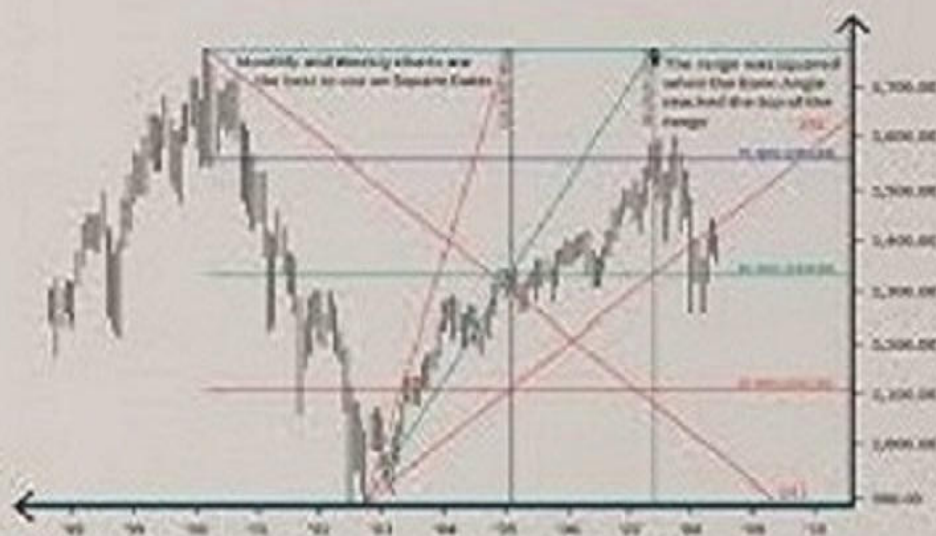# Charles Shephard
Gann Cycles Course

Gann Cycles

by Charles Shephard

A Time and Price Cycle Analysis

"To make a success in trading stocks you must get the knowledge first; you must learn before you lose. Many traders go into the stock market without any knowledge and lose a large part of their capital before they learn that it is necessary to go through a period of preparation before they start trading"

W.D. Gann, 45 Years in Wall Street (1949)

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Introduction

Gann Cycles: Time and Price Analysis by Charles Shephard.

The combining of the time and price cycle calculation techniques used in this trading system are the practical application of WD Gann's statement that *"when you know how to use time and price together you know how to trade"*.

As a market progress through TIME it will radiate, or to use WD Gann's term "vibrate" from past high and low points waves into the future much like a pebble tossed into a pond. The more important the high or low then the more important is the cycle. These cycles or waves are fixed in their duration so can be calculated and projected into the future. Gann stated in <u>Tunnel thru the Air</u>, *"that in order to know and predict the future of anything you only have to look up what has happened in the past and get a correct base or starting point"* and *".....if you have the correct starting point and know the cycle that is going to be repeated."*

As with time being measured from a past reference point, using the same cycles, so too can price. When a time cycle and a price cycle meet this is where reversals occur. The key to successful trading when using cycles is to coordinate price analysis with time analysis so that when the cycles align on a particular date one can be prepared to take advantage of the possible reversal in trend.

I have developed a system that integrates Time and Price cycles so that when they intersect at points that are known in advance they will enable knowledge of exact dates and prices to monitor for market reversals. The manner of their application is essentially an extension of the already known techniques used by Gann traders but is greatly superior as it enables precise calculation of potential reversal points to be made well in advance by using information on the cycles that were not included in Gann's commonly available courses.

There are two primary cycles relied upon that Gann left information on. A third cycle is a variation of one of the main two cycles. Each of the cycles can be calculated in minutes, hours, days, solar degrees, weeks, months or years. When calculated in weeks or larger time increments they tend to lose their exact day accuracy. These cycles when divided into their parts as Gann instructed will give numerous intermediate high and lows in the future. When major reversals occur there will <u>always</u> be one of these cycles present.

It is known that Gann's courses were often sold to his students with personal tuition also provided by him. It is likely that the additional knowledge of other cycle information was revealed in this tuition. Consequently the original courses alone do not detail some of the more powerful cycles used for time and price calculations and how to apply them.

One of the more accurate methods of determining a reversal point in price is by knowledge of certain numbers that are derived from the main cycles. On a time cycle date the moment a market reaches one of these numbers when ranging in price you will be aware that is the point of reversal. This does not mean you will initiate a trade immediately; you must wait for price action to confirm the analysis and to provide an entry signal.

The more commonly known concepts of Gann, such as squaring time with price, support and resistance levels and the swing chart are a suitable basis for this system to

be used with to determine which of the cycle dates are to be traded. The system is suitable for intraday trading or entering positions as a market reacts on a cycle date at the support or resistance levels by use of short time frame bars to indicate an entry point. This allows for stops to be kept very close. The predetermined cycle dates are the key to this method.

WD Gann's concepts of dividing time, price and space is based on the premise that everything moves in cycles or circles. A whole or 100% of a cycle in price or time is where you start. These wholes are then divided by the Gann percentages. They can also be used in multiples of the original whole. Where there are intersections of these whole or part divisions is where resistance or support is located. As can be seen in the below diagram where there is numerous intersections of these divisions of time, price and space is where there is greater resistance or support.
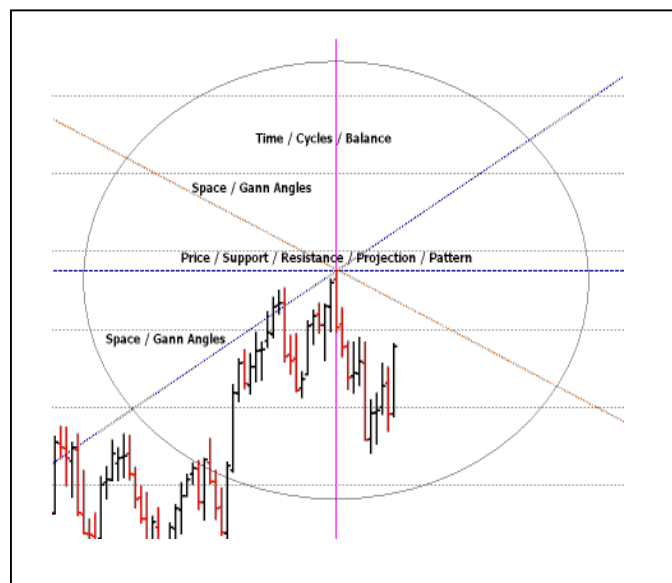
Each of the techniques detailed in the following sections is aimed at determining these points in time and price where a reversal may occur at. All market turns can be accounted for using these techniques. It is likely impossible to be aware of them all in advance as there are also numerous minor cycles that affect a market as it progresses through time and price. Many of these cycles are also are detailed. It has been endeavoured to isolate the most effective methods in developing this system to maintain ease of application, consequently there are some techniques that once detailed are not referred to again.

In my initial years as a trader I was intrigued by what caused the frequent high and low points in markets. After years of study of WD Gann's trading methods and by application of the information obtained from various sources to my hand drawn charts which covered many years, certain things became apparent. Some of this information I found explained Gann's works to the extent that by knowledge of certain numbers and how to interpret them you "know" when reversals will occur. In my personal trading I have traded numerous high and low points on the day they occurred, as well as many intermediate swing turns in a trending market. One of these was exiting a short position three points from a three hundred and seventy day bear market low.

Having the ability to determine tops and bottoms is one thing, to safely trade them is another. The safest way to trade is "with the trend" and you must always use stop loss orders. The importance of a markets trend cannot be underestimated. There are methods described in this system that will forewarn of a change of trend, price action on the day will confirm the reversal.

If you are not an experienced trader initially use this system to determine reversals within an existing trend. Watch and learn from the factors present at the main highs and lows before you trade them.

There are many systems available and some of them work well. There are Elliott wave counts that are similar to Gann's sections of the market and Fibonacci numbers that are similar to Gann price levels. WD Gann's methods show why markets work the way they do. These methods always work when properly applied. There have been occasions that I have identified as a turning date and the market did not turn until the following day or a day early. The reason for this was because I had overlooked other factors or made inaccurate calculations. I learnt this information by making it my goal to understand what was behind every swing turn on my charts.

The techniques shown in this manual when applied to the chart will show dates and price levels that as the market works its way into these areas will enable you to form a picture and be prepared for what is likely to follow. It is worth remembering that it is best to regard these areas as signposts rather than impenetrable barriers. That is why before entering a trade you must watch on the day for the reaction, this only needs to be a higher swing low for long trades or a lower top for short trades using intraday charts.

To be successful as a trader you will need to have a distinct advantage over the market, a plan to profit from that advantage and the discipline to apply that plan. The contents of this manual will provide you with the distinct advantage. How you apply this information is also described. How well you do this is for you to determine. This aspect will determine your success or otherwise.

Acknowledgement must be given to WD Gann for his ability to have discovered the reasons as to why markets turn when they do. It must also be remembered that he also stated that the best way to trade was by swing trading.

The information in the following sections is derived solely from WD Gann's works and other sources that he indicated would hold important information. There is also the addition of certain concepts I have developed from Gann's information but have no doubt that he was aware of them also but chose not to reveal this.

For those who are truly interested in Gann's work, there is more. This information is not commercially available as yet. Check back to the www.ganncycles.net site occasionally for further updates.

Wishing you profitable trading.

Charles Shephard

The following is an extract from the WD Gann stock market course.

"TIME is the most important factor in determining market movements and by studying the past records of the averages or individual stocks you will be able to prove for yourself that history does repeat and that by knowing the past you can tell the future.

The ancient hunters had a rule that when they were searching to locate an animal in his den they always followed his tracks backwards, figuring that it was the shortest route to his lair. The quickest way for you to learn how to determine future market movements is to study the past. "The thing that hath been, it is that which shall be; and there is no new things under the sun". Eccl. 1: 9.

There is a definite relation between time and price. By a study of the time periods and time cycles you will learn why tops and bottoms are formed at certain times and why resistance levels are so strong at certain times and bottoms and tops hold around them.

Everything moves in cycles as a result of the natural law of action and reaction. By a study of the past, I have discovered what cycles repeat in the future. There must always be a major and a minor, a greater and a lesser, a positive and a negative. In order to be accurate in forecasting the future, you must know the major cycles. The most money is made when fast moves and extreme fluctuations occur at the end of major cycles.

The basis of my forecasting method

Mathematics is the only exact science. All power under heaven and earth is given unto the man who masters the simple science of mathematics. Emerson said, "God does indeed geometrize". Faraday said, "There is nothing in the universe but mathematical points of force". Pythagoras, one of the greatest mathematicians that ever lived, after experimenting with numbers and finding the proofs of all natural laws, said, "Before God was numbers". He believed that the vibration of numbers created God and the Deity. It has been said, "Figures don't lie". Men have been convinced that numbers tell the truth and that all problems can be solved by them.

The chemist, engineer and astronomer would be lost without the science of mathematics. It is so simple and easy to solve problems and get correct answers and results with figures that it seems strange so few people rely on them to forecast the future of business, stocks and commodity markets. No matter whether you use geometry, trigonometry or calculus, you use the simple rules of arithmetic. You do only two things, you increase or decrease. WD Gann.

There are two kinds of numbers, odd and even. We add numbers together, which is increasing. We multiply, which is a shorter way to increase. We subtract, which decreases, and we divide, which also decreases. With the use of higher mathematics, we find a quicker and easier way to divide, subtract, add and multiply, yet very simple when you understand it

Everything in nature is male and female, white and black, harmony or inharmony, right and left. The market moves only two ways, up and down. There are three dimensions which we know how to prove width, length and height. We use three figures in geometry, the circle, the square and the triangle. We get the square and triangle points of a circle to determine point of time, price and space resistance. We use the circle of 360 degrees to measure time and price.

There are three kinds of angles, the vertical, the horizontal and the diagonal, which we use for measuring time and price movements. We use the square of odd and even numbers to get not only the proof of market movements but the cause."

Why most people lose in the markets.

The three main reasons the majority of people who trade in the markets lose money are;

1. *They over-trade or buy and sell too much for their capital.*
2. *They do not place stop loss orders or limit their losses.*
3. *Lack of knowledge. (This is the most important reason of all).*

Most people buy stock because they hope it will go up and they will make profits. They buy on tips or on what someone else thinks without any research of their own, they then enter the market wrong and do not recognise their mistake or attempt to correct it until it is too late. Eventually, they sell because they fear the stock will go lower still and then they sell out at near the low levels. They do not realise that the stock market is a business or a profession.

Why you need to learn to determine the trend of the market.

You may have tried to follow market advisory services and lost money or failed to make profits. It is not wise to follow another persons lead even though they are right because you cannot have the confidence to act on the advice when you do not know what it is based on. You will be able to act with confidence and make profits when you can see and know for yourself why markets should go up or down.

WD Gann.

1. Markets

To profitably trade the markets we want as much going our way as possible. As it is a fact that more people lose in the markets than profit from them, than the obvious thing is to select for trading markets that exhibit the characteristics that are conducive for profitable trading. Trading is a probability business, timing is critical, but you will sleep better if the markets you trade respond well to the points of support and resistance in time and price that are calculated. You can take the best system but trade it in a poor market and it will not do well.

Important points to consider are a markets daily range or price movement. There is little point in tying up capital in a market that moves only a few points or cents per day. Markets with sufficient liquidity or volume will ensure the spread or difference between the buyers and sellers will not erode profits or add to losses at entry or exit.

The below chart is of the Nikkei 225 (CME)

The below chart is of the S&P 500 (CME)

Markets sometimes trend strongly or don't trend at all for lengthy periods of time. It's been said that "show me someone that's making money and I'll show you a trending market". This is what you want. The recommended trading scenarios in this manual will ensure that entries are made very close to reversal points. From these reversal points is often where the strongest moves begin.

There are those that search for markets that behave in certain ways or form particular patterns, and those that focus on just a few markets patiently waiting for a trading signal. Monitoring various markets can find you more trading opportunities, but getting to know a market can have the advantage of getting a feel for that market.

Constantly switching between markets for can be confusing for some, specialising in one or only a few markets can lead to "pushing" trades. There are some markets that reactions against the main trend are often to a particular level, or they are prone to false breakouts, or they make clear moves or sometimes have large overnight gaps. Being aware of market characteristics and your own personality type is important.

Often commodity markets trend better than do some stock indexes for example, because their "value" is determined by supply and demand rather than speculation or rumour. Gann believed commodities were easier to work with than were stocks.

Markets with ranges suitable for extracting a worthwhile profit from are important, as is a market that exhibits in its chart pattern large overnight gaps advisable to stay away from, as with the Nikkei shown above.

Costs in trading include minimum trading account size, brokerage fees, slippage and with the recent introduction of Contracts for Difference, the interest payable on long positions.

If you are in the United States and trading the Australian Share Price Index it would not be practical unless you are nocturnal or are prepared to place limit orders.

Some exchanges that have overnight trading sessions will add that data to the previous day or to the following day, and when calculating the precise day and degree calculations explained in the cycle section, your calculations can be out by a day or even three days. For example when a weekly turning point has occurred in a Friday nights trading session but is added to the Monday's data. Know your exchange and data vendor's interpretations of what you may take for granted.

All markets at times can be volatile or trend well or are indecisive of their trend so when looking for markets you wish to trade it is important to consider all these factors.

The chart on the following page is of a retail sector stock. The easiest money is made in markets that trend in a reliable manner. On this chart note the swings on the way up and down. This is as good as it gets if using a mechanical trading system. The "swing charts" section details this method.

As simple as it may seem, using the swing chart for pattern and price information and the daily bar chart for timing signals can be the most effective way to trade. This is what Gann meant when he stated that "swing trading is most profitable". The following chapters will show how to calculate price levels that the swing chart can react at. The daily bar chart, by use of the time counts will show the time ranges and time cycles. When these factors align, then a reversal is likely.

The highly emotional aspect of futures markets is what accounts for their conforming well to the natural cyclical rhythms. The journey getting to the target dates and prices can be volatile though. It is common for futures markets to routinely retrace up to 2/3rds of their moves.

Today, it is relatively easy to trade individual stocks both for long and short positions with recent trading products. If you are finding it difficult trading volatile futures markets you may need to look at markets that trend more steadily.

Another factor to be considered with markets is the practical maintenance of a wall chart that continually grows. At some stage it can become too cumbersome to use. A market that trades within historical ranges that can be charted without having to add new sections of chart paper above or below old highs and lows is more practical.

If you have studied Gann you would have come across the instructions he gave on charting. He did say not to leave spaces for non trading days. It must be remembered that markets traded 6 days each week in his time. He also stated that every few weeks to leave spaces for the non traded days. This seems cumbersome. For the sake of consistency it is best to use calendar days. This will become even more apparent as to why, when you get to the "time counts' section.
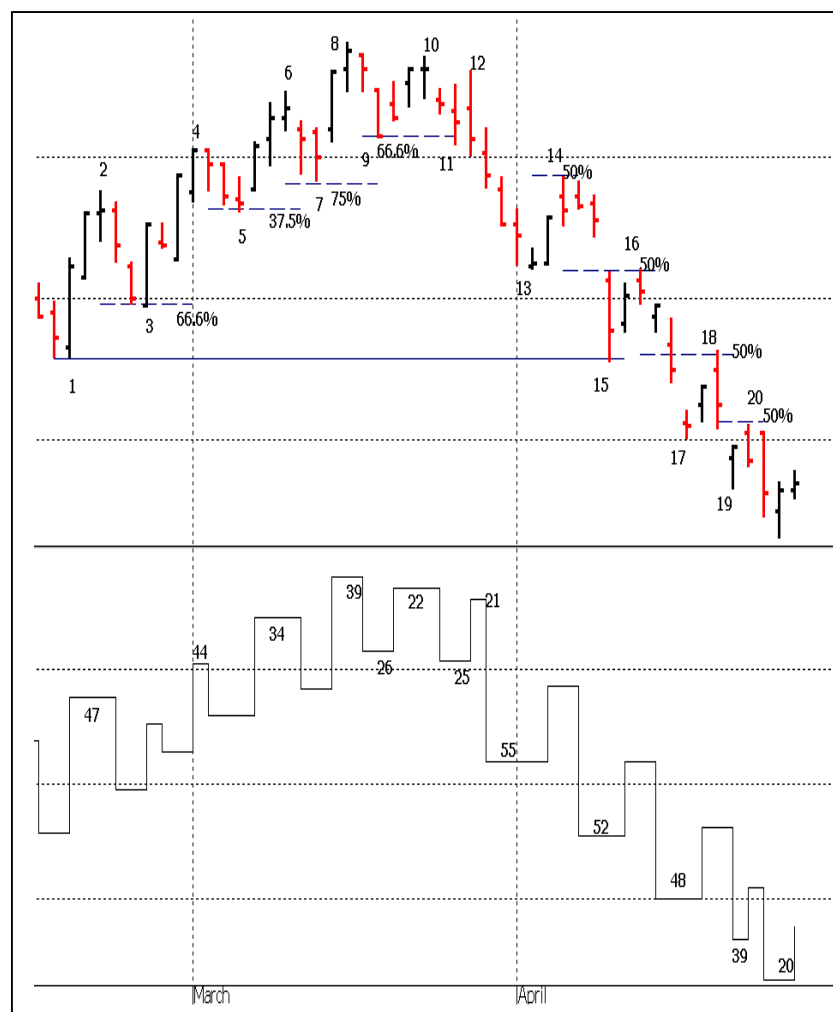
2. Volume of the Market

Before trading in a stock or commodity an important factor that you need to look at is the daily volume.

The daily volume is important as it determines at what price you can enter or exit a market position. Markets that have low volume often have very large price swings. These fluctuations are due to the laws of supply and demand. If there is only a few available sellers of the market you want to buy, you are forced to pay what they want. On the other hand, when you decide to sell, you may be forced to sell at a bid price not closely matched with the most recent prices paid.

As low volume markets are traded by only a few, the market can easily be sold down harder than markets that have higher volume it is also more easily "managed" going up.

"The driving power behind a market's rise and fall is its volume. Volume shows whether supply or demand is increasing or decreasing. Monitoring the volume of sales enables you to determine a change in trend.

At the end of a prolonged bull market or a rapid advance there is usually a large increase in the volume of sales. After a sharp decline on heavy volume and a secondary rally takes place with decreased volume, it is an indication that a final top has been made.

If a market holds after making a second lower top and makes a narrow trading range and then breaks out (down) on increased volume it is an indication of a further decline.

After a prolonged decline and the market is reaching bottom, the volume of trading should decrease and the range in fluctuation should decline. This is a good indication that liquidation is nearing an end and the market is about to show a change in trend.

After the first sharp advance when changing from a bear market to a bull market, a market will have a secondary reaction and make a low just as it had a secondary rally after the first sharp decline. If the volume of sales decreases on the reaction and then the market moves up advancing on heavier volume it will be an indication of an advance to higher levels.

Sales increase near the top and decrease near the bottom. The largest volume of sales often comes before the final top is reached, that is, when the actual high is made. In determining the extreme high and low points, monitor the market's volume.

WD Gann.

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Close observation of "market depth" is very useful for timing entries and exits. Often as a market progresses and encounters a resistance level or breaks to a new level it will react one or two points or cents. Timing your entry to buy or sell after this reaction has occurred as buying becomes greater will often see a trade not go against you at all.

This is particularly so when entering trades of the type described at the end of the following section on swing charts.

The below chart of CBOT Corn shows Gann's description of how volume can be used to assist in analysis of a market. Note the low volume days leading into the lower top and the higher volume at this reversal
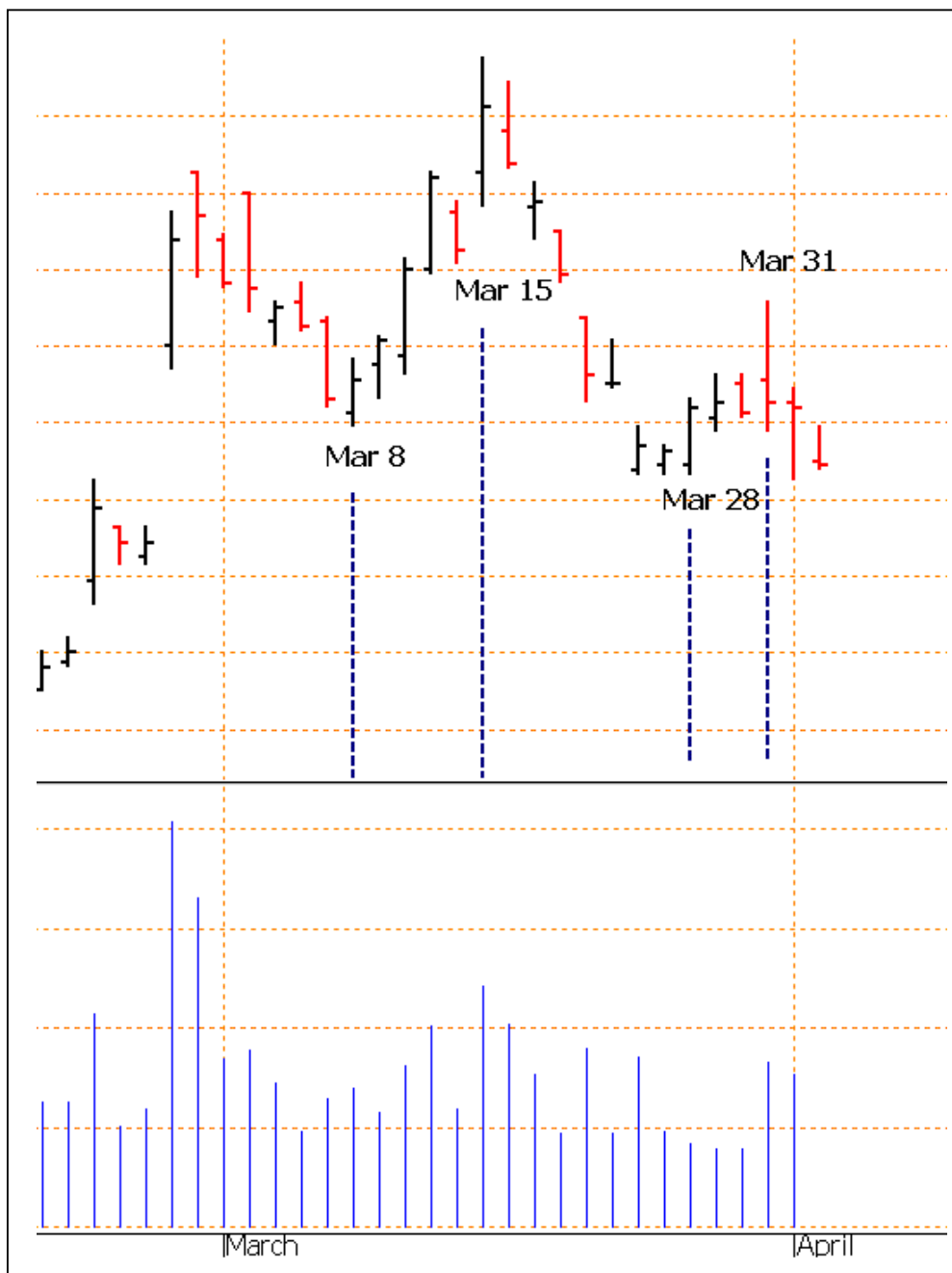
3. Swing Charts

"THE BEST WAY TO TRADE" The most money is made by swing trading, or in the long pull trades, that is following a definite trend as long as the market trend is up or down, you must learn by rules to wait until the market gets out of a rut or a trading range. WD Gann

The swing chart or trend chart may be the most simple, yet effective method of determining a markets' trend. The construction of a swing chart results in what Gann called the Trend Indicator. The most common is the 1 day swing chart but he also worked with the 2 day, 3 day and weekly swing charts as well as a "points" swing chart.

