 6-gon:

1	1	360
5	6	360
9	15	36
13	28	72
17	45	108
21	66	144
25	91	180
29	120	216
33	153	252
37	190	288
41	231	324
45	276	360

Gann had a square of 20. Let's have a look at that:

1	1	360
20	21	360
39	60	9
58	118	18
77	195	27
96	291	36
115	406	45
134	540	54

I just did the first few to give you the idea.

And I will let you work that last one out and see how it adheres to the four things "we knew" earlier.

Remember that all this works with cycles that are based on the triangular system. I showed earlier how the Cycle of 8 and the Cycle of 6 were based on the triangular numbers.

I tried to find something that would work on the Square of Four, but could not. Remember that the Square of Four works off the squares and the Cycle of 4 works off the triangular numbers.

Was Gann aware of the work that you have seen here? I don't know. Maybe I have stumble on something he didn't know. Could he have used it without knowing about it? I don't know. But the PATTERNS of the numbers falling on the angles in all the "gons" is very interesting and requires further study.

Chapter 25--The Squares of Nine and 33

In Chapter 9 of his commodity course Gann describes the Square of Nine noting the 90 degree angles that his numbers fall on.

Then later he describes the Square of 33, which seems to be just an extension of the Square of 9. This square of 33 ends at 1089 and in his description of soybean prices his numbers never reach near that far.

Why didn't he just extend the Square of Nine out to where he needed it. His highest soybean number at that time was 436, just short of 441, or the square of 21.

That's because there is a numerical relationship between his Square of Nine, which he ran out to 19x19 and the square of 33 or 33x33.

Maybe you have already figured it out. Maybe after seeing all the work that we have done up to this point you have figured it out!

I would never have figured it out if I had not done the work described in the last few chapters.

But the fact that the 9-gon work we did with the last number being 1089 or the square of 33 finally tipped me off.

I had known for a long time that there was a possible relationship with the triangle of 4 and the triangle of 8 and we know that 8 is two times 4.

We know that the triangle of 4 is 10 and the triangle of twice that number or 8 is 36. And when they are multiplied we get 360. The 360 degrees in a circle!

But the answer to how the square of 19 and the square of 33

dovetailed did not dawn on me for awhile.

Until I added the 1!

The triangle of 10 times the triangle of 8 is 360. and when you add the 1 you get 361 or 19x19.

We saw earlier that the triangle of 16 is 136 and 8 times that is 1088. And when you add the 1 you get 1089 which is where the 9-gon ends.

Have you got it now?

Lets put our two things under each other.

Triangle of 4 times triangle of 8 plus 1 is 361.
8 times the triangle of 16 plus 1 is 1089.

Both of the answers then end up on the same angle, in this case they end up on the angle of 315 the way Gann has laid out the Square of Nine, but we have seen that the numbers could be changed so that they end up on the 360 degree line.

If we look at each of our gons we will see that they all end at a number which is a number times the triangle of twice that number plus 1.

And remember that in our gons we are using numbers which are 1 less thag the gon number. In the case of the 9-gon our numbers were based on "8".

In the 7-gon our numbers are based on "6."

So let's look at the 7-gon again and do with it what we did with the 9-gon.

Since our number is 6 we can see that it ends at:

6 times the triangle of 12, then add 1.

The triangle of 12 is 78 and six times that is 468 and when we add the 1 we get 469.

And when we look at our 7-gon work (the cycle of 6) we can see that we are right. It does end at 469.

1	1	360
6	7	360
11	18	30
16	34	60
21	55	90
26	81	120
31	112	150

36	148	180
41	189	210
46	235	240
51	286	270
56	342	300
61	403	330
66	469	360

We can even see we are right with the simple 3-gon. The number is 2. And 2 and 2 times 2 is 4. The triangle of 4 is 10. Two times 10 is 20 and when we add the 1 we have 21 and our 3-gon ended at 21.

You can work on the rest of the gons and see that they all follow this same PATTERN.

We saw on the 9-gon (the Cycle of 8) that 8 times the triangle of 16 plus 1 (1089) ended on the same angle as the triangle of 4 times the triangle of 8 plus 1 (361).

So now that we have seen how the last number in our gons ended on the number times the triangle of twice the number plus 1, let's see if we can also find that other number like the 361 on the cycle of 8.

With the 7-gon we use the number 6.

Half of 6 is 3 and the triangle of 3 is 6. The triangle of 6 is 21 and 6 times 21 is 126. Then we add the 1 and we have 127. And we can see on the Hexagon that 127 ends up on the same angle as 469.

So the PATTERN works. And we can compare the PATTERNS of the Cycle of 8 and the Cycle of 6.

Triangle of 4 (10) times Triangle of 8 (36)+1=361
8 times the Triangle of 16 (136)+1=1089.
Now we just substitute the numbers 3 and 6 in the first line:

Triangle of 3 (6) times the Triangle of 6 (21)+1=127

Now we just substitute the numbers 6 and 12 in the second line:

6 times the Triangle of 12 (78)+1=469.

That PATTERN would work with all our gons if we could draw them out in the same way the Square of Nine (the Cycle of 8) and the Hexagon (Cycle of 6) are drawn out.

To find out what triangle of a number times the triangle of double that number plus 1 falls on the same angle as a number times the triangle of double that number plus 1, just substitue the appropriate numbers as I did above.

Some examples:

The triangle of 1 times the triangle of 2 (plus 1)=4
2 times the triangle of 4 (plus 1)=21

The triangle of 2 times the triangle of 4 (plus 1)=31
4 times the triangle of 8 (plus 1)=145.

That will get you started. I think you can take it from there.

What have we learned from all this? Did Gann know this? How did he use it?

I don't know how he used it. But I am sure he must have been aware of the things we have found.

The fact that the Square of Nine ends at 1089 I believe is the proof that he did know it.

His Hexagon does not end at 469 as we might suspect, but I think that is the logical end of it. Why it is extended to the point where it is is anybody's guess.

How does this fit in with Gann's Square of Four chart.

Remember that Gann's Cycle of 8 and Cycle of 6 are based on the triangular numbers and his Square of Four is based on square numbers.

We have seen that using the various gons which are made up of numbers so many units apart work out the angles on the cycle charts which themselves are based on triangular numbers.

I could not find a similar operation that would work on the Square of Four.

But I did find this.

You remember how I found the end of the cycles above (the end of the cycle of 8 was 8 times the triangle of 16) and how I found that the triangle of 4 times the triangle of 8 was found on the same angle. I added 1 to each of those to put them on the odd squares of 19x19 And 33x33. I could have left off the 1 and they would still have been on a 360 degree angle.

I showed a little formula for that.

Triangle of 4 times the Triangle of 8 (+1)=361
8 times the Triangle of 16 (+1)=1089.
If I left off the 1 the numbers would be 360 and 1088, but they would still be on the same angle.

I also suggested that other numbers could be substituted with the same results on their respective cycles.

For the cycle of 4 it would be:

Triangle of 2 times the Triangle of 4
4 times the triangle of 8.

Now the interesting part is this:

If we substitute the word square for triangle above then we would have the same results on the Square of Four (not to be confused with the Cycle of 4 above)

Square of 2 times the Square of 4=64
4 times the Square of 8=256

And both of these are on the same 360 degree on the Square of Four!