By using the 1 day swing chart in conjunction with a larger time frame swing chart, such as the 2 day, or the 1 week swing chart you are able to see the minor trend and main trend together. If you are a surfer, imagine riding a smaller wave with a larger wave coming in from behind. The following chart of late 2004 in the S&P 500 shows the daily bar chart, next is the 1 day swing chart, it shows a clearer picture and the 2 day swing chart reveals a clearer view again.
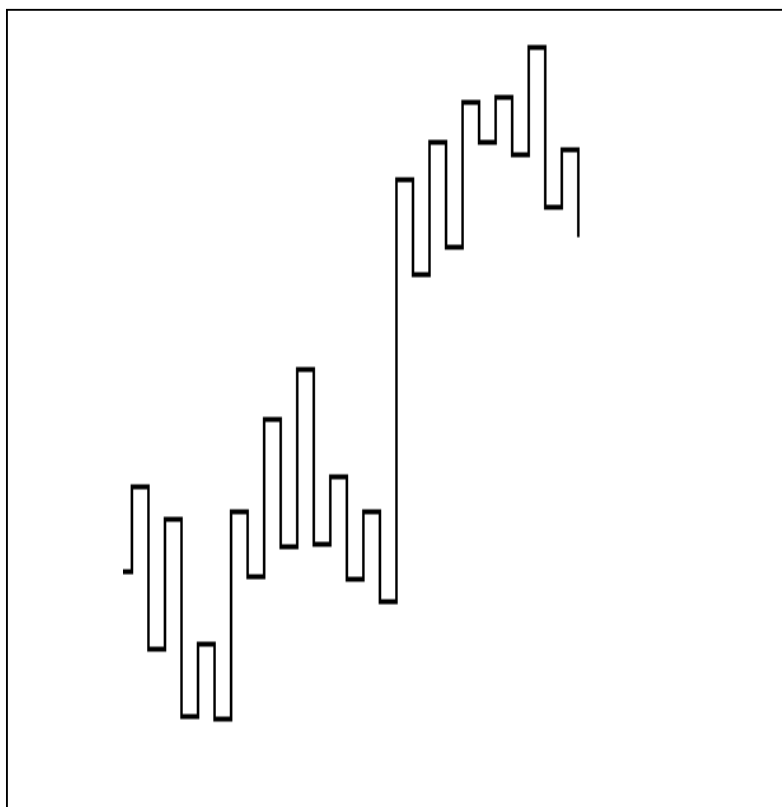
Daily bar chart of the S&P 500

1 day swing chart of the same period of the S&P 500.
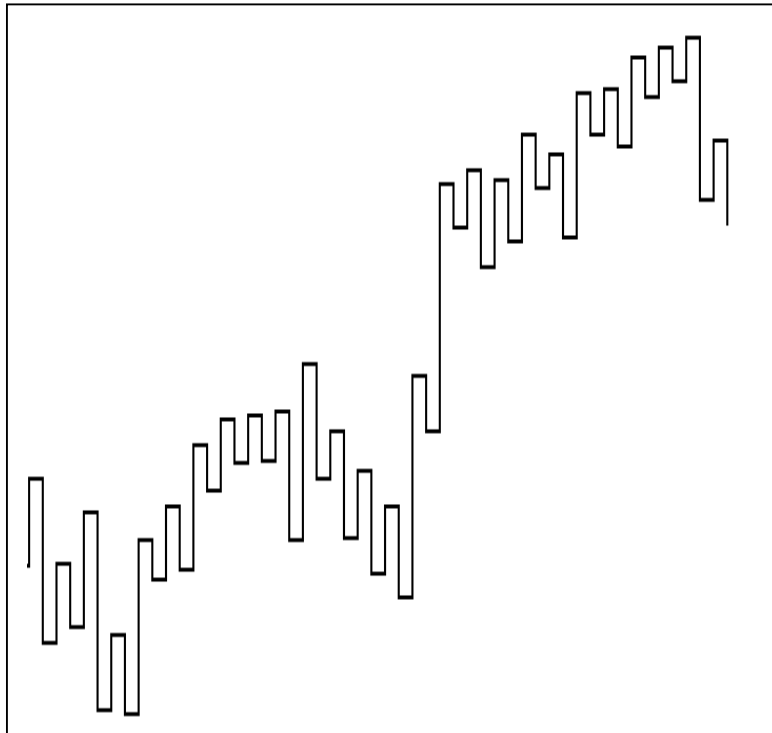
2 day swing chart of the above period.

Types of Swing Charts

Following is bar chart with a 1 day swing overlay and a 2 day swing overlay. The trend line connects the high and low points. The second chart only has the trend line move to the next high when there has been two successive bars in the same direction making new highs. Note that the trend line has been moved down to bottom of the one day move in the top right of the lower chart. This is what Gann termed "exception to the rule". This is done to include any moves that are larger than the average.

Below is what Gann called a trend indicator line, drawn on the S&P 500

A pure swing trading system does not require you to have a separate bar chart as the information can be taken from computer charts and the box style swing chart can be hand drawn on a sheet of graph paper with the price scaling on the left side.

The box style swing chart has the advantage over a swing overlay or a trend line indicator as it compresses the market action and clearly shows past levels where swing turns have occurred. Where there are clusters of support or resistance levels, then that will be an area of greater importance. This type of swing chart can easily be hand drawn on a sheet of graph paper.
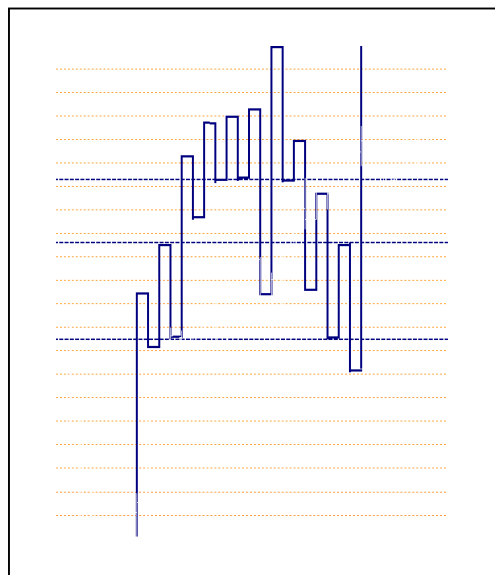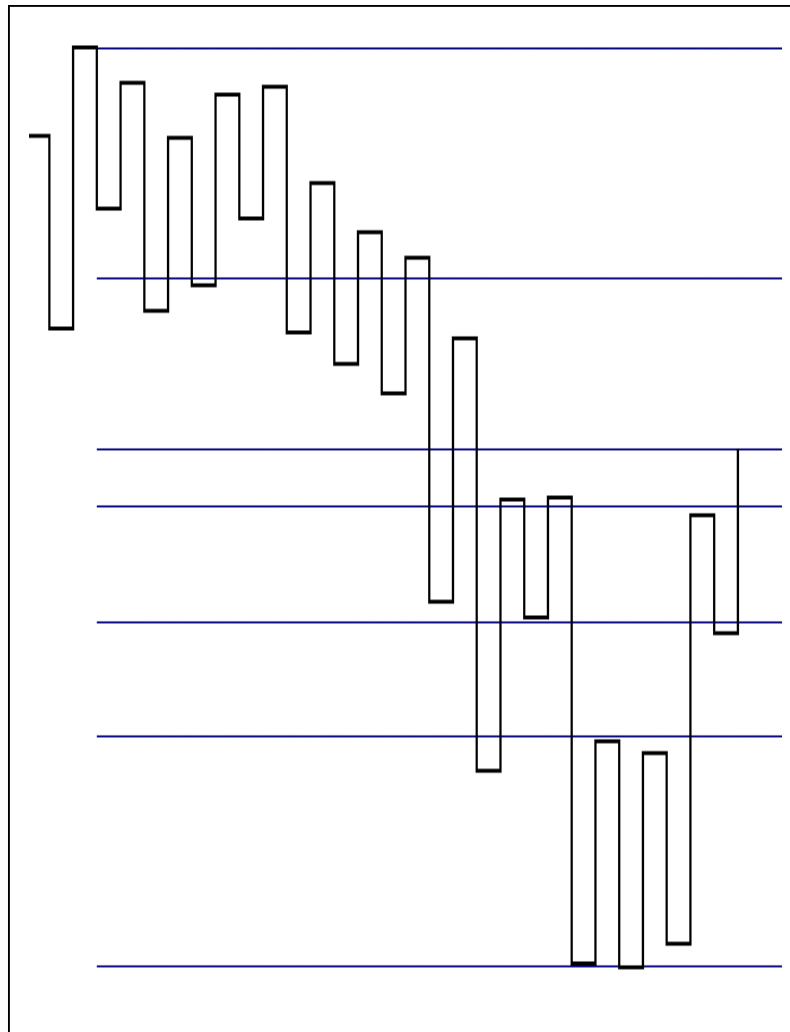
"X" Points Swing Chart

An "X" point's swing chart does not take into account the daily or weekly time values, it uses the price value of a trading range. You may have a trend that is showing 50 points or less retracements in a rising market, and then a retracement of 112 points may occur. By using this larger retracement and ignoring lesser ones, until the next retracement of similar amount to the 112 points occurs, you will have a larger perspective of the trend.

Using a daily, 2 day and "points" swing chart together can be very useful.

Below is a "100 point or greater" swing chart from the 2000 high on the S&P 500 to the October 2002 low. The main trend is very clear.

How to construct a swing chart

To construct a 1 day swing chart start from a low point on a daily bar chart, use your computer charting program to get the low price on this day. On a sheet of graph paper with the price scale on the vertical axis at the left, draw a vertical line from the bottom left, up to the high level at the last bar before there is a down day; that is a day that has a lower low than the previous day. The line then moves down to that low and continues vertically down to the low level of each bar on each successive down day. The line is then swung up from the last low price at the day that has a high that is higher than the previous day.

Using the below section of the S&P 500 daily bar chart to construct a 1 day swing chart you draw a line connecting from 1 up to 2, from 2 down to 3 and from 3 up to 4 and so on, until you reach 21.

Note that point 18 is at an "outside" day, a bar that has both a higher high and a lower low than the previous day. The swing line goes to the high or low that occurred first in the day. In this case it was the high.
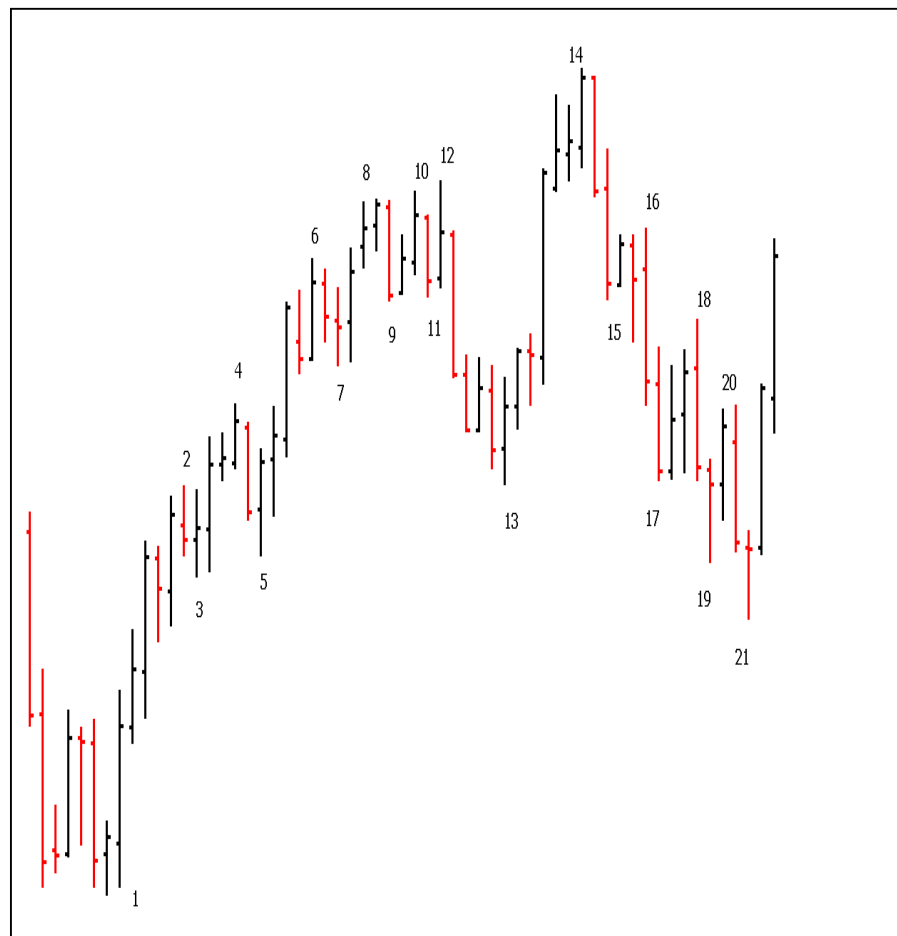
The following diagram is what a swing chart would look like if the markets always behaved in a typical manner. Markets do seek order and they achieve it. We must recognize this if we are to profit.

Wave 1 is 100% of the range.

Wave 2 is a 50% retracement.

Wave 3 is a repeat of wave 1 or 100% of it.

Wave 4 is a 50% retracement again and the market is balanced, it has done the same again as wave 1 and 2.

Wave 5 only does 75% of waves 1 and 3 so is weaker.

Wave 6 retraces more than the earlier retracements of 50% at 66.6% but has not confirmed a lower top yet to indicate a change in trend.

Wave 7 attempts to take out the wave 5 high and fails, this forms lower swing top when the next day trades lower this turns the direction of the swing chart down.

Wave 8 does 125% of wave 6 and finds support at a past support level.

Wave 9 retraces 62.5% of wave 8.

Wave 10 repeats wave 8 or 100% of it.

Wave 11 completes only 75% of wave 10 and indicates less selling pressure.

Each swing turn will be very close to a <u>percentage of a previous range</u> and a <u>support and resistance</u> level of a past range. Where there is a group or cluster of levels, then that is a more important area to watch.
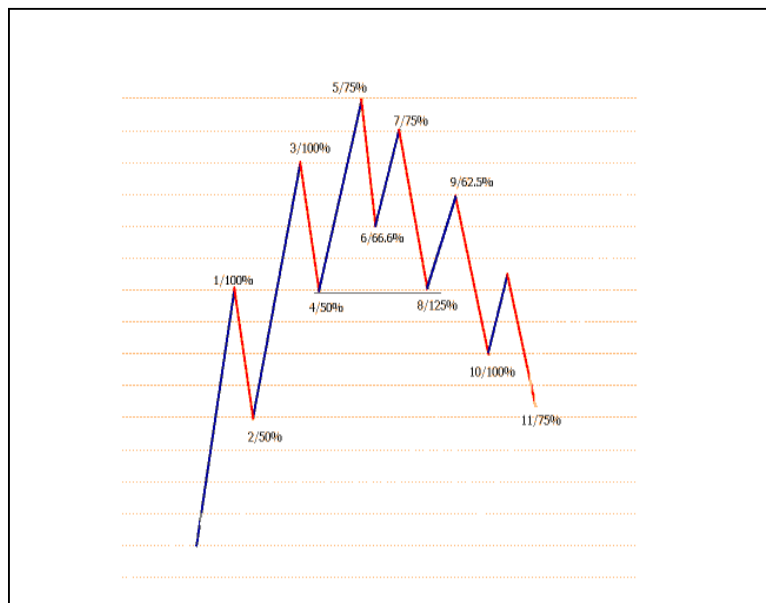
Following is a 1 day bar chart and the corresponding swing chart of the French CAC 40 8th April 2005 high at 4144. The final range of 112 is 125% of 90.5 and 87.5% of 158 was at 4148. Note the repeating 72 and 73 point price ranges. The absolute price of 4,144 and the final price range of 112 are important numerically when used in conjunction with the time cycle that was present at this high.
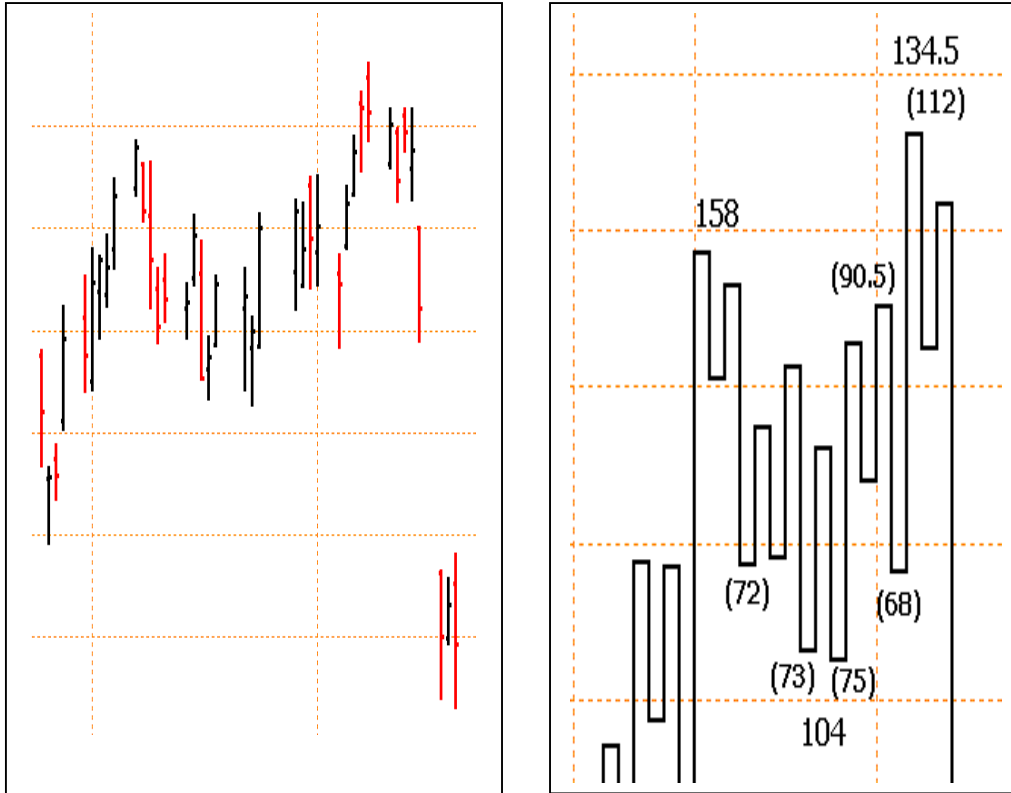

Once the swing chart has been constructed, buy and sell signals generated by what Gann termed the "mechanical method" trading system appear quite clearly as do the locations for stop loss placements.
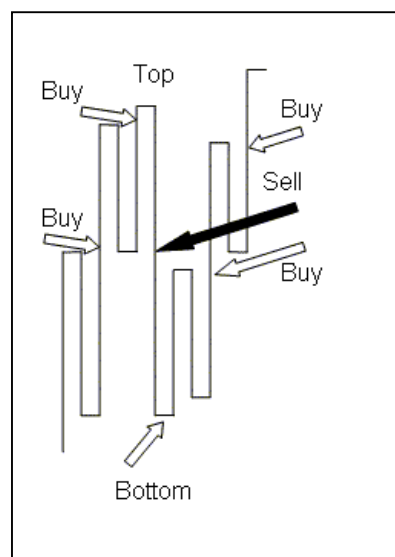
If the trend is up, which is signaled by consecutive higher lows, a buy signal is generated when a new high is made following a swing bottom. A sell signal is generated during a down trend when a new low is made immediately after a swing top. New sell signals are generated every time after a reversal a new low occurs. The sell signal is generated as the new low is made.

As markets often repeat their trading ranges, and if a market has retraced 50% of its last range, then by the time the buy signal has been made 50% of the move has completed. If it has been a false break, and a reversal is occurring, then the stop loss position can be a long way off. The way to enter the trade earlier when swing trading is by using price reaction to support and resistance levels. This is done by waiting until the day after the day that the retracement ended. This is, when on the next day if the market trades back in the direction of the main trend by the swing chart turning back up, this is the entry signal. A stop can be placed behind the retracement high or low point.

In the following chart of an Australian bank CBA, the 4th May 2000 clearly indicated a resumption of the main trend. The retracement had completed at the 33.3% level of the main range (solid line) and at 66.6% of the most recent range (dashed line). The following day turned the swing chart up shortly after the days open providing the entry signal. The 4th May showed increased volume to the preceding few days.
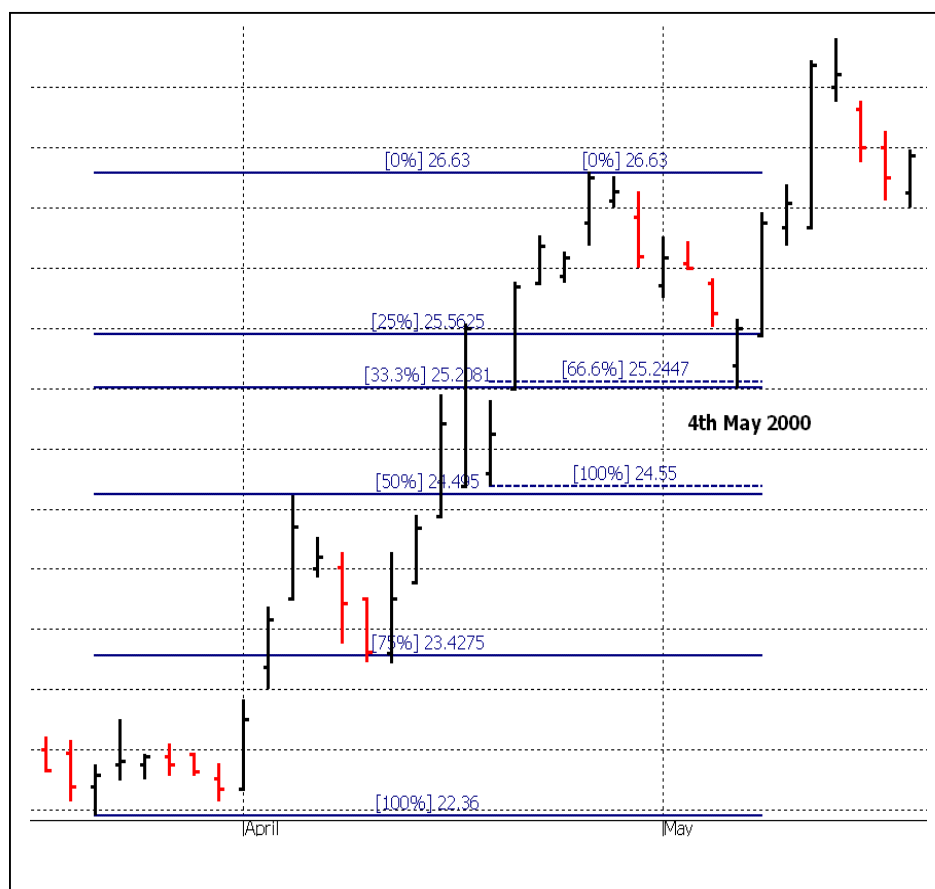
Like any trend trading system the possibility exists for being whipsawed, but this can be reduced by applying a filter such as the 2 day swing chart or weekly swing chart. A 2 day swing chart only has its trend line move when there is 2 successive higher days or 2 successive lower days occurring when moving away from a low or high point. It then continues for each successive day in that direction ignoring 1 day counter trend moves. The line then reverses only when there is 2 successive days in the opposite direction. This type of chart is shown earlier in this section. The weekly swing chart is constructed using the same rules as with the one day swing chart.

The trend line indicator only changes direction when we have an opposite day to the trend. That is on a down day in an uptrend, or, on an up day during a down trend. This doesn't mean the market has made a top or bottom. A top is not confirmed until a lower top is formed, and a low is not confirmed until there is higher bottom.

Swing charts clearly identify trends in the market removing a lot of noise that might normally be hidden when only using bar charts. A trend is defined by progressive swings in the same direction.

The 1 day, with the 2 day, weekly or "x" points swing chart side by side is very good for monitoring a markets' trend. This enables different perspectives of the market. Where analysis of the different swing charts results in similar price projections it can be a very important level.

As with most things in technical analysis some subjective approaches can be useful. On occasions you will find that the rules for a particular swing chart may need varying, Gann's term for this was "the exception to the rule". You may find when constructing a 2 day swing chart that a particular day has a daily range against the main trend greater than the average, it may be greater than some ranges that are 2 or 3 days in duration, so you will include this retracement. What you are trying to achieve is a picture of the market that will show what you need, so the rules can be varied at times.

Swing charts, in addition to monitoring trends, also provide valuable information on what a market could do next. By noting data, such as the price ranges and the time taken to complete the ranges, you are able to form a view of what can next be expected.

If applying this system to intraday trading then 1 to 30 minute bars can be used to define an intraday trend. Stops can be placed below higher bottoms in an uptrend and above lower highs in downtrends. Smaller time frames are more suitable for active markets.

Using good money management rules and profit / loss ratios, swing trading can define clear entries points, placement of stops and target price levels at which to take profits or place stops at in expanding markets. Experienced Gann traders will have learnt to use the swing chart as the basis of their trading system.

The following chart of the London FTSE shows Gann's "rule of three" in sections or waves, the percentage retracements, projections and a strong support level at the next level after the 50% level at 56.25% at the wave 3 low.

Also count the number of days from the low, the first range took 3 days, the second was 3 days, the third was 1 day, the fourth was 2 days and the last was 2 days. The last three ranges indicated a weakening market as it had changed its balance from the first two equal times of 3 days each, and the expanding price range from 79.5 to 110. The top at the 91 point range (always note ranges that are 90 or multiples of it), was then followed by a lower top which confirmed the trend had now turned down.
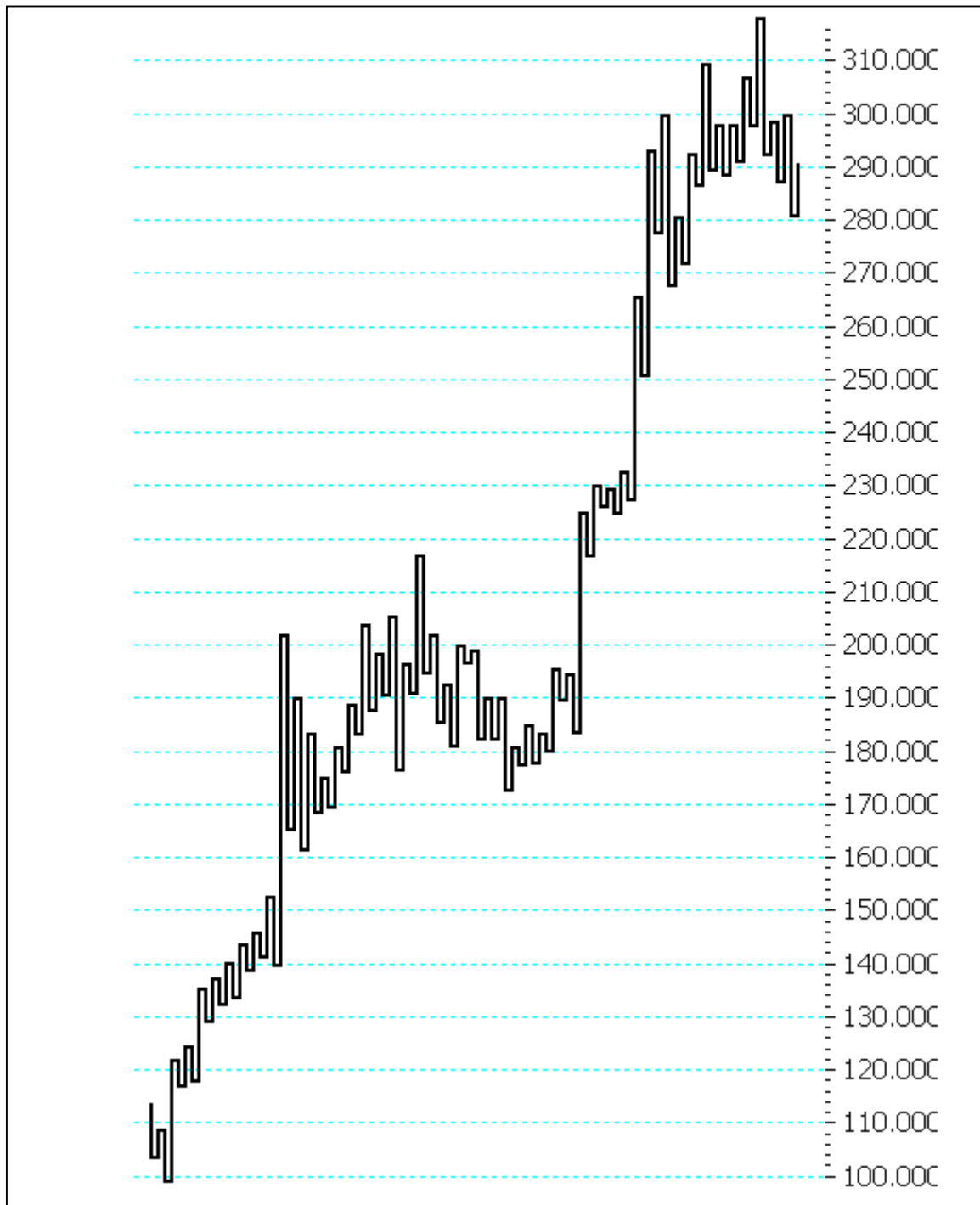
The declines, though sharper than the rallies were not greater in time which indicated this was not particularly bearish.
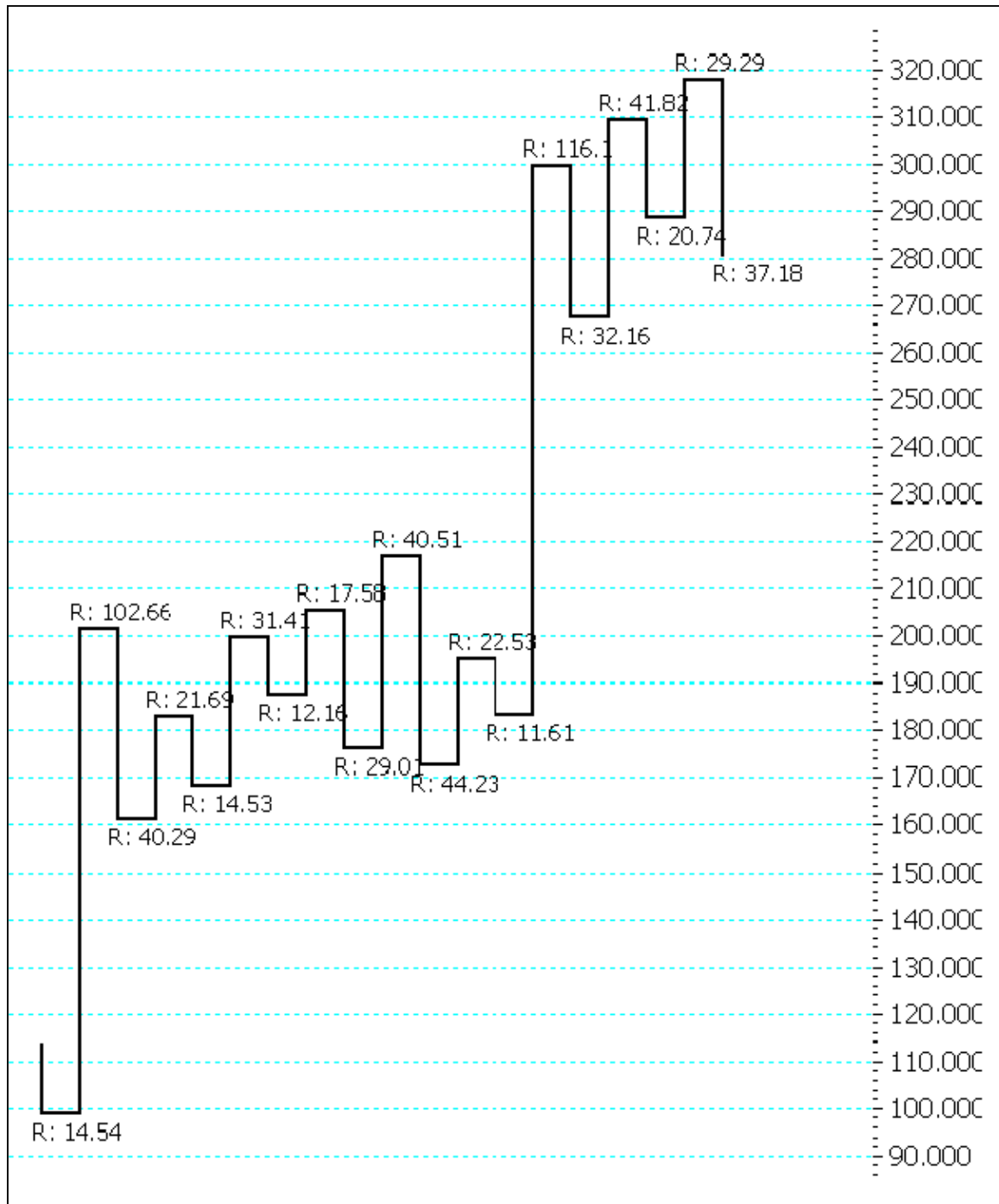
Monitoring a markets progress using the daily or one day swing chart is an easy and clear manner of recognizing the markets trend. Analysis of the "swings" or ranges will reveal valuable information on a markets repeating patterns and cyclical behaviour.

Google Inc. One day swing chart.

Google Inc. One week swing chart.

R: 29.29
R: 41.82
R: 116.1
R: 32.16
R: 20.74
R: 37.18
R: 40.51
R: 102.66
R: 17.58
R: 31.41
R: 21.69
R: 12.16
R: 22.53
R: 14.53
R: 29.0
R: 44.23
R: 11.61
R: 40.29
R: 14.54

320.000
310.000
300.000
290.000
280.000
270.000
260.000
250.000
240.000
230.000
220.000
210.000
200.000
190.000
180.000
170.000
160.000
150.000
140.000
130.000
120.000
110.000
100.000
90.000

Rules for Gann's mechanical trading method applied to "long" positions.

These rules apply to the daily bar chart and corresponding daily swing chart following.

1.   Trade only with the trend. Higher swing tops and higher swing bottoms ARE an UPTREND.

2.   The uptrend is defined by point B being above the previous swing high. The strongest trades are when the minor (daily) trend is in the direction of the main (weekly) trend.

3.   "Buy" when a reaction occurs back in the direction from A to B from point C. The point C day will ideally have high volume and close at the high end of the days trading range. If C is at a Gann level of support of 50% or less this will indicate strength. These percentage levels are detailed in the "Support and Resistance" section.

4.   Only buy if you can make a trade entry before 33.3% of the A to B range has completed. The further the entry from point C will also be the closer to the end of the move.

5.   The "Buy" entry signal is made when the day after the point C day has traded higher than the high of the C day. This day should ideally have high volume that indicates renewed buying.

6.   At the time of entry place a Stop below point C. If the market traded below C it would mean that the trend has reversed as the swing chart now points down. The distance between entry and stop at C is the risk cost of the trade.

7.   Calculate from point C the resistance levels the market will encounter as it moves up according to the Gann levels of 1/8ths and 1/3rds of the price range of A to B. The 50% level of the previous range is where most unsuccessful trades fail as it is the strongest resistance level.

8.   Profits can be taken at 66.6% to 100% of the A to B range. If the market is strong and moving fast place an exit stop below the low of each successive day so as to protect profits when the market reverses.

Note that the application of timing analysis described in the later sections will give advance warning of dates that are likely to be reversal points. These time cycle dates will also indicate dates where resistance will be encountered and when the time of the end of the markets current run can be expected.

Price cycle analysis will indicate the price levels where resistance can be expected. Where there is a Gann percentage level and this is also the same place where a price cycle aligns than it is a stronger area of resistance. Example: in the following swing chart the 133.3% level at the .50c price range is also the addition of the .37c and .14c ranges.

For larger time frames for a bigger picture perspective weekly bars can be used in the same manner as described above. Daily bars can then be used "intraweek" as hourly bars can be used intraday.

1 day bar chart – mechanical trading method, long positions.

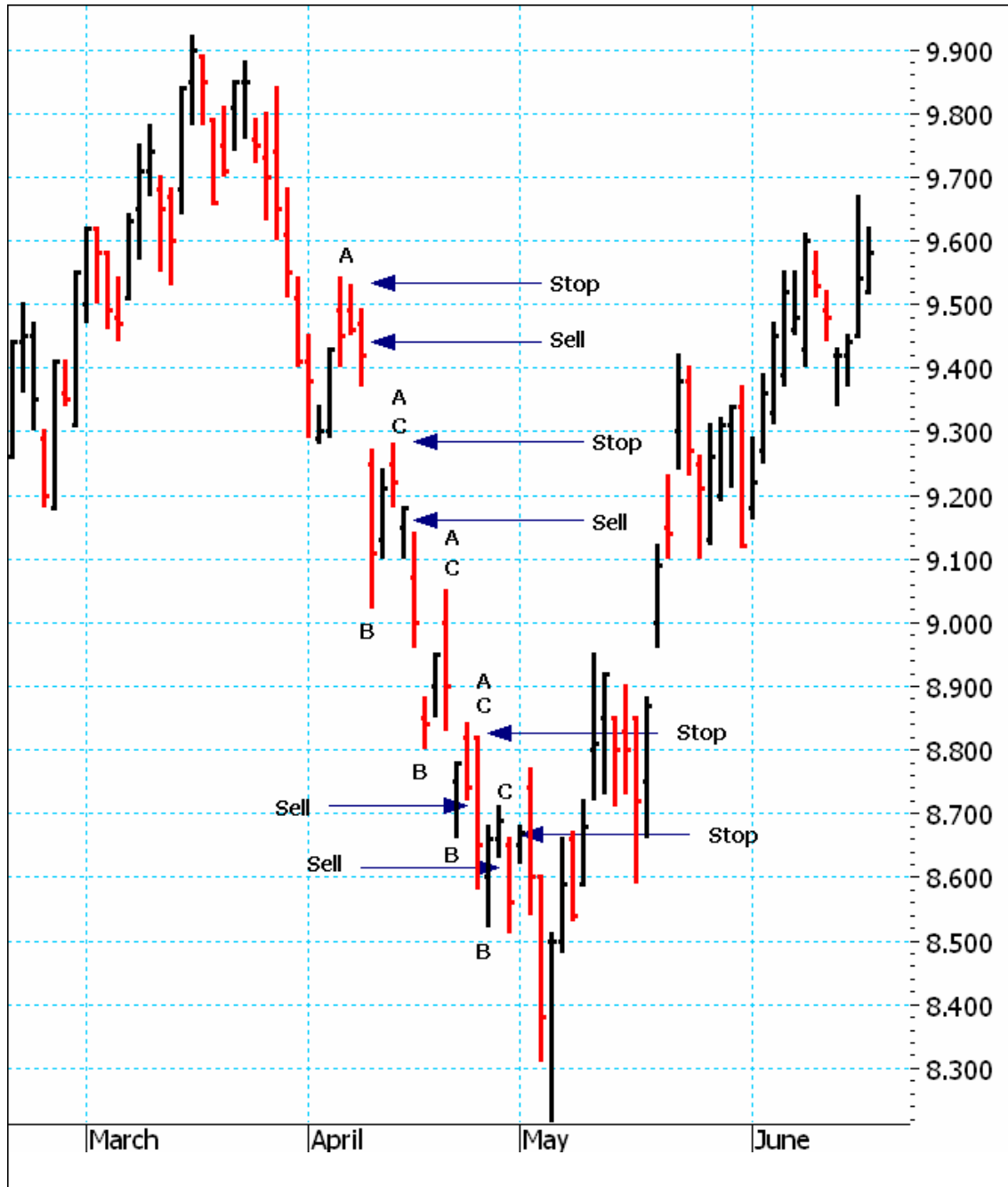**1 day swing chart – mechanical trading method, long positions.**
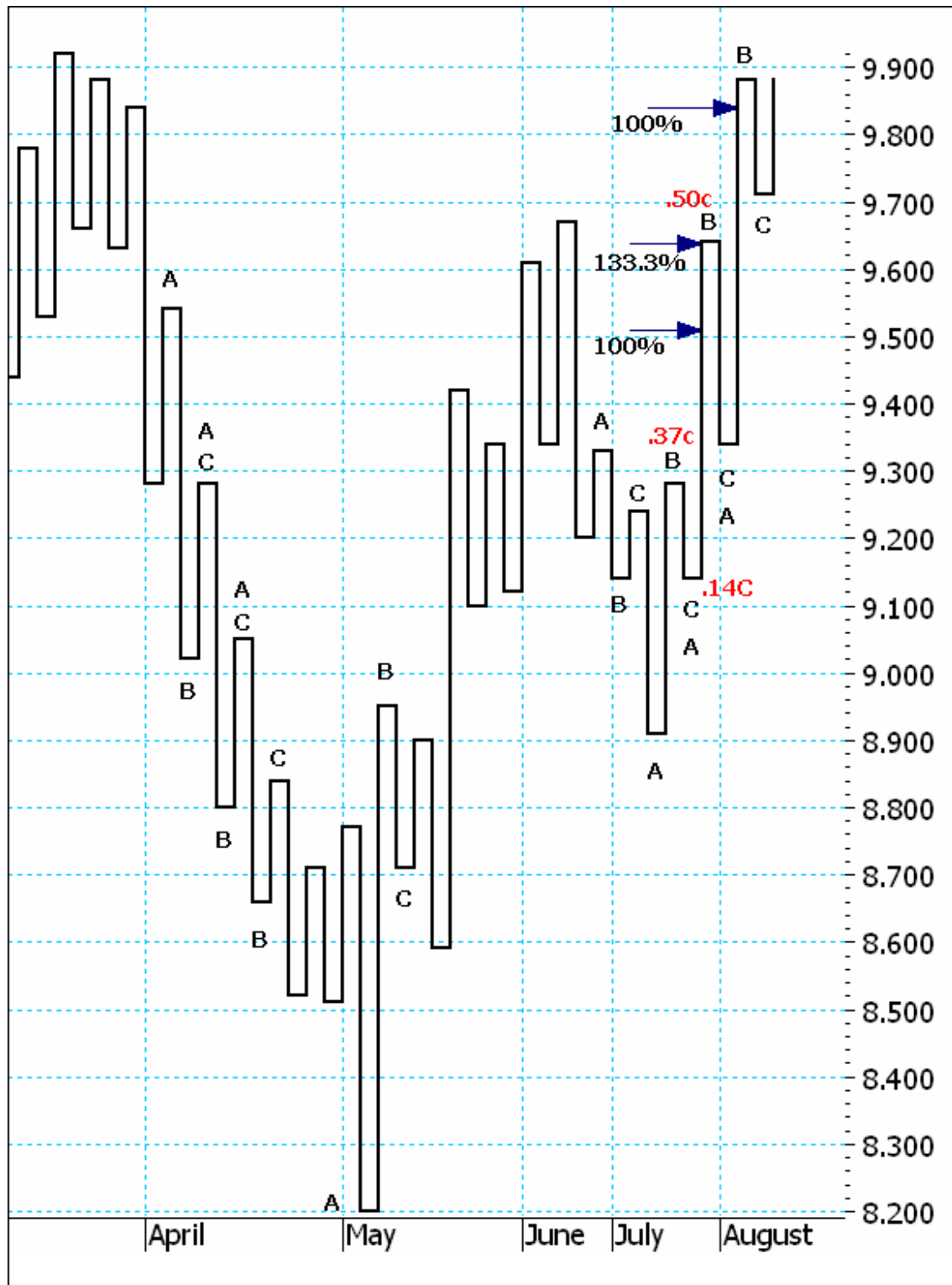
Rules for Gann's mechanical trading system applied to "short" positions.

These rules apply to the daily bar chart and corresponding daily swing chart following.

1. Trade only with the trend. Lower swing tops and lower swing bottoms indicate a DOWNTREND.

2. The downtrend is defined by point B being below the previous swing low and point C being below A. The strongest trades are when the minor (daily) trend is in the direction of the main (weekly) trend.

3. "Sell" when a reaction occurs back in the direction from A to B from point C. The point C day will ideally have high volume and close at the lower end of the days trading range. If point C was unable to reach the Gann level of resistance at 50% then this will indicate a weak market or strength in the direction of the down trend.

4. Only "Sell" if you can make a trade entry before 33.3% of the A to B range has completed. The further the entry from point C will also be the closer to the end of the move.

5. The "Sell" entry signal is made when the day after the point C day has traded lower than the low of the point C day. This day will ideally have high volume that indicates renewed selling.

6. At the time of entry place a Stop above point C. If the market traded above point C it would mean that the trend has reversed as the swing chart now points up. The distance between entry and stop at C is the risk cost of the trade.

7. Calculate from point C the support levels the market will encounter as it moves down according to the Gann levels of 1/8ths and 1/3rds of the price range of A to B. The 50% level of the previous range is where most trades fail as it is the strongest support and resistance level.

8. Profits can be taken at 66.6% to 100% of the A to B range. If the market is strong and moving fast place an exit stop below the low of each successive day so as to protect profits when the market reverses.

1 day bar chart – mechanical trading method, short positions.