This also means that under our formula the logical ending place for this square is 256. The square that comes with your Gann material ends at the square of 34 and 256 is only the square of 16.

But this logical ending of 256 can be seen in the Gann material. On page 142 in the "old" course (page 135 in the Master Egg Course which is a supplement marked with a large 9 in the back of the "new" course) he speaks of prices working out to the square of 16 which is on time. See the Egg Chart in Section 9 and you will see that the circle goes out to 256. In the course it says on time at 250, but I believe this is a mistake and he meant 256.

I hope you have enjoyed reading this material. Maybe you can take what I have written here and dovetail it with your own work to come up with the solution to Gann's esoteric work.

Like I said at the beginning my aim was not to give you something to make a million dollars in the market in the morning as I don't have the entire solution to Gann's work.

But I believe you will agree with me that I have opened a lot of doors for those who want to go in and search around. Maybe the missing piece is behind one of those doors.

I keep learning new things every so often so look in the appendix for other goodies.

Appendix

Appendix 1

Gann's 24-Hour "Error"

The Gann material is full of errors. Why, I don't know. It could be that his original material had faded and the person or persons who did the copying to put out the Gann material couldn't read it and guessed at what Gann was saying.

Some errors are quite obvious. At one point Gann says there are 560 degrees in a circle when we know there are 360.

Also if you check the work on eggs and the relationship to the Square of Four chart you will find a number of errors when the time numbers are multiplied by 5. Check the figures in that section (on page l43 in my material).

If the copying work was done right and there is what appears to be an error I am led to believe that Gann made the error as a clue or because he wanted us to think out the real answer.

Let's look at one of those "mistakes."

Look at the section entitled "Master 360-Degree Square of 12 Chart for Eggs." It is page 129 in my material.

Now read the second paragraph, "The earth makes one revolution on its axis every 24 hours and moves one cycle of 560 degrees."

Both of us would probably agree that the 560 degrees is a mistake and we would probably change it to 360 degrees.

Then it would read that the earth turns 360 degrees in 24 hours. Right? That's something I accepted for a long time as there seemed no possible disagreement with the statement. Probably many others have also accepted it.

But let's check it out.

Let's say you are sitting on the earth looking south. Or let's just say I am, and you are sitting here beside me in Paris, Tenn. For illustration let's say we are on a high hill so we have a good view.

Let's draw a meridian from the north pole to the south pole and let it run right through the middle of my head, between my eyes and down my nose. (There are many meridians on the earth, the prime meridian in London and others that divide the earth east to west by drawing lines from the north pole to the south pole. But any location

on the earth can represent a meridian drawn from north to south.

Now, let's wait for the sun to get right on our meridian. Let's pretend we can look right at the sun and that we can also see that north to south line that runs down my nose, out into space and on around to the south pole.

So, we see the sun get on the meridian and I check my watch.

I tell you it is 12 noon. You check my watch and agree.

Then we wait for the earth to spin us around and the next day we are in our same positions. The sun touches our meridian. I show you my watch again. It is 12 noon, 24 hours from 12 noon yesterday. Next day we are at it again. Again the sun is on the meridian and again we check my watch. Again it is 12 noon and another 24 hours has passed.

Conclusion?

It must be 24 hours from the time the sun is on a meridian until it is on the same meridian again. (Because the earth does not run in an exact circle but in an ellipse and because it is sometimes nearer the sun than at other times which makes the earth run faster and the sun seems to move faster, the sun might be off this meridian just a bit, but for our purposes we will pretend it does not).

So we have established the fact that from one time the sun is on the meridian until the next time it is on the meridian, 24 hours have passed.

And since the earth made a revolution it must have gone 360 degrees in those 24 hours, right?

Let's check it out.

Again let's pretend that the sun is a small light in the sky and we can look right at it. Let's also pretend that there is a circle around the earth and it is divided off into degrees and the number of degrees are written right in the sky and the sun sits on those degrees like a red chip on a black number on a roulette table.

We will start with the sun on the meridian at 12 o'clock and the sun is on the number 360. Now the earth turns a full day and our meridian comes back to the number 360, having made 360 degrees and there is the sun.

Whoa, wait a minute. The sun is not there! What happened to the sun?

Oh, there it is, on the number next to 360, the number 1.

Quick, check the watch! It's not noon yet. It is 11:56.

Must be some kind of mistake. Let's try it again.

Our meridian is still on 360. The earth turns and the next day our meridian comes back to 360 so the earth has turned 360 degrees.

But the sun is now over on number 2! Quick, the watch again! The time now is 11:52.

What's going on?

The earth not only turns on its axis, but it also goes around the sun. It moves approximately one degree a day. But if we were in the center of the earth as in a crystal ball and could look out at the sun it would seem that the sun was moving instead of the earth. And it would seem to move in a circle against that imaginary background of numbers we have drawn in the sky. And it would seem to move one degree a day.

So now we can answer our question. Does the earth turn 360 degrees in 24 hours? The answer is no.

Let's go back once again to our meridian line. It is 12 noon and the sun is over the number 360 in the sky. The earth turns and brings our meridian back to the 360 degree marker which means we have turned 360 degrees. Our watch reads 11.56. But while the earth was turning it was also moving 1 degree around the sun or the sun seem to move to the 1 degree marker.

So now our meridian must move one more degree to get the sun on the meridian. So we wait for the earth to turn one more degree and check our watch. Now it reads 12 noon.

And our meridian is on the 1 degree marker along with the sun. So now let's ride the earth another day. It turns on its axis and comes back to the 1 degree marker, which means we have turned 360 degrees. But the sun is now on the 2 degree marker and the earth and our meridian has to turn one more degree to get on the number 2 marker with the sun and the time is 12 noon.

PATTERN?

From the time the sun is on the meridian until the next time it is on the meridian is 24 hours. But each time the earth turns 360 degrees it has to go another degree to get the sun on the meridian so the revolution of the earth in 24 hours is not 360 degrees as Gann says, but it is

361 degrees

or

19x19

or

The Square of 19!

Now to answer a couple of questions you might have. Why does the earth have to turn one more degree to put the sun on the meridian and why do we call that 24 hours.

If it did not turn another degree then the hours of the day in relation to the sun would be all off.

Let's pretend that many years ago the powers that be who decided on a 24-hour day said that those 24 hours would be based on a 360 degree turning of the earth which brings the meridian right back to the same point in the sky. Let's also pretend that you and I have our noon day meal at straight up 12 o'clock.

Now the earth turns 360 degrees and brings the meridian back to the same place in the sky and we have our meal. But the sun is one degree away from the meridian.

We repeat the process next day, but the sun is now two degrees away from the meridian and after about 90 days we would be eating our noonday meal just as the sun is coming up in the east and after 180 days we would be eating our noon day meal in complete darkness as the sun would be opposite on the other side of the earth!

So to keep the sun in step with our 24-hour habits, 12 noon would have to be when the sun is on the meridian and the only way that can happen is for the earth to turn one more degree after making its 360 degree turn to put the meridian on the sun which has moved a degree because the earth has actually gone 1 degree in its path around the sun.