1 day swing chart – mechanical trading method, short positions.
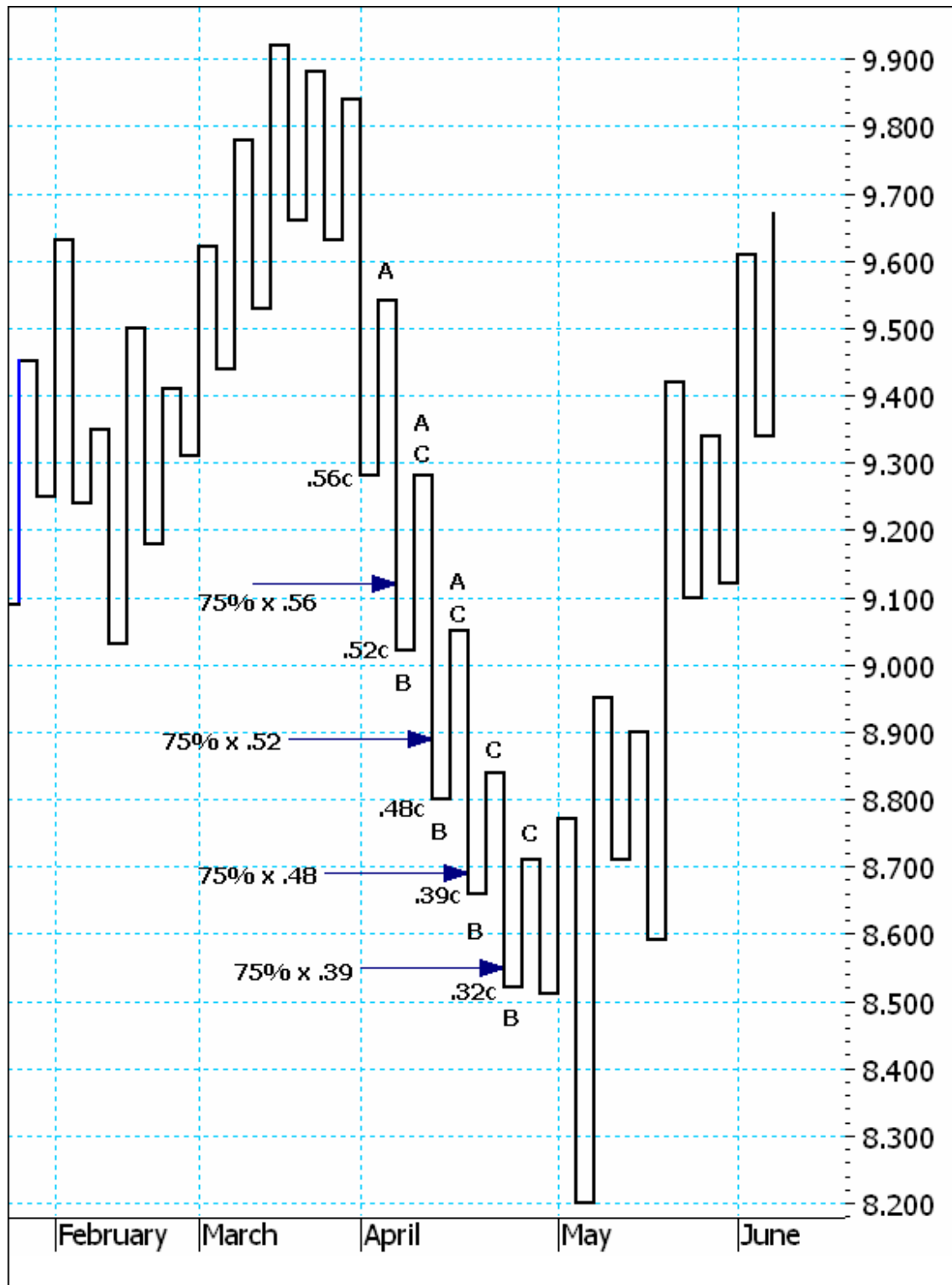
4. Support and Resistance Levels

Every stock makes a top or bottom on some exact mathematical point in proportion to some previous high or low level.

"The movement of any "market" between extreme high and extreme low, either in a major or a minor move, is very important and by a proper division of this range of fluctuation, we determine the points where resistance or support will be met on a reverse move, either up or down". WD Gann.

Support and resistance price levels represent psychological areas where stronger buying and selling can occur. These levels indicate support and resistance areas in a markets movement. The main Fibonacci levels are at 23.6%, 38.2%, 50% and 61.8%, Gann levels are the $1/8^{th}$ and $1/3^{rd}$ levels or 12.5%, 25%, 33.3% 37.5%, 50% 62.5%, 66.6%, 75% and 87.5% of a range.

The 50% level of price and time ranges was of great importance to Gann and is the first division applied. It is stronger than the $1/8^{th}$ and $1/3^{rd}$ levels. The next important level is the 66.6% level. There are variations in different markets. Some markets often retrace to the 50% level. Others might frequently retrace 37.5% or 66.6%. These price levels are drawn on the working chart.

With larger ranges, such as from a historical low to an all time high, the range can be divided into $1/16^{ths}$.

The concept of dividing a whole into half of a half and one third parts and half of the third is how Gann instructed ranges in time and price be divided. With the square of 144 or 20,736, to make use of this in markets trading at low prices it can be divided by 256 to obtain the number 81.

Gann's explanation for dividing a circle or a whole was:

Why are the angles of 1/8 of a circle most important for time and space measurement? Because we divide $1 into 1/4, 1/2, and 1/8 parts. We use 25c or 1/4, 50c or 1/2 dollar and long years ago we had 12 ½ pieces. Figuring $100 as a basis for stock prices and changing these prices to degrees, 12.5 will 45°, 25 will equal 90°, 37.5 will equal 135°, 50 will equal 180°, 62.5 will equal 225°, 75 will equal 270°, 87.5 will equal 315° and 100 will equal 360°.

As a general rule, when unsure as to which range to divide first, simply use the most recent high and low prior to where the market is currently trading at. Next divide the range from high to low previous to that. Dividing historical ranges from the all time low to the major high should always be monitored. This can be done with a spreadsheet and kept as a record to refer to, or by drawing these levels on the working chart.

Often a market will stop short of reaching a Fibbonacci or Gann percentage level. This is because as price progresses it needs to complete a cycle, a proportionate part of a cycle or reach a level that is symbolic of a cycle. A market will often find support at the 50% or other Gann or Fibbonacci percentage level as the range being related to will have been a cycle or part of a cycle itself.

Dividing a range into 1/16ths can be useful as in the S&P 500 in the following chart. This can be seen when the market traded up to the 56.25% or 9/16ths level of the 2000 to 2002 range of 807 points on the 3rd January 2005.
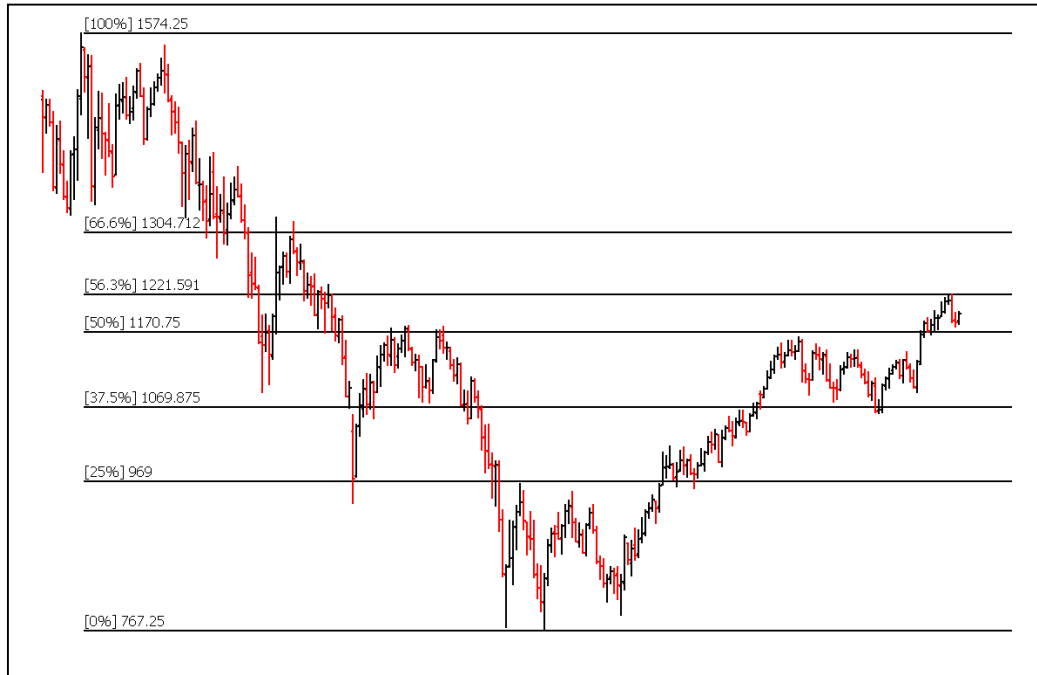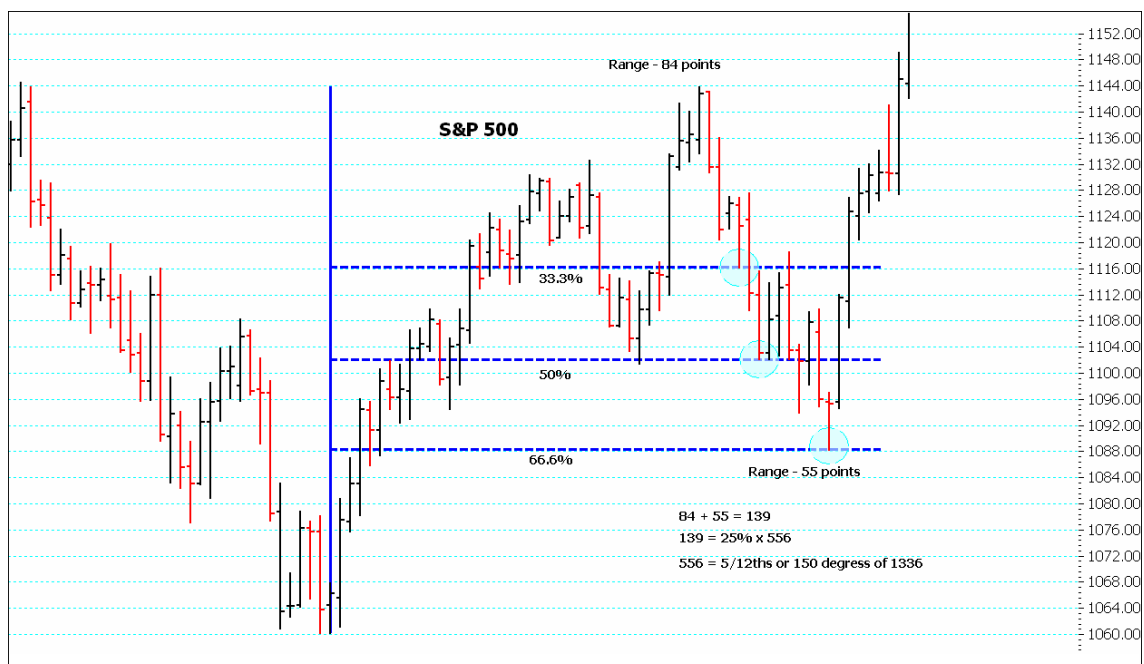

Historical ranges are very important as can be seen in the following chart of Soybeans (CBOT) from July 1999 low to December 2004 highs.

Corn (CBOT) historical ranges divided by the Gann percentages.

Markets encounter support and resistance levels at the Gann levels as they retrace and advance within past ranges.

Most charting applications will have a facility to adjust these levels, or they can be drawn on a chart at the calculated levels.

You will have noticed that some Gann levels are very close to the Fibonacci levels. They are so close it usually does not matter which you use.

The below chart of the S&P 500 shows three different ranges divided. Where there is more than one support or resistance level close to each other then there will be greater support or resistance around this area. The 50% level - the dashed line, is at a similar level to the 25% main range level, the market on the first day closed near this level, was supported the next day by it, and opened on two successive days near this level before finally falling away. The main 50% level being close to the 100% minor level held the market for 4 days before it finally was able to break through.
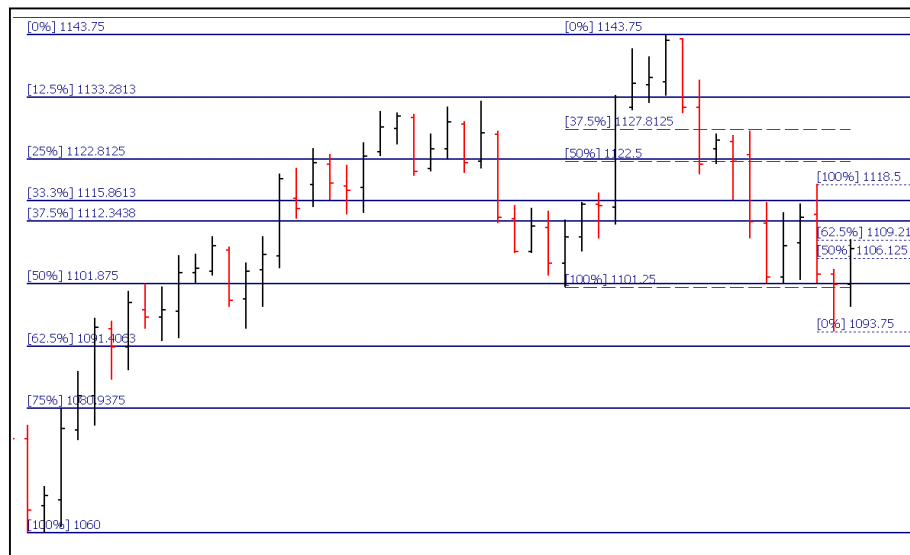
Past support levels can become new resistance levels and past resistance levels can become new support levels.
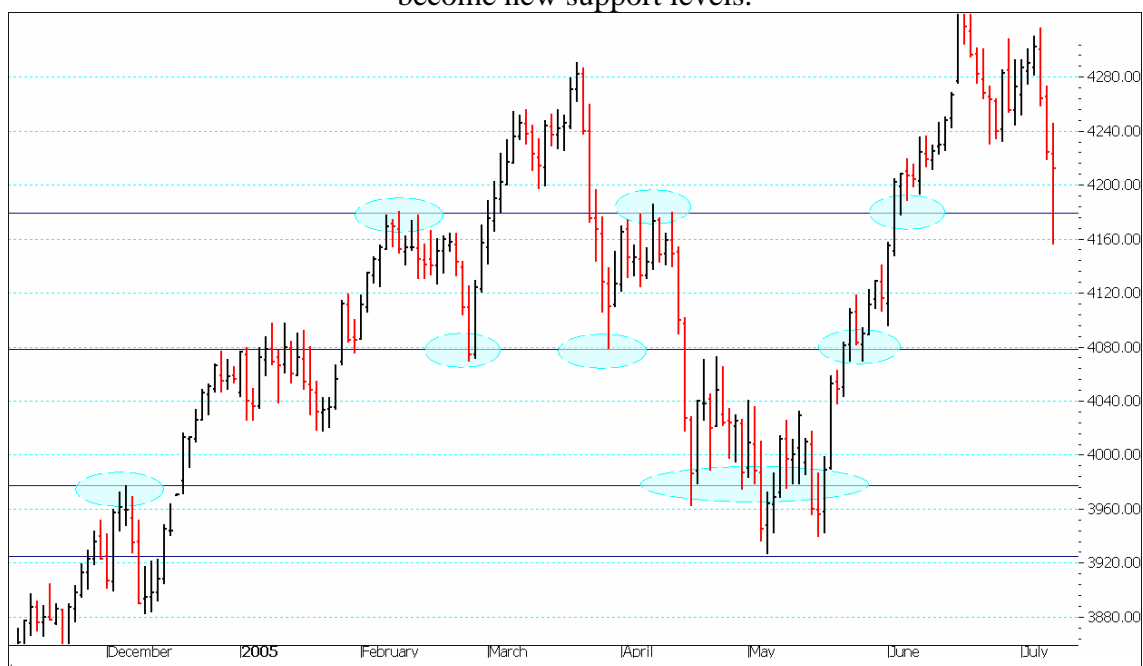
5. Sections of the Market

Gann's version of market advances and declines is similar to Elliot's wave structure. Gann said always use the rule of "three" and the fourth section was important to watch for a change in trend. Elliot believed that there were three impulse waves with the possibility of a fifth wave which would be Gann's fourth section. In any market advance, either upward or in decline, watch for these sections or waves to complete.

In a typical campaign either in a Bull or Bear market there will run 3 or 4 sections. This statement can be confusing unless you know whether to use a 1 month, 1 week or 1 day chart. There is some subjectivity needed with many of Gann's statements. Sometimes these charts will show clearly these sections but on occasions an "x" points swing chart will be useful to determine the sections.

In both a bull and bear market if there are two sections or waves, then there usually will be more. This does not mean that the third will be successful. It means that three or more sections will be attempted. This is what swing charts in their various formats will tell you. If during an advance the swing ranges or waves are becoming weaker or decreasing in time and price duration it means the market is changing its balance and weakening. If during a bear market the swing ranges or waves down are decreasing in time and price duration, then there is less selling, or more buying support, which can indicate an end to the downward move is near.

Elliott wave theory is a popular market wave analysis method and it sometimes works very well, usually in hindsight. A problem with it is that you can fall into the habit of needing to label every wave and then have too rigid an expectation of the markets.

Gann's market sections interpretation does not require such a fixed perspective. As a trader, when trading the swings as they present themselves according to the minor – 1 day, and larger time frame – 2 day or weekly swing chart method you don't need to know much more than where you are in the market, where your profit target is and stop loss order is located.

S&P 500; 100 points swing chart showing the sections since the 1999 high to the 2003 low and up to the 2005 high.
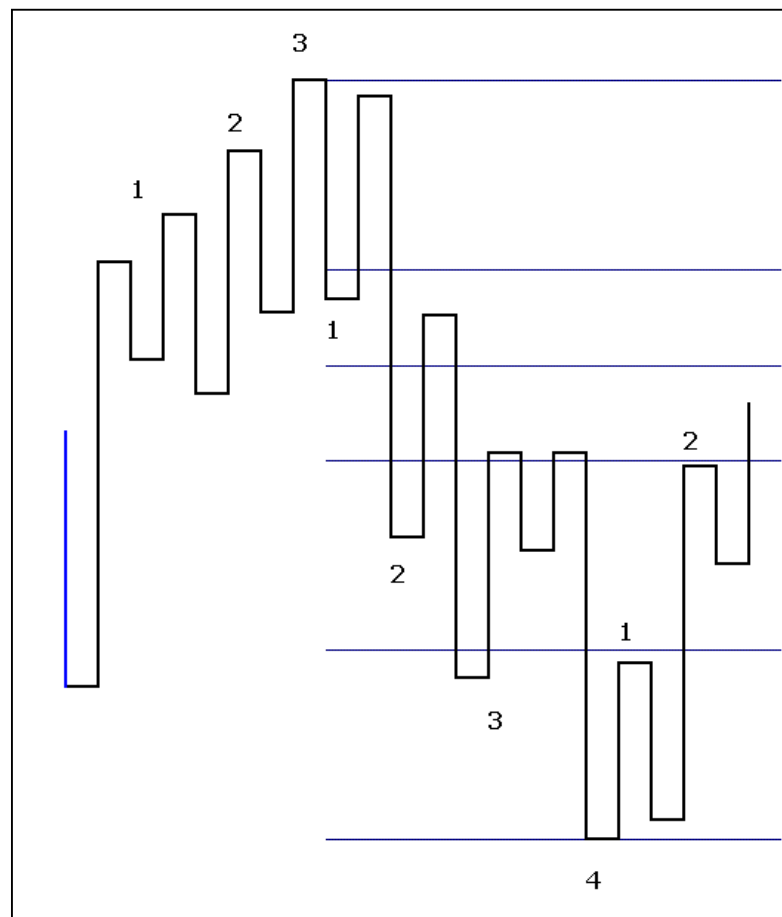

Typical campaign section or wave structure

Firstly there is a rally from the bottom, than the market will fall back into the range of the rally and settle on support levels.

The next rally starts and prices move into higher territory above the high of the first advance and then it falls back to support levels.

A third rally commences and prices move to higher levels again above the high of the second advance. This often is the end of the advances and can spell the end of the advances altogether.

The fourth rally or attempt, is the most important to watch. In a strong market it will succeed and in a weakening market it will fail and will form the first lower top which can indicate the beginning of new trend in the opposite direction.

Markets form a series of waves or sections that can be useful when anticipating an end to a run of successive highs or lows as can be seen in the following charts, note that in the first chart, in the first set of 3 waves, Wave 1 was 6 days down, wave 2 was 6 days down and wave 3 was only 3 days down, or a 50% retracement in time. The arrow shows the first higher low, coming off the main low.
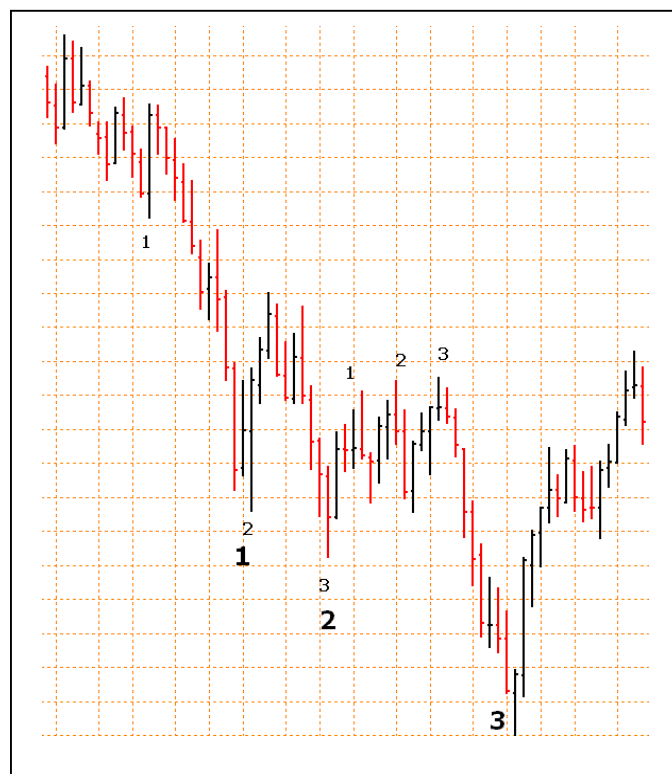
6. Market Patterns

The following are WD Gann's statements on interpreting a markets behaviour by observation of its appearance.

Buying power greater than selling power: *When a market advances, it advances on buying and increased demand. Selling power greater than buying power: When the supply exceeds the demand, and selling power is greater than buying power, it is natural that prices must decline to a level where support or buying power will come in and overbalance selling power.*

Reactions are smaller at higher levels: *In a Bull market reactions get smaller as prices go higher, because optimism and hope increase after a prolonged advance. Reactions are small because there are buying orders under the market as people are waiting for reactions to buy. Therefore, do not expect large reactions at high levels until final top has been reached. When the first reaction exceeds the last reaction in a Bull market, you can figure that the trend has reversed temporarily.*

Single top: *Is where a market does not reach the same level a second time days, weeks or months apart.*

Single bottom: *Is where a market declines to a low level making a bottom that does not reach this same level again, days, weeks or months later.*

It is these tops and bottoms that mark waves or main sections that are of more importance when applying Gann angles, calculating time periods and the main trend's support and resistance levels.