Quick now! How many revolutions does the earth turn on its axis in 365 days?
It turns 366 since it turns an extra degree a day and at the end of 365 days it has made an extra revolution.

Is this the "year for a day" in the Bible? Is it the year for a day used in astrology? Don't know but it is worth some study.

Gann said that the smallest unit of time that he used was 4 minutes. Let's see where that comes from.

There are 24 hours in a day so 24x60=1440 minutes. We divided by 360 and get 4 minutes which is the time it takes for the earth to turn 1 degree.

Since the time from the sun to be on the meridian until the next time it is on the meridian is 24 hours, then when the earth turns back to the 360 degree marker in the sky, before it goes another degree to put the sun on the meridian, there is a difference of 4 minutes. That is why when we checked our watch after the earth turned 360 degrees the first time, the time was 11:56 and the next time it was 11:52.

The time that it takes for the meridian to get back to the same point in the sky or to turn 360 degrees is called "star time" as it is the time it takes to get back to the same point in relation to a distant star. What star that is makes no difference, it is just a reference point in the sky. We could say that if we could use the meridian like a carpenter's chalk string and draw it back and let it hit the sky and make a large chalk mark, that would be our point.

Another name given to this time is "sidereal time."

In the early days of my Gann studies I found out that Gann used astrology. So I went to the library for astrology books. I ran into that thing called "sidereal time." The folks who wrote those books knew what they were talking about, but I found the explanation hard to understand. Over the years I ran into it time after time.

There was even a column in my ephemeris called Sidereal time. Still could not quite get the hang of it. So I never questioned Gann's statement that the earth turns 360 degrees in 24 hours. But I finally got the idea about star time and sun time and their difference.

That shed a new light on his statement.

I'm sure there are many of you out there who know about sidereal time, but for those who don't I hope that my explanation was much simpler than the ones I have read in various books.

After finally getting it set in my mind, I recently ran across a book which explained it much in the manner I have explained it here. You might want to take a look at it if you can find it in your library.

It is called "The Clock We Live on" by Isaac Asimov. Most of you will recognize the name. He wrote a lot of science fiction.

Now that you know about sidereal time, it might give you some insight in another section of Gann. We will look at that at a later time.

One last word. I don't know if Gann intentionally said that the 24 hour turning of the earth was 360 degrees or if it said 361 and someone doing the re-write changed it or if it was a mistake on Gann's part or if he wanted you to check it out and find that the real answer was

361!

Appendix 2

A COINCIDENCE OF NUMBERS

In Book I "The Cycle of Mars" in the series "The PATTERNS of Gann" I told how a friend and I had put down the square of 144 on the weekly soybean chart of the late 1940 and early 1950 period as Gann had said to do.

I said then that our reaction had been "So what?" since we did not really see anything that caught our eye. Maybe you have done that and maybe you found something or maybe your reaction was the same as ours.

In Book I, I told of how I had laid out the heliocentric planets over this period with a little better luck.

But I am never satisfied. I keep looking for PATTERNS. I want to find things that make an exact fit. My friend says I'm too exacting. He thinks I should be satisfied if things are within a number or two of being exact.

I have gone back to this chart many times, looking for that exact fit.

One day I took another approach and found what appears to be an exact fit. At least there were enough of "coincidences of numbers" to make me think I had an exact fit.

So take a look at the following workout and see what you think.

Let's put down the three important numbers on the chart.

436-the high in January, 1948
44-the low in December 1932
267-the number of weeks from January, 1948.

In my Book I, I told why the number of weeks might be 266, but since Gann had 267, let's assume that it was not arbitrary. Let's assume he had a reason for figuring from that particular date. In other words, he didn't
just one day sit down and make a commentary on this period. He picked 267 weeks from the top for some reason.

He said that the square of 144 could be used for any squares we would like to make.

But I put that square aside and decided to pick another. I picked the square of 49 or 7x7.

Why? Because the chart we are dealing with is a weekly chart. If we lay down a square of 49, then it comes out on 49 weeks or 343 (49x7) days. And that would be a cube or 7x7x7.

You do not need to make up a square of 49 to look for the coincidences. You don't need a computer. A hand-held calculator would be helpful, but you can do it with a piece of paper and a pencil.

We don't even have to have the chart. We can just picture it in our mind. At the top we have 436 and down under it we have 44 and on out to the right we can mark our 267 weeks.
Now let's use the square of 49 in the same way Gann told us to use the square of 144.

He subtracted the square of 144 from the top. So let's subtract 49's from the top, one at a time slowly and see if we can see any "coincidence of numbers."

436-49=387, nothing there.
387-49=338, nothing there.
338-49=289, that's the square of 17, but doesn't seem to mean much here.
289-49=240, yes, something here. Do you recognize it. Yes, it is 2/3 of a circle but it is also something else. It is the halfway point between the high of 436 and the low of 44 since 436+44/2=240.
240-49=191, nothing there.
191-49=142, nothing there.
142-49=93, nothing there
93-49=44, certainly something here. We have subtracted 49 several times from the high of 436 and the result is the low.

So let's put down the coincidences we have found so far:

(1) 240-the halfway point.
(2) the low of 44, by continually subtracting 49 from 436.

Gann put the square of 144 at the time of the 436 high and worked over, but I saw nothing there.

Instead of doing that, I went over to 267 weeks and started subtracting the square of 49 from that. So let's see if we can find some other coincidence of numbers.

267-49=218. Yes right off we have found the halfway point of

436

218-49=169, another square, not much here apparently, but...
169-49=120, one-third of a circle, but not much else.
120-49=71, nothing here.
71-49=22, one half of the low of 44.

So let's add those coincidences to the ones we already have:

(1)-240, the half-way point between 44 and 436
(2)-the low of 44, by subtracting 49's
(3)-218, the half-way point of 436
(4)-22, the half-way point of 44

Just those coincidences alone look pretty good. But I kept looking for any others I might find using the square of 49.

In his work Gann told about subtracting 360 from 436 and getting 76. We could subtract 76 from 436 and get 360. I decided to "add" 76 to 436 and I got 512!

512? Look familiar?

Divide it by 8 and you get 64. Got it now? 512 is the cube of 8 or 8x8x8.

Well, that's very interesting you say but what does that have to do with the work at hand.

**When we laid down the square of 49 on the weekly chart we were also counting the cube of 7 since a week has 7 days.
The cube of 7 is 7x7x7 or 343.**

If you draw a 45 degree line down from 436 it will cross the week of 267 at 169. Or to put it another way 436-267 is 169. This coming out on a square (13x13) always intrigued me.

Remember in Gann's discussion of the hexagon chart he mentioned that 169 was important for more reasons than one? I always wondered about that as maybe you have to.

But somewhere along the way I found out one of the reasons.

Let's now subtract the cube of 7 from the cube of 8.

512-343=169!

That's right. The difference in the cube of 7 and the cube of 8 is the same as 436-267.

So there is another coincidence to add to our list.

**(1)-240, the half-way point between 44 and 436
(2)-the low of 44, by subtracting 49's
(3)-218, the half-way point of 436
(4)-22, the half-way point of 44
(5)-The 45 degree angle from 436 crosses the week of 267 at 169 which is also the difference in the cube of 7 and the cube of 8.**

But I wasn't done looking yet. You know me. Always adding, subtracting numbers, etc.

I decided to "add" 267 to 436 and I got 703. To you that might not mean too much but it stuck out like a sore thumb to me. 703 is the triangle of 37. Look it up and see where it falls on the Square of Nine chart. It is also a Teleois angle (the book on that is in the works).

Now subtract 343 (the cube of 7) from 703 and you get 360!

So let's add those coincidences to our list.

(1)-240, the half-way point between 44 and 436
(2)-the low of 44, by subtracting 49's
(3)-218, the half-way point of 436
(4)-22, the half-way point of 44
(5)-The 45 degree angle from 436 crosses the week of 267 at 169 which is also the difference in the cube of 7 and the cube of 8.
(6)-Adding 267 to 436 is 703, the triangle of 37.
(7)-Subtracting 343 from 703 is 360.

And now for some more.

When I added 76 to 436 and got 512, the cube of 8, I found that 436 was the "arithmetic mean" between 360 and the cube of 8 since 360 plus 76 is 436. (The arithmetic and geometric means were discussed in Book IV-"On the Square.")

The difference in 343, the cube of 7, and 267 is 76.

The number of weeks from the high of 436 to the low of 202 was 56 weeks. And for those of you who read Book IV you will recognize that as the geometric mean between the square of 7 and the square of 8 since 7x8 is 56.

In my book "On the Square" I showed where some prices were the differences in squares. We can see that the difference in 436 and 44 is a difference in several squares of 7. The difference is also equal to two squares, two squares of 14 since 14x14 is 196 and two times 196 is 392 and 436-44 is 392.

Now let's add those coincidences to our list.

(1)-240, the half-way point between 44 and 436
(2)-the low of 44, by subtracting 49's
(3)-218, the half-way point of 436
(4)-22, the half-way point of 44
(5)-The 45 degree angle from 436 crosses the week of 267 at 169 which is also the difference in the cube of 7 and the cube of 8.
(6)-Adding 267 to 436 is 703, the triangle of 37.
(7)-Subtracting 343 from 703 is 360.
(8)-436 is the arithmetic mean between 360 and the cube of 8.
(9)-76 is the difference in the cube of 7 and 267.
(10) From the high in January, 1948 to the low in February of 1949 is 56 weeks and 56 is the geometric mean between the square of 7 and the square of 8.
(11)436-44 is 392 which equals the sum of two squares of 14.

There are 11 coincidences in numbers we found with our original three numbers. What does it mean and how can they be used? Frankly I don't know. But it sure cries for more study!

OK, want some more!

The difference in the cube of 7 (343) and the cube of 5 (125) is 218! The halfway point from 436.

In other words if we had an overlay with the cubes marked on it, when we put the cube of 7 (343) on 436, the cube of 5 (125) would fall on 218.

Where would the end of our overlay fall? Since 436 minus 343 is 93, the end of the overlay would fall on 93.

Is the number 93 significant? Why don't you subtract 44 from it.

You get 49!

Appendix 3

A TV Puzzle

On 10-15-97 on the TV show called "Remember Wenn" on the American Movie Classics Jason Alexander of the "Seinfeld" show appeared as a mentalist and did magic tricks on the radio!

He told his audience that he was holding a card in his hand and by his words the audience would match the card in his hand.

You can play along if you like.

The audience was asked to think of a person they moved the most. Count the letters in the name and then multiply that times 3. Count the letters in the name of the person you like the least and multiply that by 3. Now multiply those to answers. When you get the answer add up the numbers in the answer until you arrive at a single digit. In other words if you go over 10, then add the digits again until you have a single digit.

Are you following the audience? If your answer is 1 to 3, then the suit is hearts, if it is 4 to 6, then the suit is clubs, if it is 7 to 8, then it is diamonds. If it is 9 then the suit is spades.

The answer is the 9 of spades.

How did the mentalist do it?

It is quite simple and no magic is involved if you read my book, "The Single Digit Numbering System.".

You will know from that, that the key is in the multiplying. When we multiplied by 3 and then by 3 again we were simply multiplying by 9 and when "any" number is multiplied by 9 and reduced to a single digit the answer will always be 9!

Appendix 4
A SEARCH FOR THE PERFECT NUMBER

Many years ago there was a TV show, the name of which I have forgotten now. It seems like the name was "Tell the Truth." I have also forgotten the moderator, though I can picture him in my mind.

The gist of the show was that three people would come on the show and each would claim to be a certain person. Members of the panel then through a little questioning would try to guess who was really that certain person.

After the questioning the moderator asked for the "real" person to stand up. One of those persons I recall was the person who created the "Waltons" though I was sure from his voice that the panel would know who he was because at the end of each Walton segment you could hear his voice giving a little homespun philosophy.

But this is not a piece on panel shows. I mention the above just to make a point.

Will the real "perfect number" please stand up!

In my study of Gann I have read a number of books about numbers and every now and then have run across a passage about a perfect number.

But in all these passages the numbers were usually different. Several numbers have been put forth as the "perfect number."

So, let's explore some of them.

First, we will start with Gann since this series of books is on the work of Gann.

He seems to say that the perfect number is 9 since there are nine digits and they add up to 45. (I covered that in my book, "The Single Digit Numbering System."

But on page 95 in his book, "The Magic Word" he says the Jewish name for God, Yod He Vau He, has four syllables and 10 letters and that 10 is one of the perfect numbers.

**He might be saying here that 10 is the triangle of 4. It could be that all triangles of squares are perfect numbers.
(In one of my books I noted that 325 was the triangle of the square of 25 and Gann said there was a change in cycles here.)**

Another number that turns up in other writings as the perfect number is the number 12.

We can see why that might be considered a perfect number. There are 12 months in a year, 12 signs of the zodiac, 12 tribes of Israel, 12 disciples of Jesus, 12 apostles, 12 inches in a foot, 12 items in a

dozen, 12 people on a jury and I'm sure you can think of some other 12's.

Then there is the number 7. In some writings it is considered a "sacred number." There are the 7 days of creation, 7 ancient planets, 7 days in a week.

Some believe it is perfect as you need 3 to get to 10. (This is explained below).

Others think 10 is the perfect number, even calling it the number for God or God the one and man the zero or 1 the man and 0 the woman.

On page 53 of the book "Biblical Mathematics" by Evangelist Ed F. Vallowe he says that 3 is the first perfect number. Others are 7, 10, and 12, but does not explain why he thinks they are perfect numbers.

On page 200 of Karl Anderson's book, "The Astrology of the Old Testament," he says, "As this was the original central sign, in which sundown commenced, of unripe fruits as well as the fall, also the choleratic months of August and September, of unripe apples, the really seventh month of the year, and the season or time of perfect number 7, which is 10, which is IAO..." Here in one breath he is saying the perfect number is 7 which is 10. Very confusing.

In the Masonic book "Morals and Dogma" on page 628, there is a discussion of numbers in a question and answer format.

Q: What is the most fortunate number?
A: 7, because it leads us to the decade, the perfect number.

This seems to be the same thing Anderson was saying since Anderson was a Mason.

That concept of 7 getting to 10 and being perfect had me puzzled for a long time, but when I was working on some triangular stuff the PATTERN finally came through to me.