Daily Bar Chart
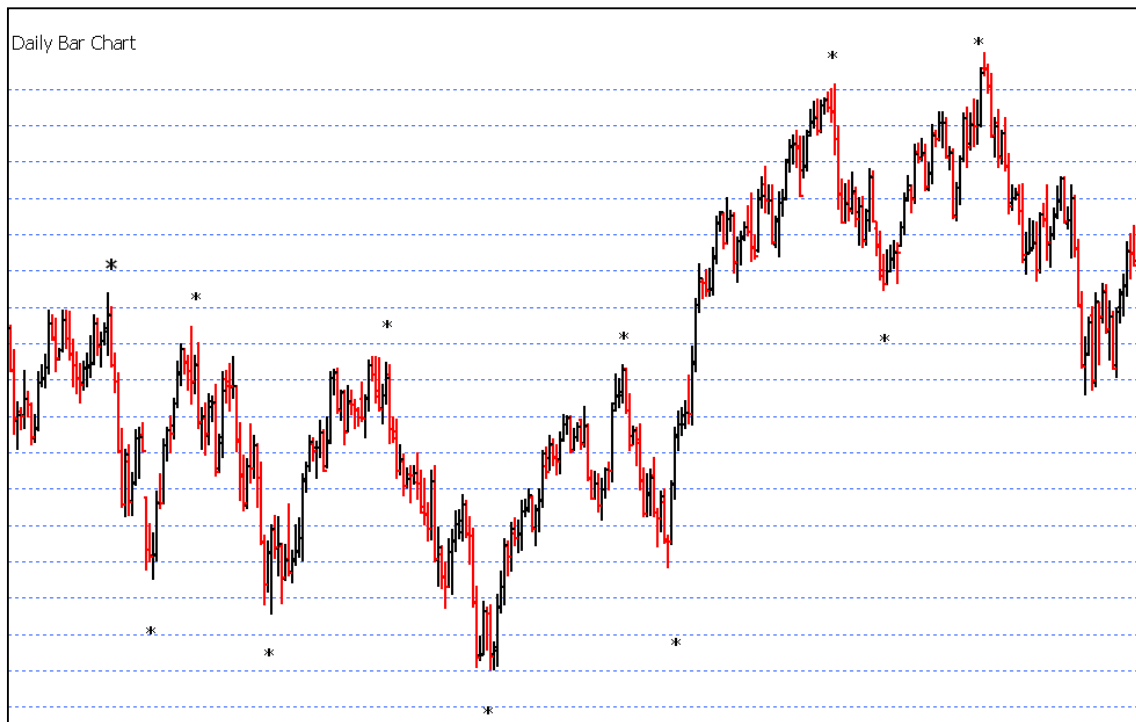
Double tops and bottoms: *A double top is when a price advances to a high level, then reacts and advances again to the same level a second time. These double tops are important if they occur weeks, months or years apart. The more time between the top and bottom, the more important it is.*


Often reactions to double bottoms and tops are greater than the more general rule of a range repeating a similar amount. Markets will often react 150% to 200% off a double or triple top or bottom if the reaction is in the direction of the main trend.
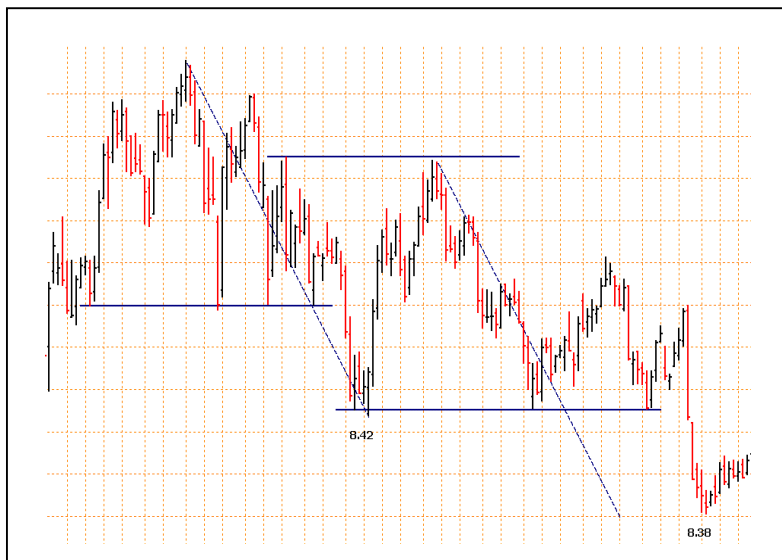
Old tops and bottoms become resistance and support in the future. This will be found at the horizontal axis and the diagonal with trend lines and Gann angles.

The following chart has been added 6 months after the above chart.
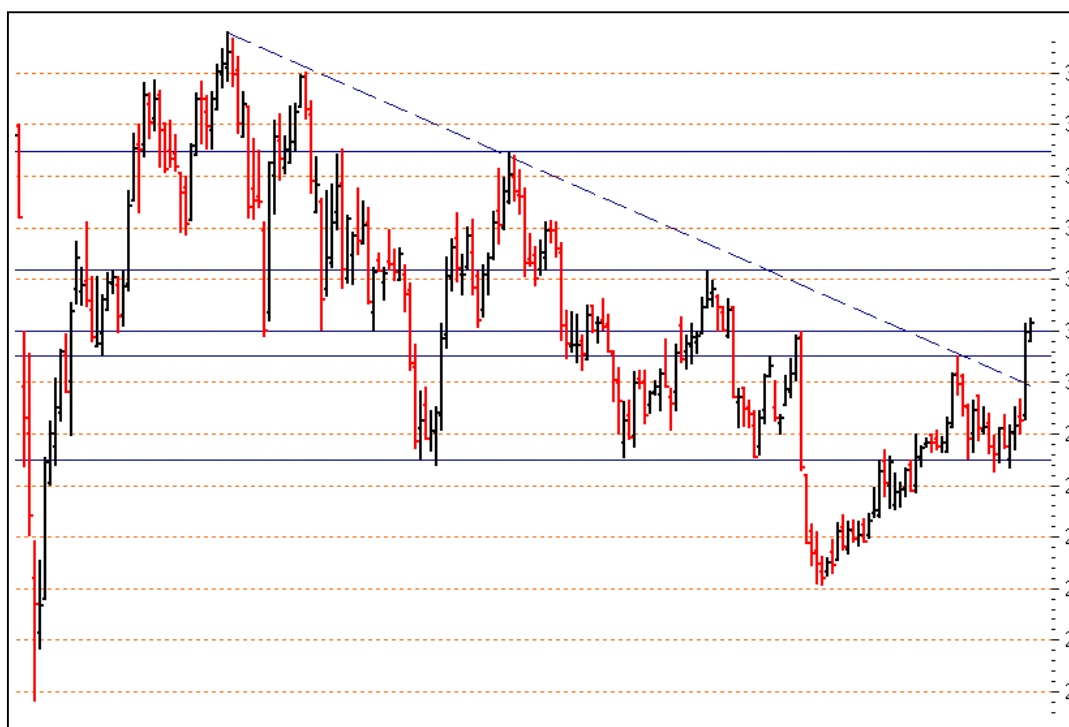
Following is the daily view of the final, sharp decline in the preceeding weekly chart showing the important technical aspects present before the decline.

Time cycle of 630° at 50% of 1260. "Time, Times and half a Time" (360+720+180)
Price cycle at 225% of 1260 from historical Low
Gann's Fatal number of 490 (49 x 10)
Price retracement at 66.6%
100% previous price range repeat

Triple tops and bottoms: *Are the most important. By going over past records, you will find that the greatest advances and declines, or those that last the longest start from triple tops and bottoms.*

Double tops and bottoms can occur in any time frame, from 1 minute to many years apart. A double top or bottom that occurs in the direction of the main trend will usually result in a greater reaction to the range that formed from the top to the lowest point in the V or the bottom the highest point of the reversed V. They are valid even though the tops or bottoms may not be exactly at the same level. The swing chart is the clearest way to observe these patterns.

Higher bottoms and higher tops: *Supply and demand govern market movements and it requires a greater buying power than a selling power to force commodities to higher levels. After commodities make bottom and start to advance, if they continue to make higher bottoms and higher tops, the trend is up. They must make higher bottoms and higher tops in order to show a strong Bull market. Therefore, it is very important to watch the first, second, third and fourth higher bottoms, and remember to always use the rule of three in everything. The third higher bottom is just as important as three bottoms at the same level, because it shows that the market is gaining strength.*

Lower tops and lower bottoms: *After a market makes the final top and selling pressure is greater than the buying pressure it must naturally decline and make lower bottoms and lower tops.*

The higher bottoms and higher tops at the left in the below chart clearly show the trend is up. The lower highs and lower lows to the right in the below chart clearly show the trend is down. These are the safest patterns to trade. By trading in the direction of the trend, calculating the price support and resistance levels at these higher bottoms and lower tops and determining the cycle that is present on these dates, it is not difficult to trade the ranges and exiting at a predetermined percentage level.

Crossing old tops or breaking old bottoms: *When a market crosses old tops it is an indication of stronger buying power and change of trend. When a market breaks old bottoms it indicates the trend has turned down.*
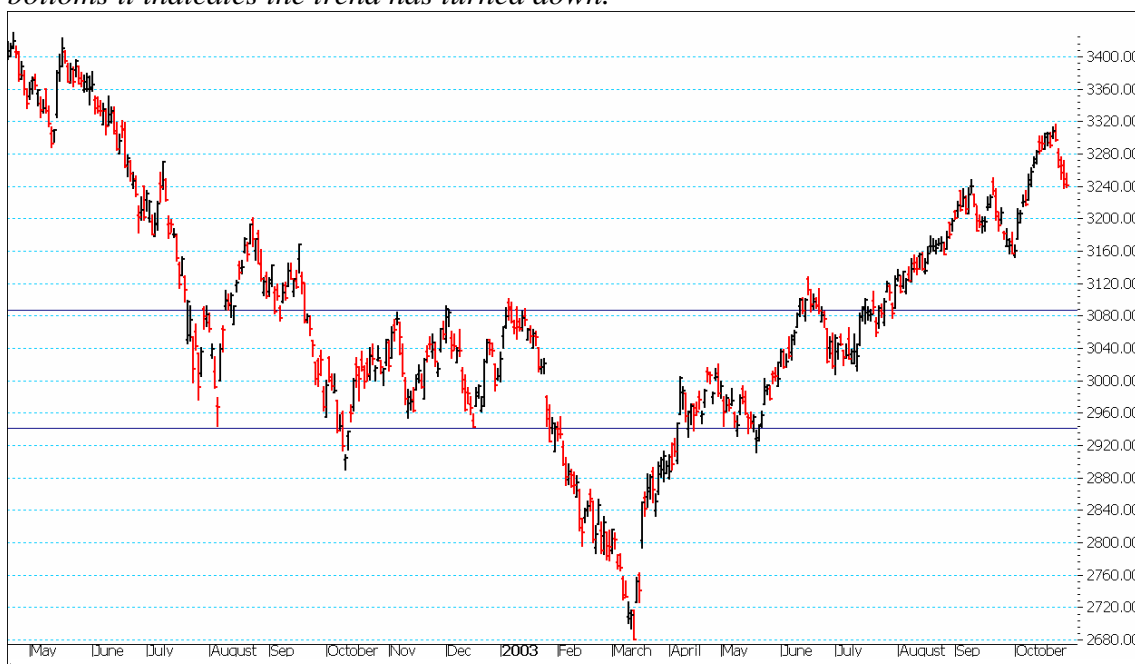
Secondary rally or lower top: *After a prolonged advance and the market reaches final high, there is usually a sharp severe decline. After that there is a secondary rally, sometimes getting up near the old top and sometimes not reaching it by many points. You will find that a market seldom fails to have this secondary rally. When the secondary rally comes, especially after the trend has turned down, it is the safest rally on which to sell short.*


Secondary decline or higher bottoms: *After a Bear campaign ends, making final bottom, there is usually a quick rally. Then, the secondary reaction takes place, making a higher bottom and this bottom is the safest place to buy. Never guess. If you guess, you are likely to miss the bottoms and tops by many points. If you wait for definite indication and follow rules you will get in near top and bottom.*
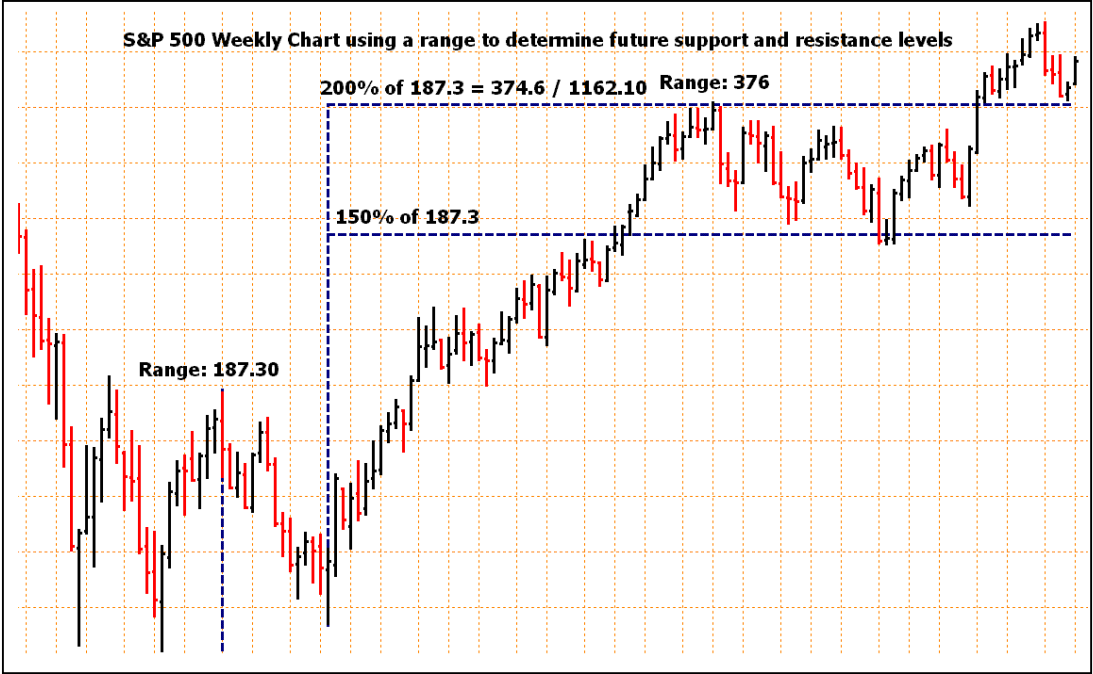
7. Using a range to calculate a high price

An advancing market will encounter resistance levels at certain percentages of its last advance. This means that the Gann levels of 12.5%, 25%, 33.3%, 37.5%, 50%, 62.5%, 66.6%, 75%, 87.5%, 100%, 112.5%, 125%, 133.3%, 137.5%, 150%, 162.5%, 166.6%, 175%, 187.5%, 200% etc; are used to determine future resistance levels. This can be applied to any time frame, from intraday charts to yearly charts.
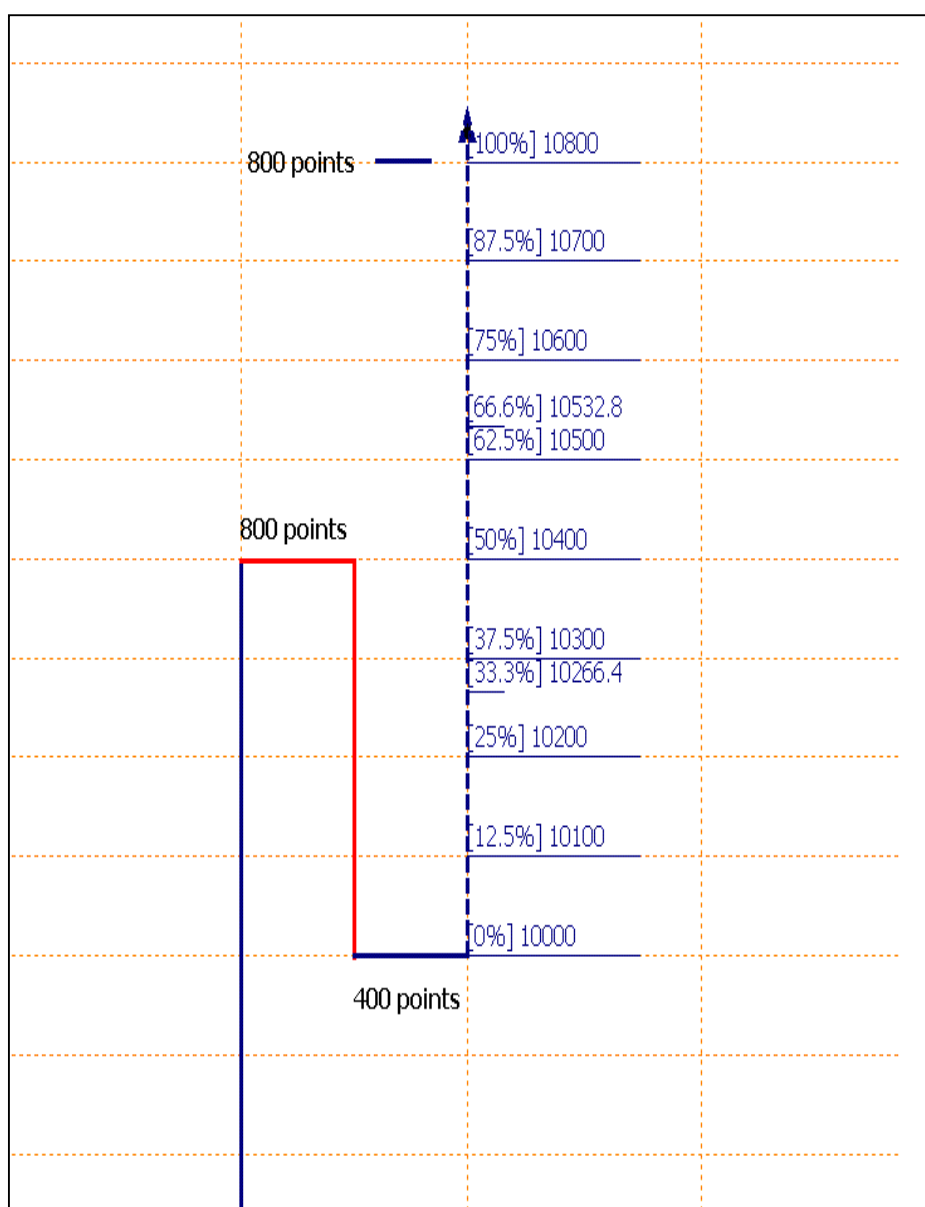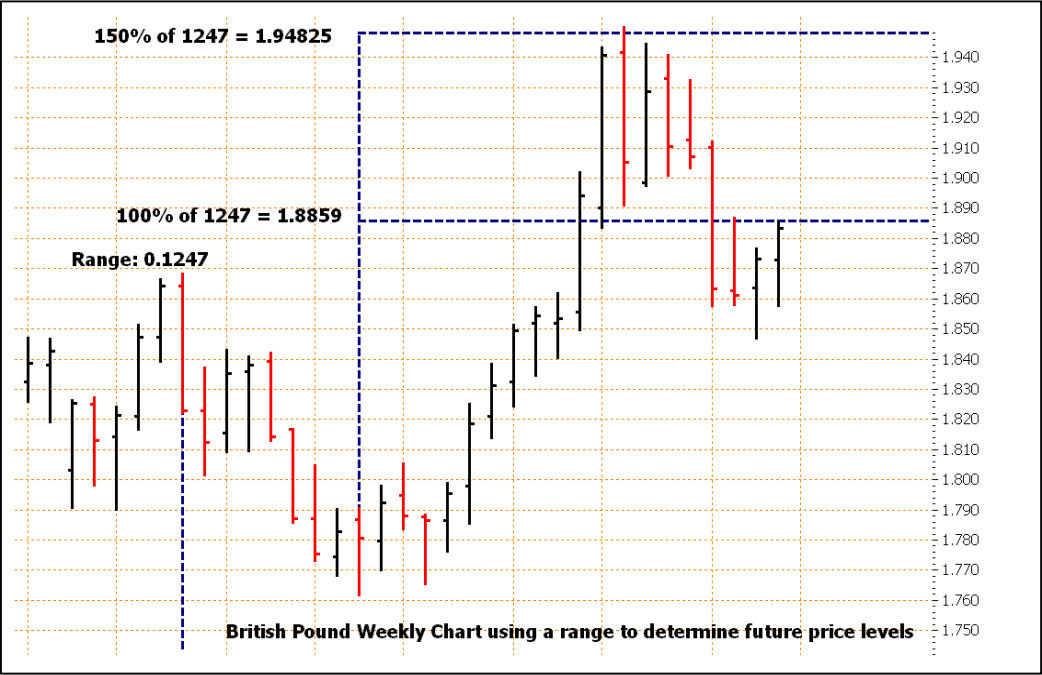
These levels can also become support levels as in the 150% level with the S&P 500 in the following weekly chart.

S&P 500 Weekly Chart

S&P 500 Weekly Chart using a range to determine future support and resistance levels

200% of 187.3 = 374.6 / 1162.10   Range: 376

150% of 187.3

Range: 187.30

British Pound Weekly Chart

150% of 1247 = 1.94825

100% of 1247 = 1.8859

Range: 0.1247

British Pound Weekly Chart using a range to determine future price levels
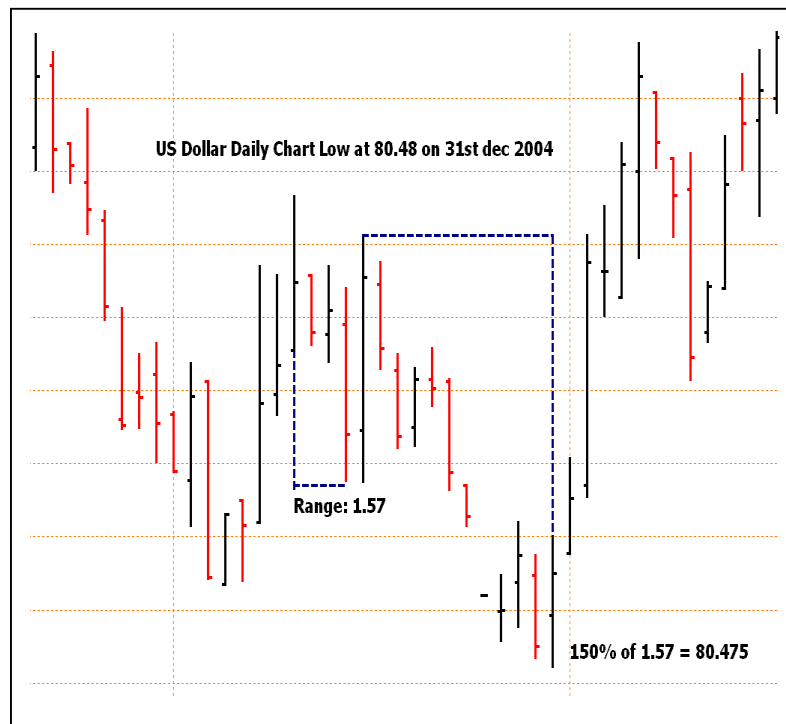
8. Using a range to calculate a low price

A falling market will encounter support levels at certain percentages of its last range down. This means that the Gann levels of 12.5%, 25%, 33.3%, 37.5%, 50%, 62.5%, 66.6%, 75%, 87.5%, 100%, 125% etc, of the previous range in the same direction will be areas to watch for a decline to stop at and a retracement to begin from. When a market reaches one of these percentages and this is also at a support or resistance level of a previous range, then it is a more important level to be aware of. This can be applied to any time frame, whether intraday charts or yearly charts.

British Pound Weekly Chart

Range: 596

75% of 596

100% of 596

150% of 596
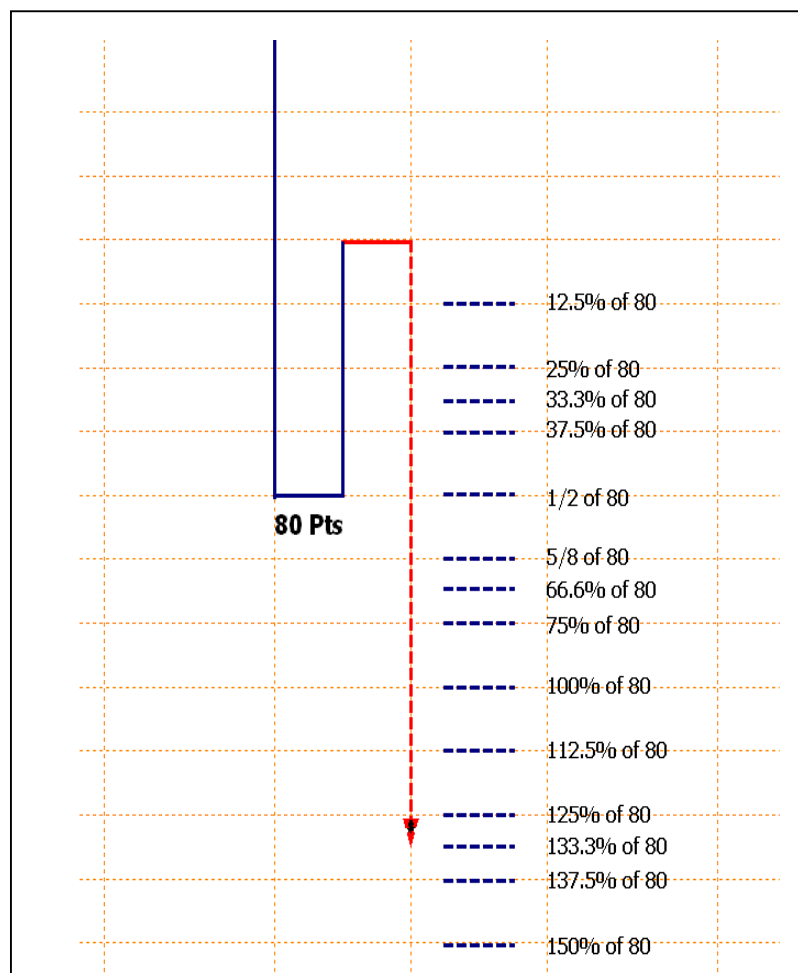
US Dollar Daily Chart

US Dollar Daily Chart Low at 80.48 on 31st dec 2004

Range: 1.57

150% of 1.57 = 80.475

9. Time Counts

Time counts commencing from the day of a past important high or low will show the calendar days, solar degrees and when numbers are divided by seven, the number of weeks. From a practical point of view this is the most difficult technique to apply to a chart unless using hand drawn charts. What time counts do is keep you up to date with the time periods and cycles that are vibrating from previous the high and low points.

There is no other way of knowing today, how many days or degrees there would be since the October 2002 lows (US markets) or from every weekly turning point since then, let alone since the 2000 highs without maintaining an ongoing record. Time counts do this effectively and are extremely important.

The concept is that on the calendar day bar chart, by counting the days from a past high or low point, when you arrive at certain numbers in calendar days and solar degrees (the same number days and degrees will often be on different dates) that are to be monitored as trend change dates, you then watch the price action on that day. If the market action confirms that the cycle pressure date is working then a trade can be initiated if supported by other analysis.

From the high or low point on the chart, just above the high, or below the low, you would start the count at "0". In increments of 4, 8 or 12, write in each number as follows, 0, 12, 24, 36, 48, 60, 72, 84, 96, 108, 120, 132, 144, 156, 168, 180 etc until you reach 1360 days. These numbers will also give you the approximate position of the date on which to mark the solar degree times. To calculate the exact date you will need an ephemeris which will give the degrees for each day of the month. Any number can be used for the time count line such as 4, 12, 16, 24 or 30. The reason for using increments of 12 is that there are many important numbers that are multiples of 12.

Every swing turn in a market is a reaction to a previous high or low. Each new high or low will cause a new reaction. It is simplistic to assume that by only monitoring major high and lows you will get only major highs and lows again. Any swing turn that registers on a weekly chart can be used to commence a new time count from. There will be occasions where from a past major turn you will not find reactions that are as useful as some reactions obtained from what may appear to be an insignificant swing turn. This is because there are many cycles vibrating within a market and by commencing a time count from all weekly swing turns you will pick up most of them by the time the chart has expanded to a reasonable size.

At each new turn on the chart note the numbers that are present on the time lines. You will in time recognise certain numbers and how they are related to the important numbers detailed in the 'Time Cycles" section.

When you have more than one time count date vibrating from a past high or low, and you find another date coinciding with this from a different reference point, such as at 90 degrees (88-92 days) and also a 120 degrees date, on a 168th or 49th day, or any other combination of the above numbers, whether degrees or calendar days, it means that there is different cycles that could cause a reaction on that day. The accompanying charts show how these counts are applied.
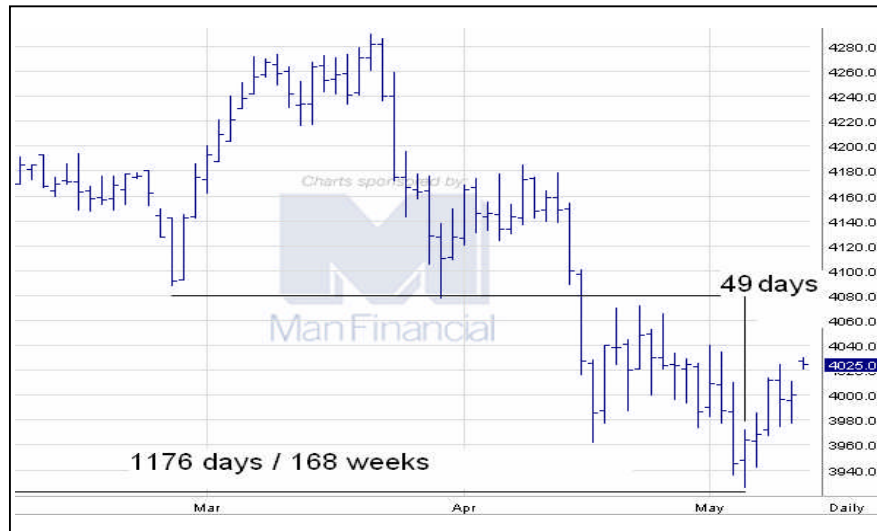

An important use of time counts is to monitor minor time ranges. The following chart shows clearly this concept in the Australian Share Price Index with repeating time ranges calculated by the time count lines.
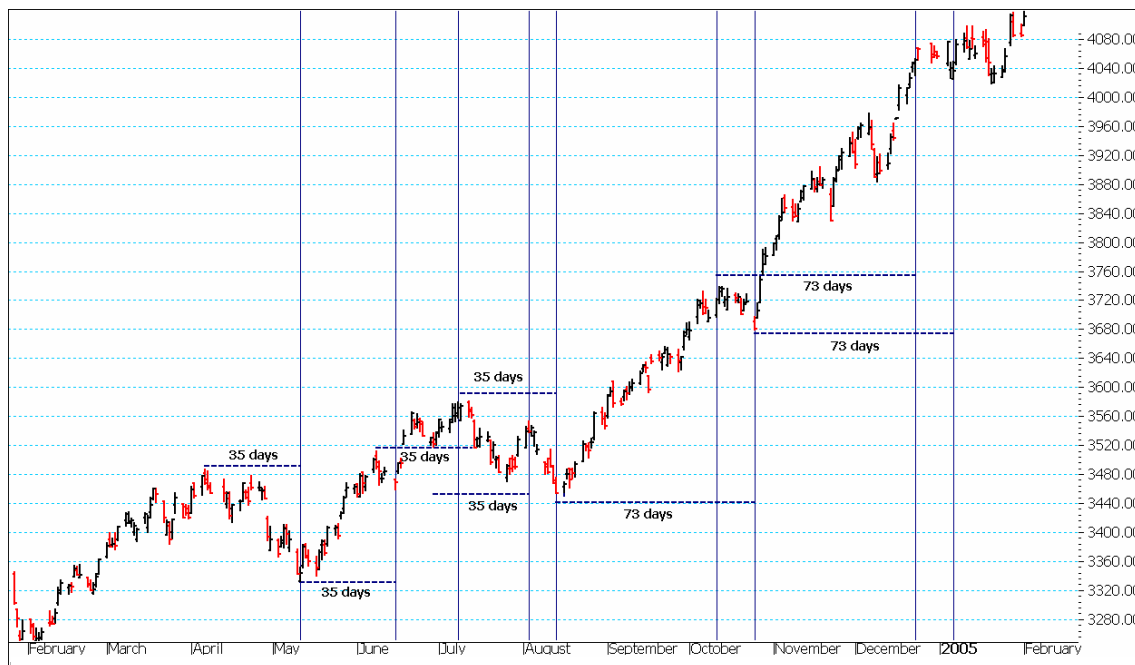
Using time ranges with time cycles and price levels enables you to form a "picture" of what may eventuate. You may have noticed in the above chart that the first 73 day time range appears to start on a Friday which is not the low point on this chart. In the section on "Markets", there is mention of exchanges and data vendors adding the overnight trading sessions onto the following day. In this case, the low point came in on the Friday night but appears as a low for the Monday. If this date was used to commence a time count from no reactions would be found and you would be unaware of the reactions from the correct date. When the market you trade has irregular trading hours you will need to have access to intraday data to be sure of when the high or low was made. This is important at the weekly turning points only.

The below daily chart of the US dollar shows repeating time ranges. These are not natural time cycles, but are a time range that becomes habit forming, they can fade and reappear and new time frames can appear. Time counts will keep you up to date with these.
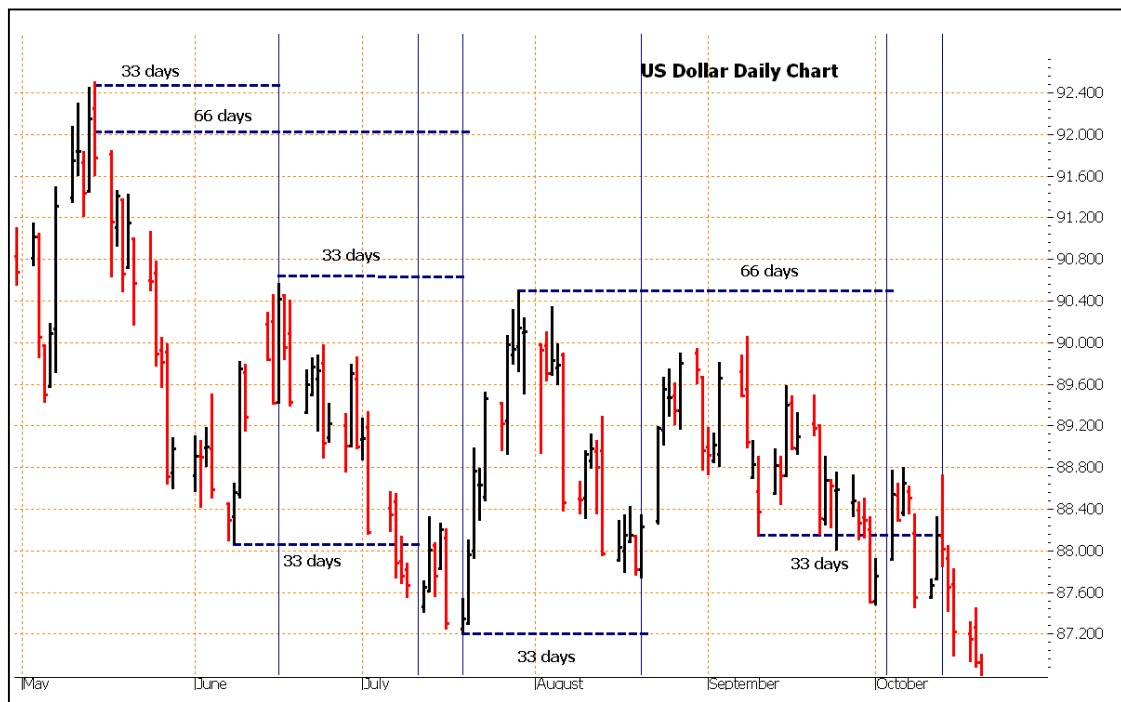
When a time count line arrives at a high or low point, underline this number. You will soon come to recognise certain numbers and their divisions and multiples that frequently appear at market turns.

These time ranges can also be applied intraday. By counting the one hour bars from past highs and lows, you will find these repeating time ranges. 12 and its multiples are common, as are 7 and 15.

The reason for this habit forming behaviour of repeating time frames is that markets have memories. Evidence of this phenomenon can be seen once again in the Australian Share Price Index futures market chart below.

From its all time low of 458 in 1983, there was a bull market that peaked in 1987. The final high point was at 2,387 making a total range of 1929 points! The 1929 crash high on the DJIA was 386.5; The DJIA on the 7th March 2005 made a high at 10,987 (1987) before reversing. Zeros and decimal divisions can be ignored. This indicates the relevance of symbolism.
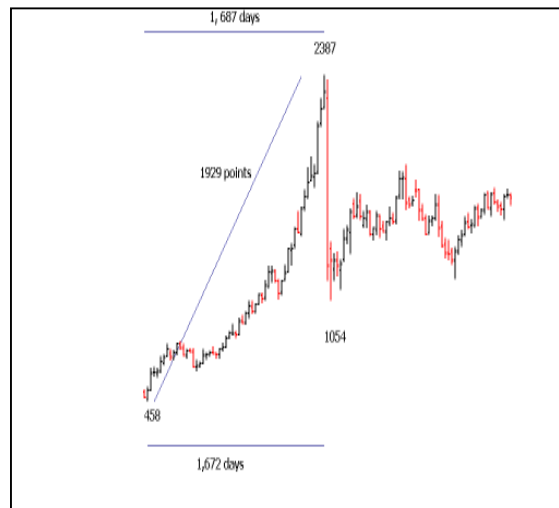

Time counts when applied to the weekly chart will show the important cycle numbers that are detailed in the "cycles" section, without the need for the daily chart. For example in the 52nd / 53rd week is the 360th degree, in the 90th week you will calculate the 631st day from the reference date where the time count commenced.

By monitoring time ranges you will see that when a market has repeated the same amount of time or a percentage of the last time range, points of resistance are met.

If a market repeated a previous time range, and the previous price range was also repeated, two points of resistance are met simultaneously. If this occurred at an important cycle date, at a support or resistance level and a Gann angle was at this level on this day, then it is likely a reversal will occur.

When applying these time counts to a swing chart note the calendar days as well as the trading days. Sometimes a calendar day range will repeat but in the form of trading days. A time range can subsequently appear as a price range or a price range can appear as a time range as well. It is when major time ranges coincide with lesser degree time ranges that important reversals occur.

In the following chart there are repeating time and price ranges, also 515 is 75% of the Mars cycle and 229 is 33.3% of this cycle. What is shown is what can occur when cycles or their percentages meet. Having the chart up to date enables you to be aware of these events prior to them occurring.
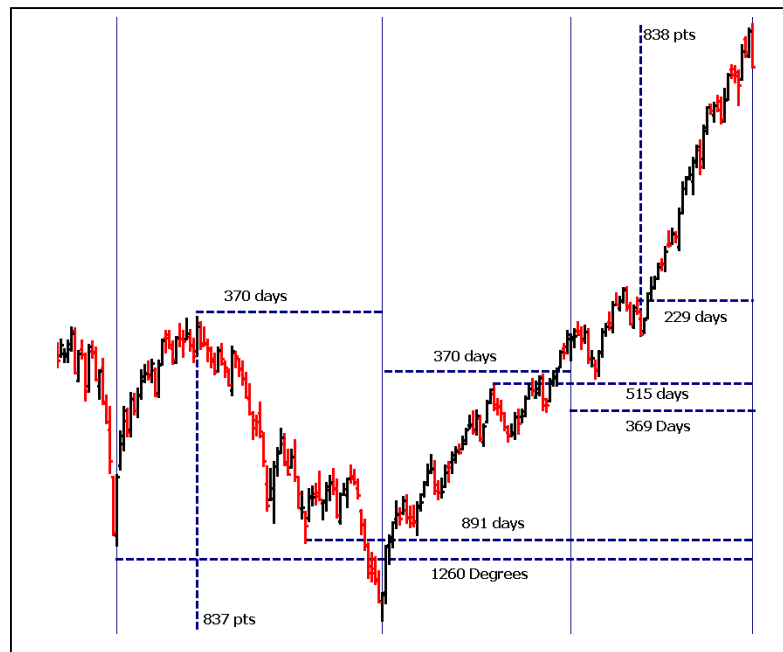
The following chart shows the result of applying time counts to past highs and lows. When there is an alignment of certain numbers from separate reference points in the past it will indicate a date that has a cycle or a cycle division coinciding with other cycles. These cycle "cluster" dates are of more importance. The numbers highlighted are detailed in the sections on "cycles"

Time counts are best made in increments of 4, 8 or 12. With too large increments it is easy to miss an important number.

10. Squaring Time with Price / Gann angles

The term "squaring" time and price means to balance time with price. In order to square time with price proper division of a charts horizontal and vertical axis needs to be done. Most charting software programs include Gann angles in their indicators list but it is important to know how to apply them correctly.

After the vertical time resistance line and the horizontal price support and resistance lines the next important line is the 1 x 1 angle or the line drawn from important highs and lows that moves up or down at the rate of 1 point per day, week or month which divides the space and time periods into two equal parts at the angle of 45 degrees.

The second important of these angles is the 2 x 1 angle or the line that moves up or down at the rate of 2 points per day, week or month and divides the space between the vertical axis and the 1 x 1 angle into two equal parts at 63.75 degrees.

The third important angle is the 4 x 1 angle or the line that moves up or down at the rate of 4 points per day, week or month.

The fourth important angle is the 8 x 1 angle that moves up or down at the rate of 8 points per day, week or month.

There are 360 degrees in a circle and angles can be drawn at any one of these degrees. All the important angles form between 0 and 90 degrees because 90 is straight up and down and the most acute angle at which a market can rise

To draw a forward and upward direction Gann angle, from a low point, go out 100 days and up 100 points, you mark this point on the chart and then draw a line between the starting point and this mark, if the market trades at this line, either up to it, or down to it, it can be treated the same way as a support or resistance level. To draw a downward direction Gann angle, from a high point, count out 100 days and down 100 points, mark this point on the chart and then draw a line between the starting point and this mark.

To apply this technique on a daily bar chart, it will work with both a calendar and trading day chart, the chart must be correctly scaled, that is, for a 1 x 1 angle to divide a chart at 45 degrees a 1 x 1 ratio chart must be used, or for every 1 day, the price scale will need to be 1 point. It can become more complex when a market is at around 10,000 points so what you need to do is alter the scaling to something like 1 day x 8 points, the 1 x 1 angle would then be drawn at the ratio of 100 days and 800 points to maintain the 45 degree angle.

Following is a daily chart of the Swiss Franc to February 2005. Using the 360 degree circle and angles being applied at any one of these degrees, the chart shows angles at 1 point increments. A market will often work its way through the space between the various angles. If this market falls to the same angle that supported the market in September it would be in the same position in the circle even though it would be numerically higher in value.

Swiss Franc Daily Chart
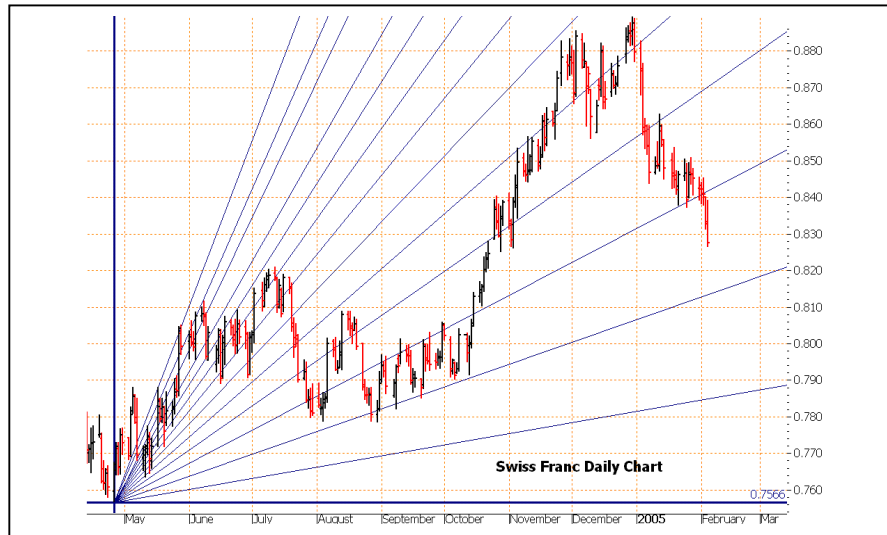
The below chart has been added two months later. It shows the reaction at this angle.
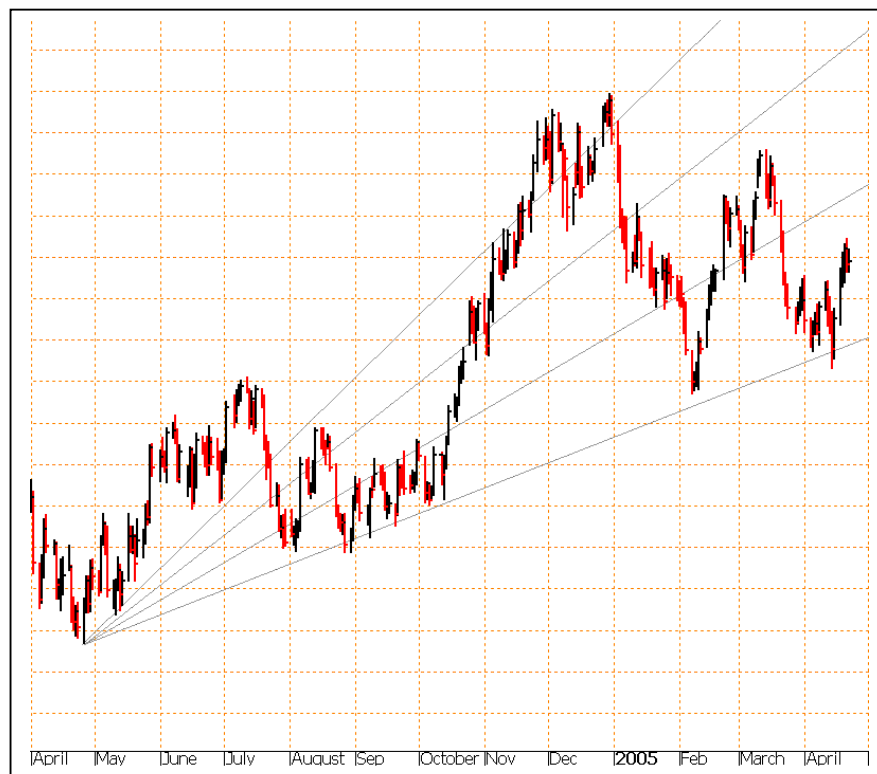
Below is a weekly chart of the British Pound showing a 1 point x 1 week angle and the 16 points x 1 week angle intersecting with the important high.

For practical use on a daily chart, initially only apply the 1 x 1 angle that divides the chart by 45 degrees. Other angles are then applied that match the markets trend as it moves away from a high or low. This avoids the chart becoming cluttered. The main angles of 1 x 1 , the 2 x 1 and 3 x 1 etc, can be applied as a guide to rate a new trend once a new important low or high has been formed. Other angles can be applied as the need arises otherwise the chart will have unnecessary lines.

With a weekly chart the angles are drawn at 1pt x 1wk, 2 pts x 1 wk, 3 pts x 1 week, etc.
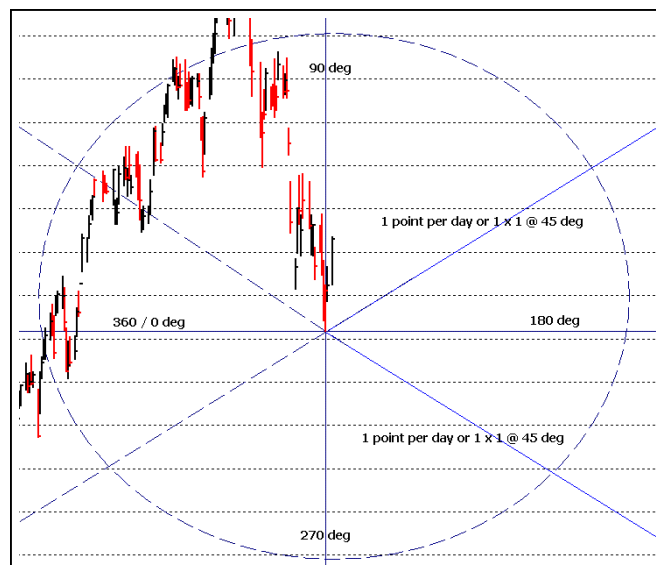
Below is a daily chart of the S&P 500 daily chart showing various Gann angles. Note how the market was not able to reach the 16 x 1 angle again before it fell away on the 3rd January 2005. Initially it had traded above this angle from the August low. The 9 x 1 angle from the intermediate high was the line of resistance until the final January high.