I will not go into what I was working on at this point other than to say that it was on triangles of the squares. Triangular numbers were discussed in my Book VI.

What I discovered was that triangles of the squares could be made through the addition of triangles and squares of the square roots to make the triangles of squares. I know that is a mouthful but let's put down some examples to make it clear.

Let's make the triangle of four which is 10 using that method.

Since 2 is the square root of four we will use the triangle and square of 2.

The triangle of 2 is 3. So let's put that down:

3

Now we will add the square of 2 which is four and put the answer under the 3.

3
7 (3+4)

Now add them. You get 10! And 10 is the triangle of 4.

Notice how many "terms" are used above.

Using the same method can you make the triangle of the next square (9) which is 45? How many terms will you have to use?

Do you need a little help? We start with the triangle of the square root of 9.

The triangle of 3 is 6 so lets put that down:

6

Now add the square of 3:

6
15 (6+9)

Now add 9 again

6
15 (6+9)
24 (15+9)

Now when we add 6+15+24 we get 45, the triangle of 9.

How many terms did we have? He had three (6, 15, 24)

To make the triangle of 4 which is 10 we had two terms (3, 7)

PATTERN? Yes, we will have as many terms as the square root of the square whose triangular number we are trying to find.
When we tried to find the triangle of four we needed two terms since the square root of four is 2. When we tried to find the triangle of 9 we needed three terms since the square root of 9 is 3.

Using the same method can you find the triangle of 49.

Simply put you would need 7 terms. You would find the triangle of 7 which is 28 and you would keep adding 49 until you have 7 terms and then add up your answer (which is 1225). Get out a piece of paper and calculator and give it a try.

Another one you might want to try is this. I mentioned in Book VI- "The Triangular Numbers" that Gann had made few references to changing cycles. But he did make one to the number 325. (I noted this above).

That number which runs on the 180 degree line from the line that contains the odd squares is a triangular number. It is the triangle of a square. Rather than tell you what square it is I will leave that to you as a little project. Figure it out like we did the others above.

Incidently my findings were confirmed when I went back and re-read some more of Anderson's material.

I noted in Book X which dealt with the hexagon and cubes that Anderson made much of the numbers 6 and 9 and I was interested in them since Gann had a square of 9 and a hexagon chart (6).

In a discussion of 3, 5, and 7 which Masons will tell you are "important numbers" he says:

"And the 3 and 5 and 7=15, which two figures added are 6=the serpent number, or 3+5+7+9=24 and these =6..."

My first reaction to these numbers was that he was doing something similar to something I had already discovered, reducing numbers to single digits as I explained in Book VIII-"The Single Digit Numbering System" as he had reduced 15 to 6 and 24 to 6 by adding 9 to 15.

But when I came back to that section it dawned on me that 3, 5, 7 add to 15. But so does 6 and 9! And 6 is the triangle of 3 and 9 is the square of 3 and by adding 9 to 15 we get 24 and 6+15+24 is 45, the triangle of 9, as noted above and 45 is one of Gann's important numbers.
Now let's move on to what mathematicians refer to as "perfect numbers." These numbers are the ones whose factors or divisors add up to the number.

For example the number 6 is a perfect number. It can be divided by 1, 2 and 3 and when we add up 1, 2 and 3 we get 6.

The next perfect number in this system is 28. It's divisors are 1, 2, 4, 7 and 14 and when we add them we get 28.

The next perfect number is 496.

It's divisors are 1, 2, 4, 8, 16, 31, 62, 124, 248. They add to 496.

The next number is high up in the 8,000 range. I noticed right off that the first 3 were triangular numbers; 6 is the triangle of 3, 28 is the triangle of 7 and 496 is the triangle of 31.

I wondered for a long time if all perfect numbers in this system were triangular.

Then I found the formula in a book and it confirmed my suspicions of the numbers being triangular.

The formula for finding these perfect numbers whose divisors add up

to the number uses the powers of 2. I believe you know what powers are. 2 to the second power means to multiply 2x2 or 4. 2 to the third power means to multiply 2x2x2 or 8, etc.

You begin the search for perfect numbers by multiplying the first power of 2 times the second power of 2 (-1). I do not have a power symbol here so I will use this sign (^).

2^1 times ((2^2 (-1))
2^1 is 2
2^2 is 4
when we subtract the 1 from 4 we have 3.
So now we have 2 times 3 and the answer is 6.

Now let's do the next one with our first multiplier being 2 to the power of 2 and the next 2 to the power of 3 from which 1 is subtracted:

2^2 times ((2^3 (-1))

2^2 is 4 and (2^3 (-1) is 7 and 4 times 7 is 28, our next perfect number.

Let's do the next one (each time we will use the next power of 2.)

2^3 times ((2^4 (-1))

2^3 is 8 and (2^4 (-1) is 15 and 8 times 15 is 120.

But 120 is not a perfect number. So what happened?

What happened is we did not observe a rule that I didn't tell you about earlier. If our answer from the numbers in parentheses does not equal a prime number, it is not used in our calculations. A "prime number" in case you have forgotten is a number that is divisible only by itself and the number one. Examples of prime numbers are 7, 11, 13, 19, etc.

The number 15 is not a prime number since it can be divided by 3 and 5 so we have to pass by this calculation. It will not give us a perfect number calculation. We have to go on to the next one.

2^4 times ((2^5) (-1)). Let's calculate that:

16 times (32-1) or 16 times 31 or 496. This was the next perfect number after 28 as we saw earlier. And 496 is the triangle of 31.

Can you see now why these perfect numbers are triangular numbers? Look at the calculations above.

In Book VI-"The Triangular Numbers" I showed that triangular numbers both natural and unnatural could simply be made by multiplying the root of the triangle by the next number and dividing by 2.

For example to make the triangle of 4 which is 10, all we need to do

is multiply 4x5 and divide by 2.

But I also explained that it could be made in another way. Take half of any of the two numbers, the root or the next number and multiply it by the remaining number. As an example again of finding the triangle of 4 which is 10, we could take half of the 4 which is 2 and multiply times 5 or we could take half of the 5 which is 2.5 and multiply by 4. The answer will always be the same.

We can see that when we take one power of 2 and multiply it by the next power of 2 (-1) we are doing the same thing!

We could make the triangle of 31 by multiplying it by 32 and dividing by 2. Or we could make it by taking half of 31 or 15.5 and multiplying it times 32 or we could take half of 32 which is 16 and multiply it by 31.

And that is exactly what we did when we used the 4th power of 2 or 16 and multiplied it by the 5th power of 2 or 32 (-1).

So why don't you now try to find the next perfect number after 496 and see what it is the triangle of. Give it a try before you look at the answer below:

The first sequence you would try would be:

2^5 time ((2^6 (-1)) and that answer would be:

32 times 63 and that would not be right since 63 is not a prime number as it can be divided by 9 and 7.

The next you would try would be:

2^6 times ((2^7 (-1) which would be:

64 times 127. Since 127 is prime that would be the next number which is a power of 2 minus 1 that we could use. The answer is 8128. I told you earlier that the next perfect number after 496 was in the 8,000 range. And we have found it.