From an important high or low by calculating out 100 days and then 100 points up or down you will determine the first point of intersection, next calculate 200 days out and then 200 points for the second point of intersection, then 300 days out and 300 points. This method should be used when extending the angle as the chart grows, rather than simply drawing the extension from the end of the line already drawn. Any number of increments can be used depending on the chart size.

To ensure that Gann angles are drawn accurately the table at the end of this section can be used as a guide to calculate the points of intersection. Add to the reference point when the market is trending up and deduct from the reference point in a downward trending market.

"As stocks advance and make higher bottom on the monthly, weekly or daily chart, you should always draw angles from higher bottoms. Then when you reach the last section of a bull market and these important angles are broken from the last bottom you know that the trend has turned down. Apply this same rule as a market declines. Draw your angles from each lower top and watch your angles until the stock again crosses the 45° angle from a second, third, or fourth lower top. The second lower top, or the second higher bottom is always very important to draw angles from, and to measure time from".

A variation of how time and price can align at reversal points is when time has traveled a certain distance from a particular point and price has traveled the same distance, but from a different point. Normally when time and price have traveled the same distance, from the same reference point, time and price have squared at the ratio of 1 x 1. As these squarings can be applied in other ratios such as 2 points x 1 day, 4 points x 1 day or others, so can these other squarings. For example, if at 168 days, from a past weekly reference point, price from a different past weekly reference point, had traveled 84 points, there would be a meeting of these parts of the cycles.
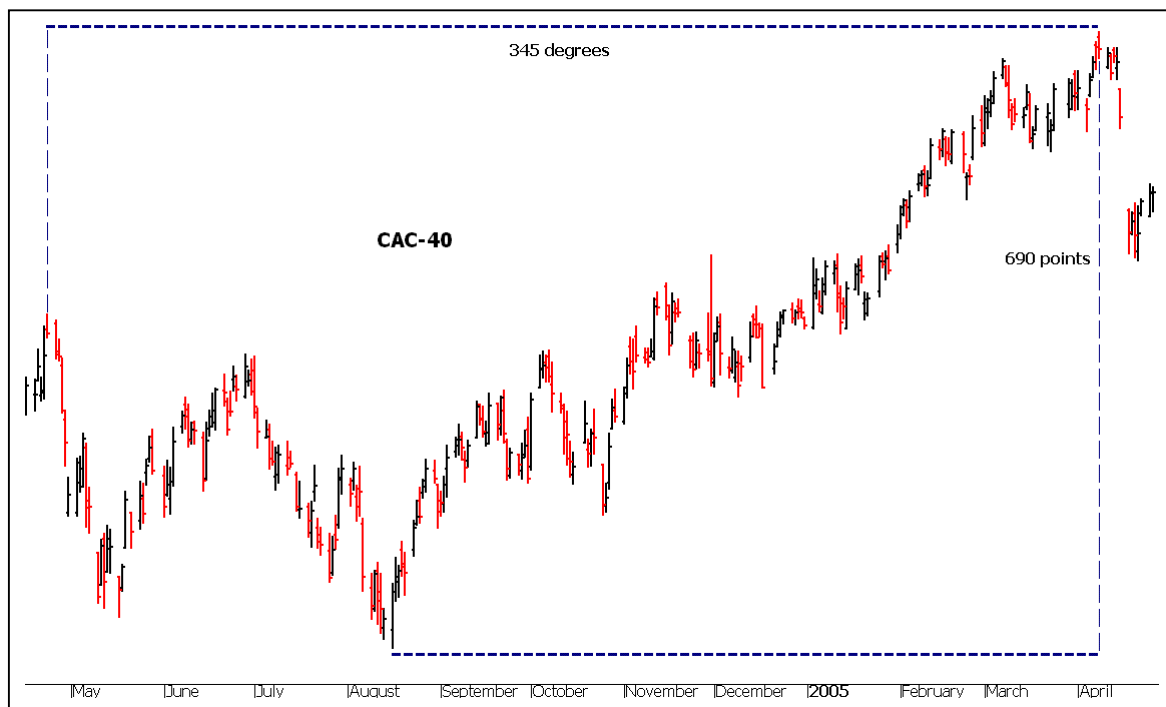
This can also occur, when from a past weekly reference point, when a time of 168 days aligns with a price range of 52 points, or any of the many other variations of the cycles parts and multiples in time and price.

What is occurring, is that cycles are aligning, which in their various forms is what causes markets to react at certain points in time and price. These alignments occur daily with intraday charts, daily, weekly and monthly in many forms. In conjunction with the many cycles that are vibrating from past highs and lows, markets are subjected to many points of support and resistance causing the volatility seen in markets.

The only way to be aware of these events is by monitoring the time ranges on the various time count lines from past weekly turns and the price ranges between the various highs and lows on the swing chart or the bar chart.
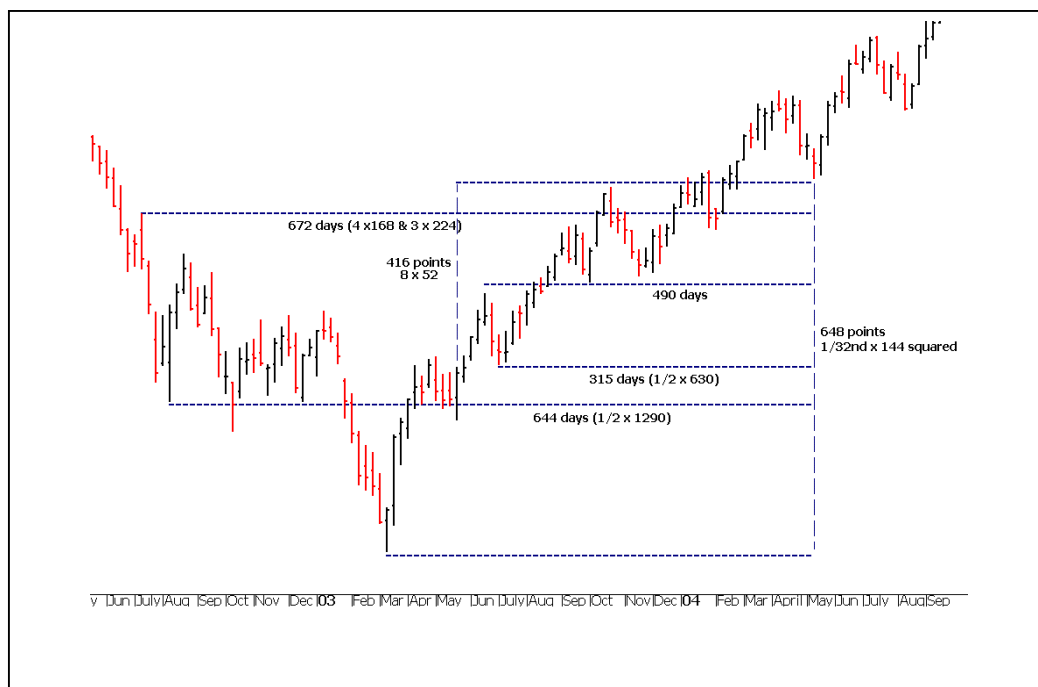
A recent example of time and price aligning from different reference points can be seen in the following weekly and daily charts of the French CAC 40 index. Time in solar degrees had traveled 50% of the price value.

345 degrees

CAC-40

690 points

May   June   July   August   September October   November December 2005   February March   April

By monitoring the time count lines you can be aware of these alignments and the balancing of cycles and their parts before the market trades into the dates.

The chart below of the Australian SPI shows the various alignments at an important low in May 2004.

672 days (4 x168 & 3 x 224)

416 points
8 x 52

490 days

648 points
1/32nd x 144 squared

315 days (1/2 x 630)

644 days (1/2 x 1290)

v Jun July Aug Sep Oct Nov Dec 03 Feb Mar Apr May Jun July Aug Sep Oct Nov Dec 04 Feb Mar April May Jun July Aug Sep

A useful variation of Gann angles is to apply the weekly angle to the daily chart.

There are seven days in the week and by setting the horizontal axis count at 7 rather than 1 and moving the vertical axis setting to follow the markets position that it is trading near you will observe the daily support or resistance levels that are calculated by the weekly angle.

Following is a daily chart that has the weekly angles applied.

Note the horizontal purple price levels. This cycle is detailed in the Time Cycles and the Price Cycles section.

S&P 500					
1 pt x 1 day down	1574	High	3/24/2000	100 days out	7/02/2000
				100 points down	1474
				200 days	10/10/2000
				200 points	1374
				300 days	1/18/2001
				300 points	1274
2 pt x 1 day down	1574	High	3/24/2000	100 days out	7/02/2000
				200 points down	1374
				200 days	10/10/2000
				400 points	1174
				300 days	1/18/2001
				600 points	974
3 x 1					
4 x 1					
1 pt x 1 day up	767.50	Low	10/10/2002	100 days out	1/18/2003
				100 points up	867.5
				200 days	4/28/2003
				200 points up	967.5
				300 days	8/06/2003
				300 points up	1067.5
2 pt x 1 day up	767.50	Low	10/10/2002	100 days out	1/18/2003
				200 points up	967.5
				200 days	4/28/2003
				400 points up	1167.5
				300 days	8/06/2003
				600 points up	1367.5
3 x 1					
4 x 1					

11. Squaring a High price

On a chart scaled at one unit of price to one unit of time, if you were to draw a square starting with a vertical line up from zero to the high price to be squared, then horizontally forward the identical units of time, then vertically back down to zero, a square will be formed. The forward vertical line will measure a square in time, of the units of the high price.

These squares of price to time are areas to look for a counter trend reaction to price movement. The Gann percentages are to be monitored also as well as multiples of the first square.

A high price of 100 would square out time 100 days forward from the date of the high. On a weekly chart it will be 100 weeks, on a monthly chart it will be 100 months.

The S&P 500 on the 24th March 2000, made a high price of 1574. Using this high price and dividing it by 1/8^{ths} and 1/3^{rds} and converting these values to days will give the dates projected forwards of:

25% of 1574 = 393 days = 21st April 01
50% of 1574 =787 days = 20th May 02 high (2 days early)
62.5% of 1574 = 983 days = 2nd December 02 high.
75% of 1180 days = 17th June 03 high.

The above explanation can be related back to cycles. The S&P 500 high price of March 2000 at 1574 is 1260 plus 315. You will find that also at the division of this number there was at 630 days (50% x 1260) the 14th Dec 01 a weekly low and also at the 945 degree date on the 13th Nov 02 there was also a weekly low. This cycle is detailed in later sections.

12. Squaring a Low price

On a chart scaled at one unit of price to one unit of time, if you were to draw a square starting with a vertical line up from zero to the low price to be squared, then horizontally forward, the identical units of time, then vertically back down to zero a square will be formed. The forward vertical line will measure the first square of time of the low price

A low price of 100 will square out in time 100 days forward from the date of the low. On a weekly chart it will be 100 weeks and on a monthly chart it will be 100 months.

The S&P 500 low on the 10th October 2000 was at 767.5. Using this low price, and dividing it by 1/8[ths] and 1/3[rds] and converting these values to days will give the dates projected forward of;

12.5% of 767.5 or 95 days = 13th January 03 high.
62.5% of 767.5 or 480 days = 2nd February 04 high.
66.6% of 767.5 or 512 days = 5th March 04 high.
87.5% of 767.5 or 673 days = 13th August 04 low.
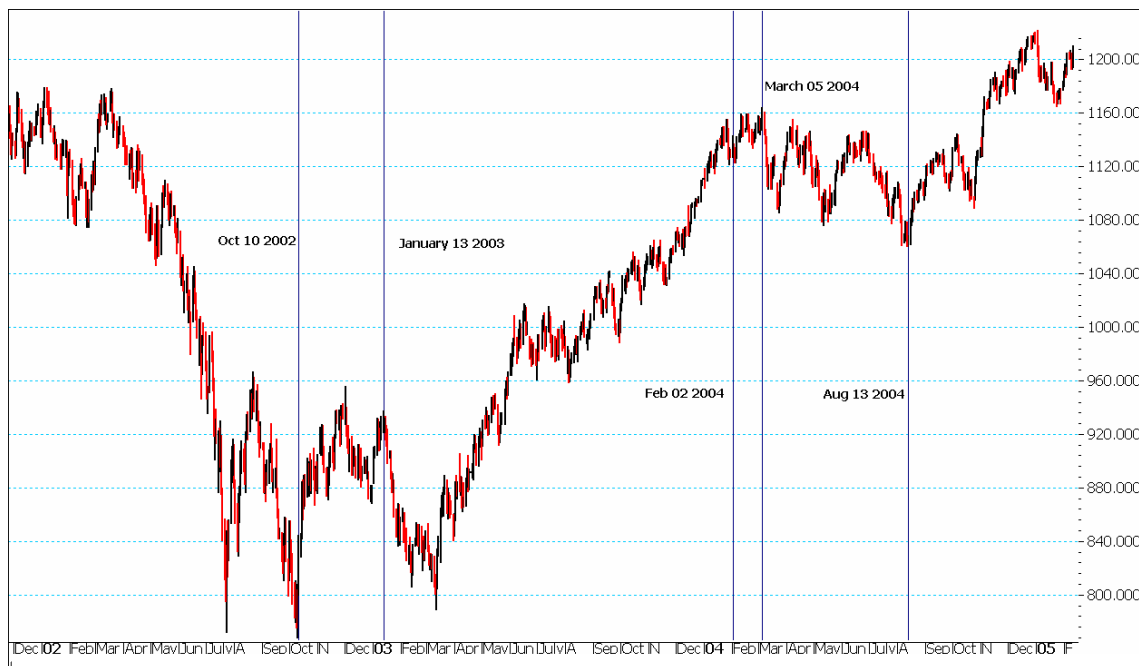
When a market encounters a support or resistance level in the future related to a previous high or low price it is because that high or low was a numerical value related to a cycle. The proportionate parts or Gann percentages of a cycle or its parts will then become points of support or resistance.

13. Squaring a Range

When squaring lows and highs in time, we project forward the units of price, converted to time units. We do the same when squaring a price range in time. First we measure the units moved from either a low to a high, or a high to a low, and then calculate forward from the turning point of that range in the increments of $1/8^{th}$ and $1/3^{rd}$ of that range.

The S&P500 high on the 24th March 2000, made a range of 1412.45 from 161.55 in December 1984. Using this price range and dividing it by $1/8^{ths}$ and $1/3^{rds}$ gives the values of 176.5 and 471. Converting these values to days projected forward from the 24th March 2000 will give the dates where reactions occurred at:

37.5% of 1412.45 or 529 days = 4th September 01 lower high.
62.5% of 1412.45 or 882 days = 22nd August 02 high. (1 day over)
100% of 1412.45 or 1412 days = 5th February 04 low. (1 day early)
112.5% of 1412.45 or 1589 days = 2nd August 04 high. (1 day early)
125% of 1412.45 or 1765 days = 23rd January 05 low.

This same technique also applies to a range measured from a high to a low.
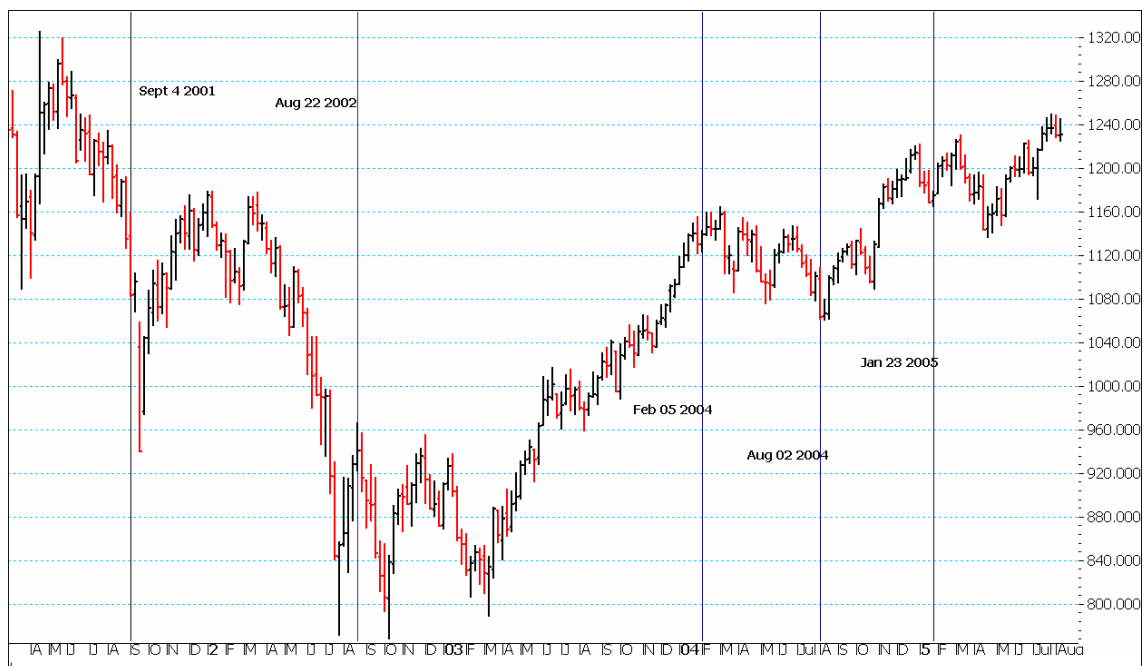

From a high to a low or low to a high is a cycle, part of a cycle or multiple of cycles. Markets progress in time a number of units related to cycles. Markets progress in price to a value related to cycles. Consequently when a market turns at a point in the future related to a previous range it is because that range was a cycle or a part of a cycle and therefore the divisions of that cycle will be points of support or resistance in the future.

14. Percentages of highs and lows

From any extreme low level use the low level as a base and use the percentages of this base to determine resistance points from tops to bottoms on the way up. By using the percentage of the tops you can determine resistance points or bottoms on the way down. The accompanying table shows how to calculate these levels. You will find that most markets base numbers are related to important cycles. 458 in the following SPI chart is 66.6% of 687, the Mars orbit cycle and the S&P 500 1984 low at 161.25 is $1/8^{th}$ of 1290.

Australian Share Price Index percentages of the low.
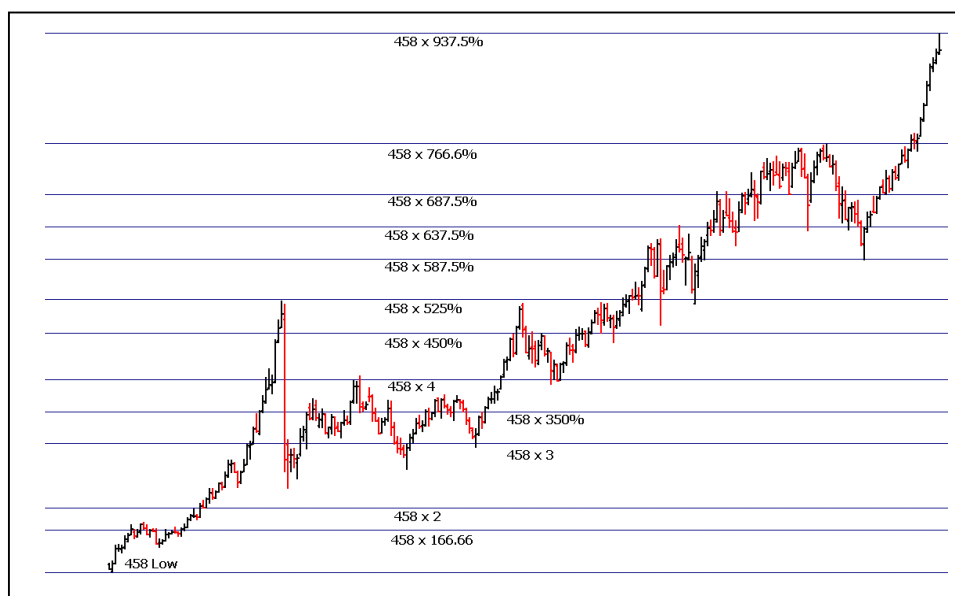
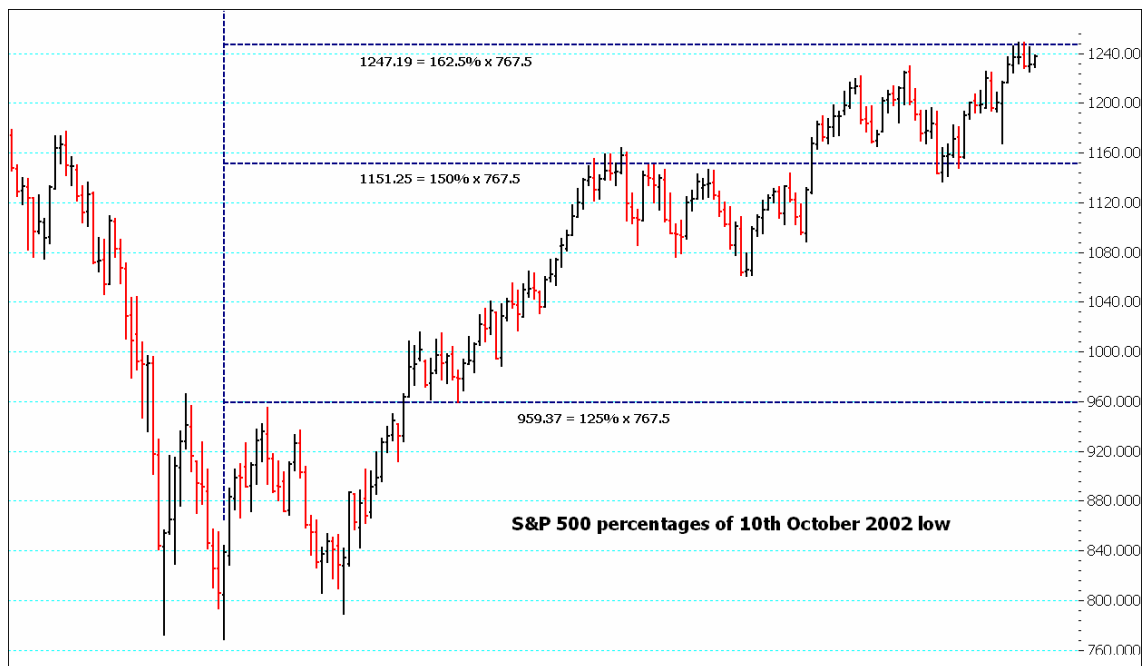The below diagram was added 2 months after the above.

low.

When a market encounters a support or resistance level in the future related to a high or low price it is because that high or low price was a numerical value related to a cycle. The proportionate parts or Gann percentages of a cycle or its parts will then become points of support or resistance.

S&P percentages of the High and Low table

Market	S&P 500												
Date	High / Low		Price	12.50%	25%	33.30%	37.50%	50%	62.50%	66.60%	75%	87.50%	100%
Mar-00	high	less %	1574	1377.3	1180.5	983.75	787	590.25					
Mar-01	low	add %											
May-01	high	less %											
Sep-01	low	add %											
Mar-02	high	less %											
Oct-02	low	add %	767.5	863.44	959	1023.1	1055.3	1151.3	1247.2				
Dec-02	high	less %											
Mar-03	low	add %											
Mar-04	high	less %											
Aug-04	low	add %											
Mar-05	high	less %											

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15. Time Cycles

In WD Gann's Stock market course it is stated;

"Every movement in the market is the result of a natural law and of a cause which exists long before the effect takes place and can be determined years in advance… Everything moves in cycles as a result of the natural law of action and reaction. By a study of the past, I have discovered what cycles repeat in the future. In order to be accurate in forecasting the future you must know the major cycle as the most money is made when extreme fluctuations occur.

Great Cycle – Master Time Period – 60 years.
This is the greatest and most important cycle of all, which repeats every 60 years or at the end of the third 20 year cycle. You will see this importance of this by referring to the war period from 1861 to 1869 and the panic following 1869; also 60 years later – 1921 to 1929, the greatest bull market in history followed.