And what is 8128 the triangle of? It is the triangle of 127.
We could multiply 127 times 128 and divide by 2 and get 8128. Or we could take half of 128 which is 64 and multiply it times 127 which is exactly what we did in our calculation with the powers of 2 above.

Some experimenting will get you the next perfect number, but I would suggest you get a computer program that prints out primes to help or you will be dividing a lot of numbers to see if they are primes!
Believe me, I did that.
No, we have not found the "perfect" number. We have seen what some call perfect numbers and have seen what mathematicians call perfect numbers.

Maybe we will have to have a definition of a perfect number in order to find one.

Until then that one perfect number is still elusive.

Appendix 5

DECANATES OF THE PLANETS

I had read in a book somewhere a long time ago about the decanates. Each planet is suppose to have influence over 10 degrees of a sign. It started with Mars for the first 10 degrees, etc. and ended with Mars.

Then I saw in "The Astrology of the Old Testament" that these decans or decanates are also called the "faces" of the planets.

They didn't seem to be in any particular order. But then I discovered that they are in the same order as the planets are arranged to make the planetary hours as shown in "The Astrology of the Old Testament."

Whey the decanates start with the planet Mars is something I have not found out as yet.

I will be checking these decanates with Gann and Bayer stuff to see if they used them.

(Note: a number of years ago I read in the Encyclopedia Britannica about Magic Squares. Recently in 1996, I read about them again and found that Cornelius Agrippa (1486-1535) constructed squares of the order 3, 4, 5, 6, 7, 8 and 9 and associated them with the seven astrological planets. When I read this years ago I did not pay any attention to the order of the planets. But this time I noticed that the order was the same as for the decanates. So the planets and their magic squares would be Saturn (3), Jupiter (4) Mars (5), Sun (6), Venus (7), Mercury (8) and the Moon (9). Also note that the Sun is associated with 6 and the Moon with 9 just as it is in Karl Anderson's book, "The Astrology of the Old Testament." Might be coincidence and then again maybe not.

These are the "faces" of the planets or the decanates:

Aires (1-10) March 23-April 1 Mars
Aires (11-20) April 2-April 11 Sun
Aires (21-30) April 12-April 22 Venus

Taurus (1-10) April 23-May 2 Mercury
Taurus (11-20) May 3-May 12 Moon
Taurus (21-30) May 13-May 23 Saturn

Gemini (1-10) May 24-June 2 Jupiter
Gemini (11-20) June 3-June 12 Mars

Gemini (21-30) June 13-June 23 Sun

Cancer (1-10) July 24-July 3 Venus
Cancer (11-20) July 4-July 14 Mercury
Cancer (21-30) July 15-July 24 Moon

Leo (1-10) July 25-Aug. 4 Saturn
Leo (11-21) Aug. 5-Aug. 14 Jupiter
Leo (21-30) Aug. 15-Aug. 25 Mars

Virgo (1-10) Aug. 26-Sept. 4 Sun
Virgo (11-20) Sept. 5-Sept. 14 Venus
Virgo (21-30) Sept. 15-Sept. 24 Mercury

Libra (1-10) Sept. 25-Oct. 5 Moon
Libra (11-20) Oct. 6-Oct. 15 Saturn
Libra (21-30) Oct. 16-Oct. 25 Jupiter
Scorpio (1-10) Oct. 26-Nov. 4 Mars
Scorpio (11-20) Nov. 5-Nov. 14 Sun
Scorpio (21-30) Nov. 15-Nov. 24 Venus

Sagittarius (1-10) Nov. 25-Dec. 4 Mercury
Sagittarius (11-20) Dec. 5-Dec. 13 Moon
Sagittarius (21-30) Dec. 14-Dec. 23 Saturn

Capricorn (1-10) Dec. 24-Jan. 2 Jupiter
Capricorn (11-21) Jan. 3-Jan. 12 Mars
Capricorn (21-30) Jan. 13-Jan. 22 Sun

Aquarius (1-10) Jan. 23-Feb. 1 Venus
Aquarius (11-20) Feb. 2-Feb 10 Mercury
Aquarius (21-30) Feb. 11-Feb. 20 Moon

Pisces (1-10) Feb. 21-March 2 Saturn
Pisces (11-20) March 3-March 12 Jupiter
Pisces (21-30) March 13-March 22 Mars

Appendix 6

Another Way to Make Cubes

(Discovered July, 1995)

This is another way to make cubes on a flat surface.

You can draw some boxes. I'm just going to put some numbers in rows.

Of course we can put down:

1 and that would be the cube of 1.

If we put down:

1, 2
2, 3 and add those we will have the cube of two (or 8) eight. Note that we are using 2 numbers in each row. Also note that we started with 1 in the first row and 2 in the second.

Now let's put down a series in which we have three numbers in three rows:

1, 2, 3
2, 3, 4
3, 4, 5

When we add all the numbers we have the cube of 3 or 27. Note how we began each row. If we wanted to do a cube of 4 or 64, we would use four numbers in each row and we would use four rows.

Give it a try!

There is another way to make cubes using triangles. Take the number of any cube we want to make. Subtract 1 from it and get the triangle of your answer. Now multiply that triangle by twice the number of the cube we want to make. Now add the square of the original number and you will have the cube.

Example: We want to make the cube of 4 which is 4x4x4 or 64. First we subtract 1 from 4 and get 3. Now find the triangle of 3 which is 6. Multiply that by 2x4 which is 8. The answer is 48. Now add the square of 4 which is 16 and 48+16 is 64.

I can never say enough about triangles. You can do so much with them.

Using the formula above why don't you try to make the cube of 5 or 125. I will start you off. The triangle of 4 is 10.

Appendix 7

Triangles and the Arithmetic Mean

(Discovered Jan. 27, 1996)

This is another property of triangles. A number times its triangle equals the arithmetic mean (half-way point) between the square of the number and the cube of the number.

Let's use 4 for our number. Its triangle is 10. Multiply 4 times 10, getting 40. 40 is the arithmetic mean (halfway point) between the square of 4 (16) and the cube of 4 (64). We can check that by adding 16 to 64 and dividing by 2 to get the halfway point. 16+64=80. Divide by 2 and get 40 which is 4 times its triangle (4x10).

This also works for other powers of numbers.

Again let's use the number 4. But this time instead of multiplying 4 times its triangle (10), we will multiply the square of 4 (16) times the triangle of 4 (10) and we get 10x16=160. We will find that 160 is the arithmetic mean between 4 to the 3rd power (4x4x4=64) and 4 to the 4th power (4x4x4x4=256). Now lets add 64 and 256 and get 320. Now divide by 2 and get 160.

If we wanted to find the arithmetic mean between the 4th and 5th powers of 4 we would multiply the triangle of 4 (10) times 4 to the 3rd power.

And this would work for any powers you wished to work out.

Appendix 8

More Triangle Stuff

Using even numbers, if we add up to a number (getting a triangle) and leave out half of the number, you will have a double square of half of the number.

Example: We will use the even number 12. If we add from 1 through 12 we will get the triangle of 12, which is 78. If we leave out half of our even number we will leave out the number 6 and that will give us a total of 72. And 72 is the double square of 6. 36 is the square of 6 and 72 is two times 36 or a double square of 6. Try that with another even number to check it out.

Appendix 9

DISSECTING A NUMBER

Somewhere in my work I told you that I often ran numbers back and forth through my calculator looking for PATTERNS. So here I will show you how I dissected a number (really two numbers) that gave me trouble for a long time.

At the local library there is a set of books put out by Time-Life called "Mysteries of the Unknown." You might recall seeing these advertised on TV in the late 1980's or early 1990's.

One of the volumes in that series was "Ancient Wisdom and Secret Sects." In had quite a bit of stuff in there on Masonry.

On page 88 was a figure of a man made up of the sun, moon and Masonic symbols. That figure stood on two stones, cubes if you like. I noticed that there were numbers on the stones.

One number was 3734. The other was 1754.

I played with those number off and on for a long time. I checked them to see if they were squares, triangles, etc. But I got nowhere.

One day I added the two numbers. 3734+1754=5488.

Again I check to see if the total was a square or cube or triangle. Still nothing.

Then I decided to start dividing 5488 by two. (You might want to get out your calculator and start doing the same.) I divided by two until I could not divide by two anymore.

5488 divided by 2=2744
2744 divided by 2=1372
1372 divided by 2=686
686 divided by 2=343

When I had reached an odd number I could no longer divide by 2, I noticed that my final answer was a cube, the cube of 7 since 7x7x7=343. Interesting.

Since I had divided by 2 four times then 2 to the fourth power or 16 times 343 would equal my starting number 5488.

Since 16 is the square of 4 we could say the square of four times the cube of seven would equal 5488. Still interesting, but I was looking for something a little more outstanding.

So I put down my numbers and started rearranging (that's how I do a lot of my dissecting of numbers, since they can be expressed in a number of different ways.)

2x2x2x2x7x7x7
4x4x7x7x7 or
4x7x4x7x7 or
28x28x7

Ah hah. Now that looks a little more interesting. Why? Study it a minute.

What relationship does the number 28 have to 7?
By now you should know that 28 is the triangle of 7. So what we have here is a number times the square of its triangle, 7(28x28).

But why this particular number times its triangle?

Since there is a moon symbol among the drawings I presume it has to do with the moon. Admittedly, the number 28 is not exactly a moon cycle. It takes slightly over 27 days for the moon to come back to the same point in the sky and it take 29.5 days to make a new moon.

But from what I have read the ancients divided the year 364 days (7 times 52 weeks) into 13 months of 28 days.

On the cover of Gann's little pamphlet "The Magic Word" he has a

triangle of 7 or 28.

The cubes are also involved here. Remember, if you square any triangle the answer will include all the cubes up through the root of the triangle.

Since 28 is the triangle of 7 then 28X28 includes all the cubes up through the cube of 7 and 7(28x28) will include 7 times all of the cubes up through 7.

Note that when I took the original number 5488 and divided by two, etc. until I got to 343 I had found that the square of 4 or 16 times the cube of 7 or 343 equals 5488.

Also remember that we can take half of 8 (4) and multiply that times 7 to get the triangle of 7.

4x7 is 28

4x4x7x7x7=7X28x28

That works for any odd number.

Example, let's use the number 5 instead of 7.

3x5=15, the triangle of 5.

The square of 3 is 9 and the cube of 5 is 125.

9x125=1125

or we can multiply the square of the triangle of 5 by 5:

5x15x15=1125.

So there you have a sample of how I dissect numbers.

Appendix 10

Some Julian Days

In "The Tunnel Thru the Air" Robert Gordon is born on June 9, 1906 which is Julian Day 2351. The novel ends on Aug. 31, l933 which is Julian Day 12296. I found no significance in this, but maybe you can. The difference is 9945 days.

Appendix 11

Some More on the Cycle of Venus

This is figuring the cycle of Venus. Feb. 15, 1906, Sun and Venus in conjunction at 25 Aquarius. Julian Day is 2238. Since it takes 584 days for another conjunction we add that and get Julian Day 2822. On Sept. 15, 1907 the conjunction is at 20 degrees Virgo, which is 8 days before it should be since Julian Day 2822 is Sept. 23. Don't know why this is.

Sept. 15, 1907-Julian Day is 2814. Add 584 and get JD 3398. JD 3398 is April 21, l909. But the conjunction comes at 8 degrees Taurus on April 29, which is eight days later.

So one conjunction came at 576 days and the other at 592, so I guess when the astro books lists the synodic period at 584, it is an average.

Appendix 12

Jewish Calendar Based on 3.3 Seconds

Time-Life Books, "Cosmic Connections" p. 24 says lunar month is 29 days, 12 hours, 44 min. and 3.3 seconds. Look up Jewish calendar based on 3.3 seconds.

Appendix 13

Geometric Means on Hexagon Chart

Discovered February, 1993

Some geometric means on Hexagon chart on 90 degree angle, etc.
3x3
6x7
9x11, etc. first multiple increases by 3 and second by 4.

4x4
7x8
10x12

2x2
5x6
8x10 works off other squares too.

Appendix 14

The Number Three and Triangles and Squares

You know that the numbers 7, 40 and 77 have a PATTERN. They are made by adding a triangle of a number to the square of a number. Seven is made my adding the triangle of 2 (3) to the square of 2 (4). Forty is made by adding the triangle of 5 (15) to the square of 5 (25). Seventy-seven is made by adding the triangle of 7 (28) to the square of 7 (49).

I have discovered that when you multiply those numbers, 7, 40 and 77 or any other that is the sum of a number's triangle and square, you end up with another triangle.

Let's look at the number 7, which is made up of 3+4. If we multiply 7 by 3 we get 21 which is the triangle of 6. If we multiply 40, which is made up of 15 and 25, we get 120 which is the triangle of 15. If we multiply 77 by 3 we get 231 which is the triangle of 21.

How can we determine the triangle we will get?

We simply multiply 3 times the roots of the numbers. The roots of 7 above was the triangle of 2 and the square of 2 so multiply 2 by 3 and get 6 and 21 is the triangle of 6.

The roots of 40 was the triangle of 5 and the square of 5 so simply multiply 3 times 5 and we get 15 and the triangle of 15 is 120.

The roots of 77 is the triangle of 7 and the square of 7. Multiply 3 times 7 and that is 21 and the triangle of 21 is 231.

Now can you do it with 12.

The triangle of 12 is 78 and the square of 12 is 144. Add them and get 222. When we multiply by 3 we get 666 and we know that is the triangle of 36. And 3 times 12 is 36.

Appendix 15

The Number 3 and the Difference in the Cubes.

I showed you that 6 times any triangular number plus 1 will always be the difference in two successive cubes and the cubs would be the cube of the root of the triangle and the root of the next triangle.

For instance we could multiply 6 times 28 and add 1 and get 169 which is the difference in the cube of 7 and the cube of 8 since 28 is the triangle of 7. Those numbers I have firmly in mind as well as the triangle of number up to about 25. After that it gets a little hazy in my mind.

So I found an easier way of doing it. Say I wanted to find the difference in the cubes of 144 and 145. First I would have to find the triangle of 144 and then multiply the answer by 6 and add 1.

But let's look at that easier way.

We know that when we want to find the difference in the cubes of 7 and 8 we would have to find the triangle of 7 by multiplying 7 times 8 and divide by 2 to get 28. Then we would multiply 28 times 6 and add 1 like we did above to get 169.

We could also say 7x8x6 divided by two and then plus 1. But why not divide the 6 by 2 and get 3.

Then we could simply say 7x8x3 and then plus 1.

7x8 is 56 and when we multiply by 3 we get 168 and when we add our 1 we get 169 which is the difference in the cube of 7 and the cube of 8.

So back to our difference in the cubes of 144 and 145. We would simply say 144x145x3 and then add our 1.

That number 3 certainly gets around!

Appendix 16

NUMBERS BOTH TRIANGULAR AND SQUARE

There are some numbers that are both triangular and square. The number 36 is both the triangle of 8 and the square of 6.

The number 1225 is both the triangle of 49 and the square of 35. I was trying to figure out what other numbers would be triangular and square and how I would find those numbers. With a little playing around I finally figured it out.

Can you do it? Can you tell me the next number that would be both triangular and square?

We know that to make a triangular number we multiply a number by the next and divide by 2. We also know that a square times a square is a square. Can you take it from there?

Let's look at our first number, 36, which is the triangle of 8 and the square of 6.

We know that to make the triangle of 8 we can multiply 8 times 9 and divide by 2 and get 36.

But there is something else we could do. We could take half of 8

which is 4 and multiply by 9 and get 36.

Do you have it now?

When we divided by 8 and got 4 we got a square (2x2) and when we multiplied by 9 (3x3) we got 36.

Got it now?

Think of 8 as a double square and when we divide by two we get a square.

So what we need are two successive numbers in which one is a square (in this case 9) and the number before or after it is a double square (in this case 8).

The 1225 above is both triangular and square. It is the triangle of 49 and the square of 35. To make the triangle of 49 we would multiply by 50 and divided by 2. We see that 50 is a double square (the double of 25 which is 5x5) and we get the square of 35 because 7x7x5x5 is 35x35.

The next number that would be both triangular and square I figured in my head one night. I was looking for a square that had a double square before it or after it.

We have already done the square of 7 so let's work up from there. I will put down some squares and we will look at the number next to it both before and after to see if it is a double square. We can divide those numbers by 2 and take the square root to see if we have the square of a natural number.

8x8=64 (63, 64, 65). No double square
9x9=81 (80, 81, 82). No double square
10x10=100 (99, 100, 101). No double square
11x11=121 (120,121,122). No double square
12x12=144 (143, 144, 145). No double square
13x13=169 (168, 169, 170). No double square
14x14=196 (195, 196, 197). No double square
15x15=225 (224, 225, 226). No double square
16x16=256 (255, 256, 257). No double square
17x17=289 (288, 289, 290). We have a double square!

Do you see it?

Yes from all of your Gann reading you should know that 288 is two squares of 144.

So if we found the triangle of 288 we would have a triangular number which is also a square.

So multiply 144 times 279 and we would have 12x17x12x17 and the answer will be the square of 204 and the triangle of 288.

The numbers 12 and 17 are intriguing since if we had a square of 12, its diagonal would almost be 17.

Appendix 17

FINDING THE TRIANGLE OF DOUBLE OF A NUMBER

(Discovered Dec. 24, 1998)

When reading "Square of the Magi," the author had 28 plus 36 plus 36 plus 36. Couldn't figure out why he didn't stop at just adding 28 and 36 to arrive at square of 8. But then it dawned on me. He carried it out until he had the triangle of 16 which is 2x8.

Thought I had something new. But then I saw that when 28 is added to 36 we get the square of 8 and I knew that a square plus two triangles of its root equals the triangle of a number that is twice as big.

Example: Thd square of 4 plus 10 plus 10 equals 36 which is triangle of 8. We could say triangle of 4 plus square of 4 plus triangle of 4.

But we can find some interesting numbers if we keep on adding triangles.

Starting with 15 (the triangle of 5) and adding 21 (triangle of 6) we get

15
36 (the square of 6)
57
78 (the triangle of 12 naturally)
99
120
141
162
183
204
225 (the square of 15)
246
267 (where Gann stopped in weeks on the bean chart)
288 (double square of 144)
309
330
351
372
393
414
435 (just one cent short of his high on beans)

When I saw the 15 on top of this list and the 225 (the square of 15) down the list I thought I saw a germ of a PATTERN.

I saw that when I subtracted 15 from 225 and got 210 and divided it by 21 I got 10 and that is the triangle of 4. Hmmmmmmmmmmmmmmmmm. But after I gave it a little thought I found that we had already discovered that.

Remember when we looked at some of the properties of triangles we found that if we took three successive triangular numbers like 10, 15, 21, we could multiply the two end terms and add the middle term and would have the square of the middle term. So that is what was happening above. I took 15 and after adding 21 for a total of 10 times I came to the square of 15.

Let's extend our list and see what else we can find.

15
36 (the square of 6)
57
78 (the triangle of 12 naturally)
99
120
141
162
183
204
225 (the square of 15)
246
267 (where Gann stopped in weeks on the bean chart)
288 (double square of 144)
309
330
351
372
393
414
435 (just one cent short of his high on beans)
456
477
498
519
540
561
582
603
624
645
666 the triangle of 36 (the square of 6)

Note that we started by adding 15 and 21 and got the square of 6 or 36 and here we have arrived at 666 which is the triangle of 36.

Note that when we subtract 36 from 666 we get 330 and when we divide 330 by 21 we get 30. PATTERN?

Yes, we see that we started with the triangle of 5 (15) and the triangle of 6 (21) and we know that 5x6 is 30.

We saw earlier how triangles of squares can be made, but now we have a new one.

For the triangle of the square of 7 (49) which is 1225 we could say 6x7=42 and 42 times 28 is 1176. Add 49 and we get 1225. Why 6x7 or 42. Remember that the triangle of 6 and the triangle of 7 when added equals the square of 7. So taking the square of 7 (49) and adding 42 times the triangle of 7 (28) gives us 1225, the triangle of the square of 7.

Appendix 18

THE CUBES AND THE TRIANGLE OF THE SQUARE

We saw earlier that the cubes are contained in the squares of the triangle. For instance if we take the triangle of 7 which is 28 and square 28 the answer will include all the cubes up through the cube of 7.

The cube is also connected to the triangle of the square. I discovered this in one of my usual PATTERN searches.

Gann had talked about a change in cycles when you come to 325. I knew that 325 was the triangle of a square, the triangle of 25 which is the square of 5.

I was curious about how the cube of 5 might be involved with 325, so I subtracted 125 from 325 and got 200. 200 is a double square, two times 10x10. And I knew that 10 was the triangle of 4 and 4 is one unit less than 5.

Looks like there is a PATTERN there so let's check it out. If we are right then:

Double square of triangle of 3 plus cube of 4 will equal 136 which is the triangle of the square of 4.

The triangle of 3 is 6. The square of 6 is 36 and the double square of 6 is 72.

The cube of 4 is 64 and 64 plus 72 is 136.

And 136 is the triangle of the square of 4 which is 16.

PATTERN made!

I still don't know what Gann meant by the change of cycles at 325, but I still believe it has to do with the fact that it is a triangle of a square.