50 year Cycle.
The major cycle of stocks occurs every 49 to 50 years. A period of "jubilee" years of extreme high or low prices, lasting from 5 - 7 years occur at the end of the 50 year cycle.

30 year cycle.
The 30 year cycle is very important because it is ½ of the 60 year cycle and contains three 10 year cycles. It is caused by the planet Saturn. This planet makes one revolution around the Sum every 30 years. Saturn rules the products of the Earth and causes extreme high or low in prices at the end of each 30 year cycle

20 year Cycle.
One of the most important time cycles is the 20 year cycle, or 240 months and most stocks and averages work closer to this cycle than any other.

15 year Cycle.
15 years is ¾ of a 20 year cycle and important because it is 180 months or ½ of 360.

10 year Cycle.
The next important cycle is the 10 year cycle. It is important because it is 120 months or 1/3 of 360. Fluctuations of the same nature occur which produce high or low every 10 years.

7 year Cycle.
This cycle is 84 months. You should watch 7 years from any important top or bottom. 42 months is or ½ of this cycle is very important. You will find many culminations around the 42nd month. 21 months or ¼ this cycle is also important.

The minor cycles are 6 years and 3 years, the smallest cycle is 1 year.

These cycles are to be found in markets, however for a trader their practical use can be limited as they usually are not able to be accurately forecasted. The cycles that are able to be accurately calculated are detailed in the following pages.

"It never pays to guess. Always consider the main time swing of a market, then watch your weekly and overnight charts until they show a reversal or time has expired. All markets move in three to four sections. The third or fourth movement up or down marks the culmination."

The above statement means to use time and price together. By using the techniques; "balancing of time", "sections of the market", "time cycles", and "price cycles" together, and taking into account the major time cycles, it is possible to accurately determine major tops and bottoms. If you look at the March 21 high in the Australian S&P 200 detailed in the "Reversal Date Analysis" section, an important time factor present at this date was that it was at 5 years or the 25% division of Gann's 20 year cycle from the March 2000 high. This chart is following.
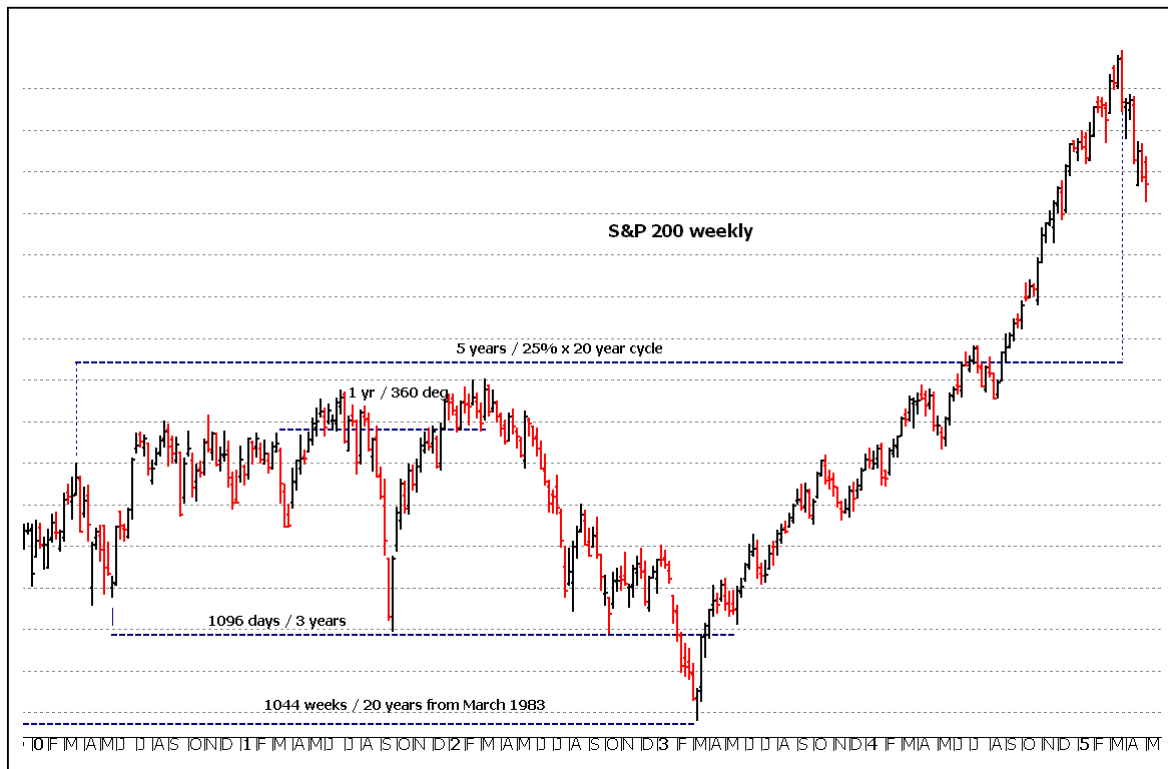
From a practical point of view a trader needs to know when the more common day to day and weekly reversals will occur. The time periods and cycles that are required to be monitored to do this are explained in this section. Always remember it is the combination of time and price factors that is required when determining market reversals.

The common cycles we are familiar with are those that affect us in our regular activities, such as the 1 minute or 60 seconds, hourly or 60 minutes, daily or 24 hours, weekly or 168 hours and the yearly 365.25 days or 360 degrees. You will often see these numbers and their multiples in time and price movements in markets. There are numerous other cycles that have an effect on us whether we are aware of them or not. In 1 day there is 1440 minutes, or 4 x 360.

The 7 year cycle when precisely analysed, is one of the two most important cycles a trader can make use of. It is exactly 2556 days. It is close to the 360 week cycle or 2520 days. Also 2520 days or 360 weeks when calculated in solar degrees is very close to the 7 year cycle of 2556 days. There is some overlap of these various cycles when calculated in weeks or months. This is likely why the 7 year cycle is often mentioned today but not easily able to be precisely calculated. WD Gann was aware of this yet did not detail this in his courses. He did hint at these numbers in some of his other works.

In the supplemental section at the back of this manual Gann mentions the 7 year cycle in the sections from his stock market course. There is no breakdown of this cycle as in the preceding paragraph. It is apparent he informed his students of this information in the private tuition he provided.

Gann stated; *"In making my calculations on the stock market, or any future event, I get the past history and find out what cycle we are in and then predict the curve for the future, which is a repetition of past market movements,…remember time is the most important factor of all factors and not until sufficient time has expired does any big move up or down start. The time factor will overbalance both space and volume. When time is up, space movement will start and big volume will begin either up or down"*.

For the purpose of this course the past history to reference is the exact day of the turn within a past weekly reversal. The cycles and their divisions are then calculated from these dates by use of the time count lines, this will then enable exact dates to be calculated in the future where reversals can occur.

There are the cycles that are unique and repeat as with time ranges in the "time count" section. There are the symbolic cycles that have their origins in ancient times. As Gann often quoted from the bible; "there is no new thing under the sun" and "history repeats". There are planetary, lunar and solar cycles that also have their influence. The lunar cycle of 28 days is 672 hours or 3 x 224 (Venus) or 4 x 168 (hours in a week).

It is not important that the original form remains the form in which they can subsequently reappear. An example of this is in the hours of our week, there are 168 hours in our week and consequently 168 can symbolically appear in any other time period such as 168 minutes, days, degrees, weeks, months or years. The 168 can appear as $16.80, $168.00 or 16,800 days, degrees, cents or points. A market will often find resistance or support around these numbers. In the S&P 500, 1176 or 168 x 7 is often a level this market stalls at. It is worth remembering this interpretation of a cycle's number as they appear in markets frequently. This concept appears to be derived from the biblical term "I will appoint a day for a year and a year for a day". Simply put it doesn't matter how the number is labelled, it is the number that is important.

Markets react to time cycles and they also react to price cycles. Before any major trend reversal occurs, cycles will need to have aligned. So when price ranges, price levels, time cycles and a time range are in alignment then the market has achieved the balance needed before a reversal occurs.

On occasions where a cluster of cycles are calculated on two or three consecutive days or over a weekend and the trend is indeterminate it is often best to wait and let the market make its intentions clear.

The Master 360 Cycle

All cycles are 360 degrees. The quarter and third parts as in Gann's square and triangle within the circle are the most important parts of a cycle. These divisions for the square are 90°, 180°, 270° and 360°, for the triangle at 120°, 240° and 360°. The minor divisions are the 45° or the 1/8th parts and the 30° or 1/12th parts.

The 1 year or 365.25 day cycle when calculated as 360 solar degrees is a very useful cycle with which to time a markets future turns. A market will often react to the 30 and 45 degree sections of this cycle from past turning points. As with most elements of technical analysis some type of filter is useful so as to gain what is most relevant. When calculating cycles, commencing time counts from only important past high or low points is what is commonly performed. However, each past weekly turning point will cause a reaction in the future at one or more of the divisions of the Gann emblem of the numerous cycles present in markets. These past turns were a reaction to an earlier event and by calculating from all weekly turns you will pick up most of the cycles.

A cycle can be divided into twelve equal parts of 30°, as in the twelve signs of the zodiac, and eight equal parts of 45°. For practical usage the quarters or 90° increments, and thirds or 120° increments are most important.

As with the Gann percentages of eighths and thirds being applied to price ranges, these percentages can be applied to time ranges or cycles as well.

365.25 days / 360 degrees
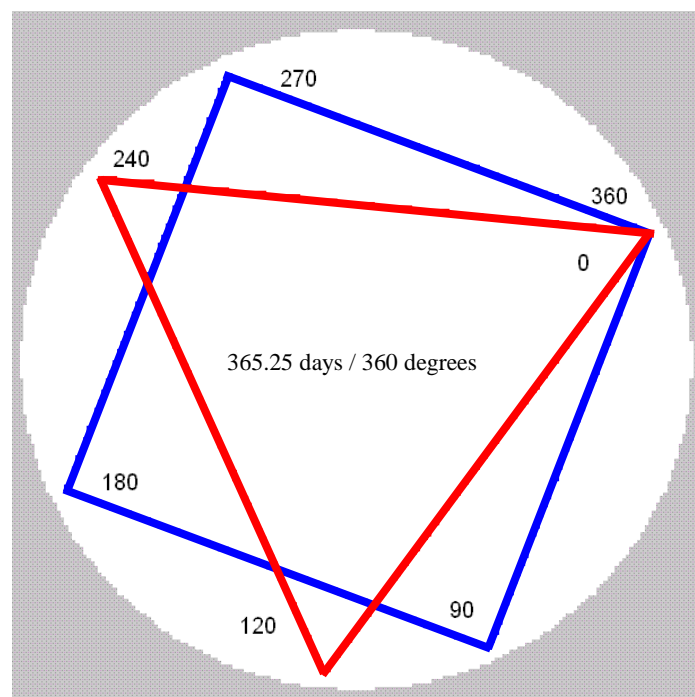
Dividing of Time

The dividing of cycles is derived from the concept of all cycles being a 360 degree circle. Using our Earth as an example there are 365.25 days in its yearly cycle around the Sun. When it is viewed as a 360 degree circle and dividing this into its quarter and third parts of 90 degrees, 180 degrees, 270 degrees, 120 degrees, 240 degrees and 360 degrees, you obtain the six important parts of this circle or a square and triangle within a circle. The number "7" is the basis of time. To change from a minor cycle such as the 1 year cycle to the next larger cycle you multiply by 7. In the case of 90° x 7 you get 630°, or with 168 days x 7 you get 1176 days or 168 weeks.

The Earth revolves around the Sun in an elliptical path, this means that the distance from the sun is not constant. This is why days and degrees are not always the same. One half of the Earths orbit can be 179 days and the other half can be 186 days.

Gann's description of dividing the year is …..
Divide the year by 2 to get 6 months or 180° angle which equals 26 weeks.
Divide the year by 4 to get the 3 months period, 90 days or 90° each which is ¼ of a year or 13 weeks.
Divide the year by 3 to get the 4 months period, the 120° angle which is 1/3rd of a year or 17 1/3 weeks to get 45 days or the 45° angle. This is also 6½ weeks, which shows why the 7th week is always so important.
Divide the year by 16 which gives 22 ½ days or approximately 3 weeks.

As with the Gann percentages of eighths and thirds applied to price projections, such as 125% or 150%, once a full 360 degrees has been reached, the count can continue in increments of 30 degrees to become 360 degrees plus 30 degrees, or 390 degrees, then 420 degrees, 450 degrees, 480 degrees, 510 degrees and 540 degrees etc. When 630 degrees is reached the wheel within the wheel concept has its effect, as 175% of 360 degrees is also one quarter or 90 degrees of 360 weeks.

As with the 90 and 120 degree increments of 360 degrees being most important, then with 360 plus 90 being 450 degrees, and 360 plus 120 being 480 etc. these are the more important.

With this cycle, solar degree measurements are stronger than calendar day counts. The 365.25 Earth cycle days cannot be divided by 360 to obtain the value of one degree. An Ephemeris must be used to find the exact degree in the month. The important divisions are the 90, 120, 180, 240, 270, 360 degrees sections plus 90 and 120 degree increments. This concept, when taken to the next level or the "wheel within the wheel" is the 360 week cycle or 2520 days or degrees. This cycle can be divided in the same way as the one year cycle. The one quarter and one third parts of this cycle are 630° and 840°.

Where you have the quarter and third parts of the 360° cycle and the quarter and third parts of the 2520° cycle aligning on the same day, it will be an important time to monitor for a reversal. **The 90, 120, 180, 240, 270, 360, 630, 840, 900 and 1260 degree times from a past reference point are the most useful**.

One year cycle and 90, 180, 270 and 360 degree divisions in the S&P E mini
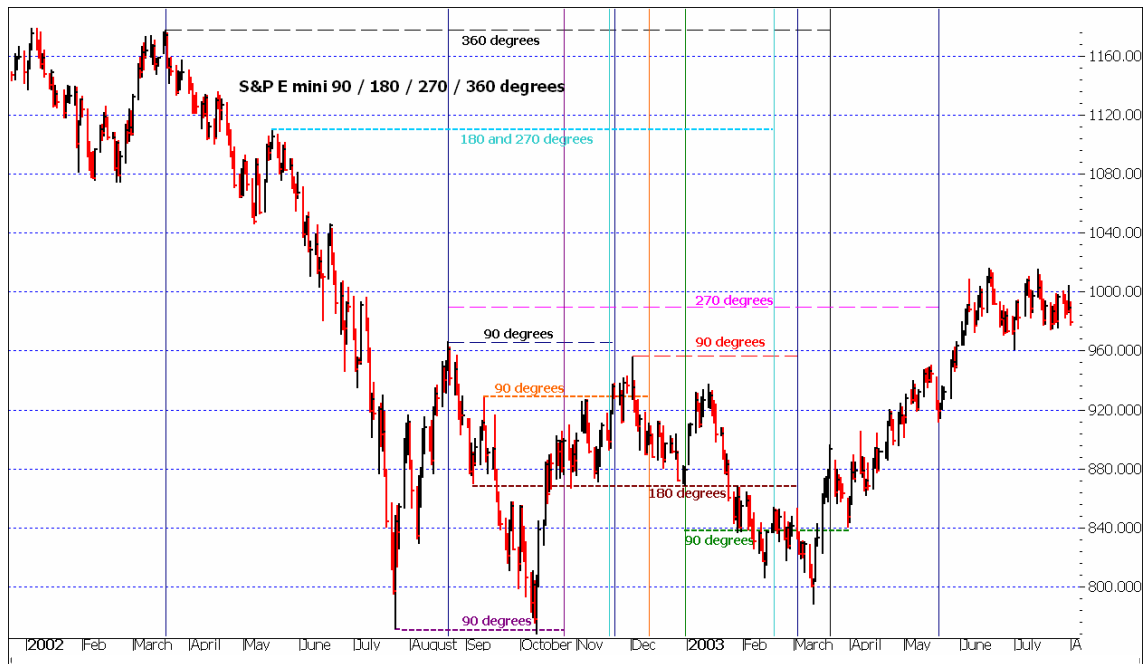
The one year cycle and 60 degree divisions in the British Pound
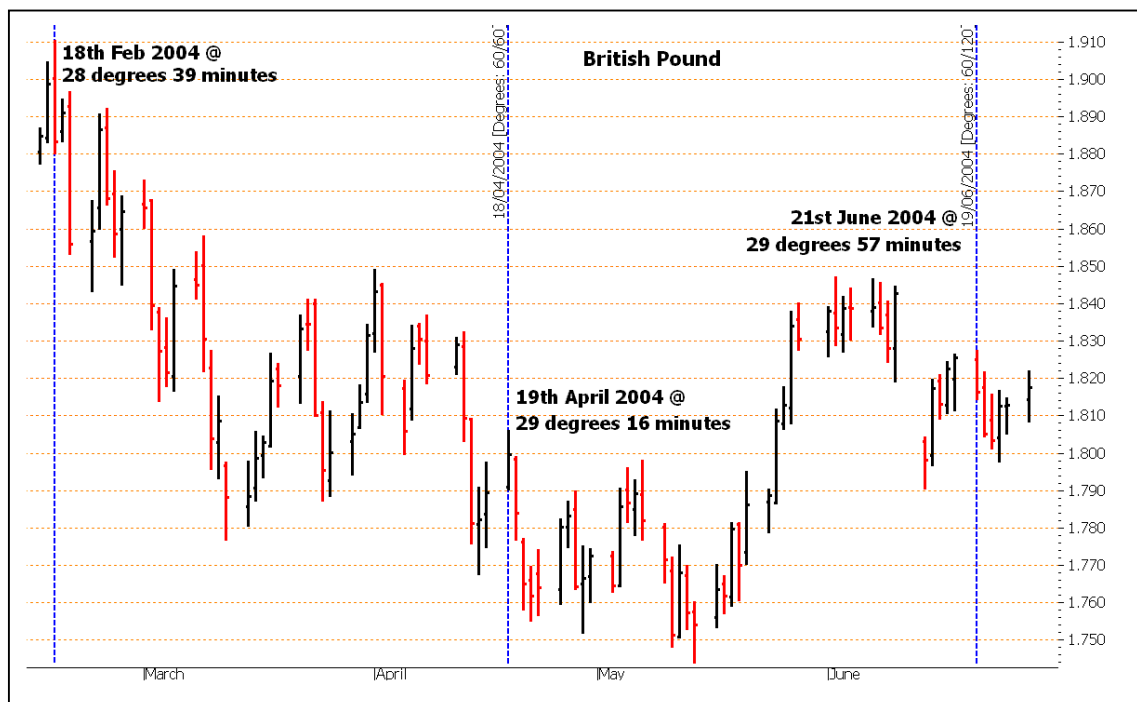
The following is a daily chart of the British Pound showing 120 degrees of the 360 degree cycle. The low in this case gave a high. There is no correlation between lows and highs with these cycles.


Cycle of 168

There are 168 hours in the week. This is an important time period to monitor. Divisions of 168 to be monitored are, 21, 42, 63, 84, 105, 126 and 147, as well as its multiples of 189, 210, 252, 315, 336, 420, 504, 588, 630 and 672 to 1344. 210 is 30° of 2520, 252 is $1/10^{th}$, 315 is 12.5% or $1/8^{th}$, 588 is ½ of 168 weeks, 630 is 90° or 1/4 of 2520 and 672 is 3 x 224, the Venus cycle number.

DJIA daily chart from December 2002 to June 2003.
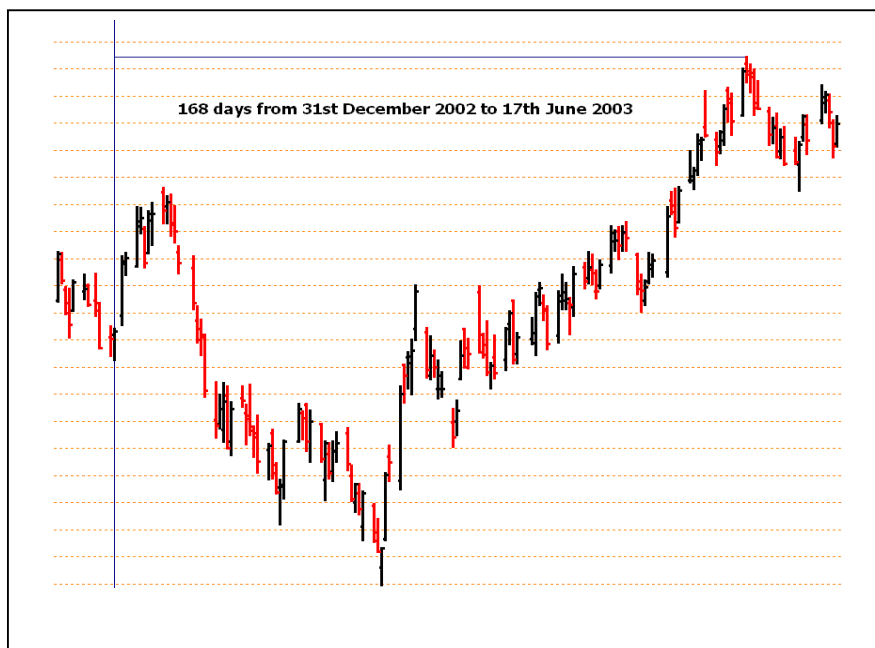
The weekly chart of NYMX Gold below shows 8 x 168 aligning with 50% of the 1 year cycle in degrees and 50% of 1336 days at the November 2004 high.
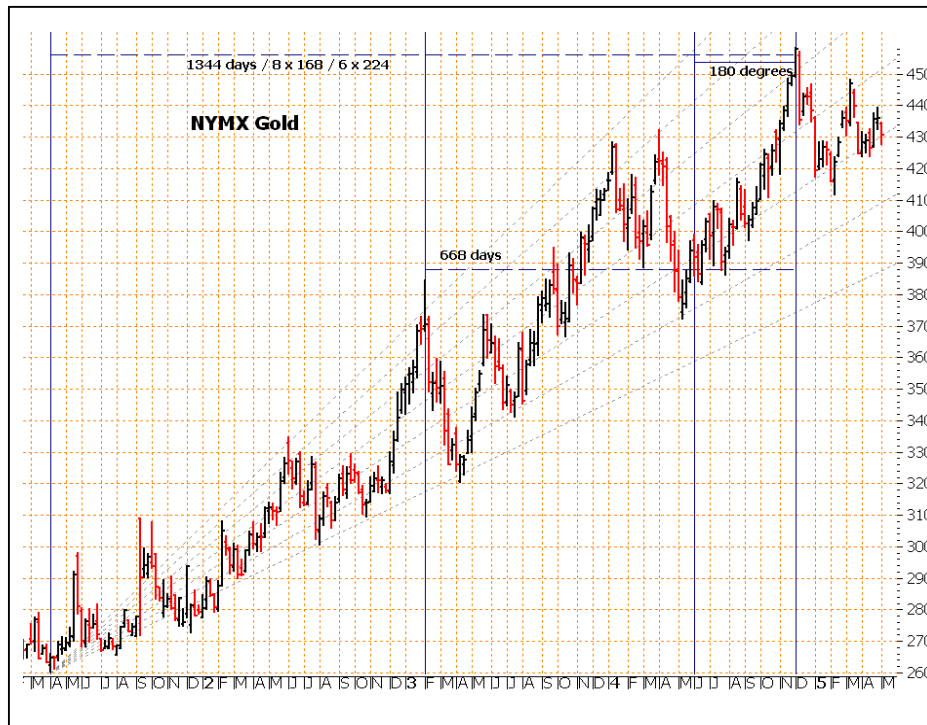
The S&P 200 weekly chart below shows a 168 week time period aligning with the two important parts of 90° and 180° of the one year cycle of 360°. Note also, at this time alignment there was the combined price ranges of 627 and 211 points being 33.3% of the 2520 or 360 week cycle. You will be aware of this type of information in advance by ensuring the chart is maintained in advance of where a market is currently trading at.
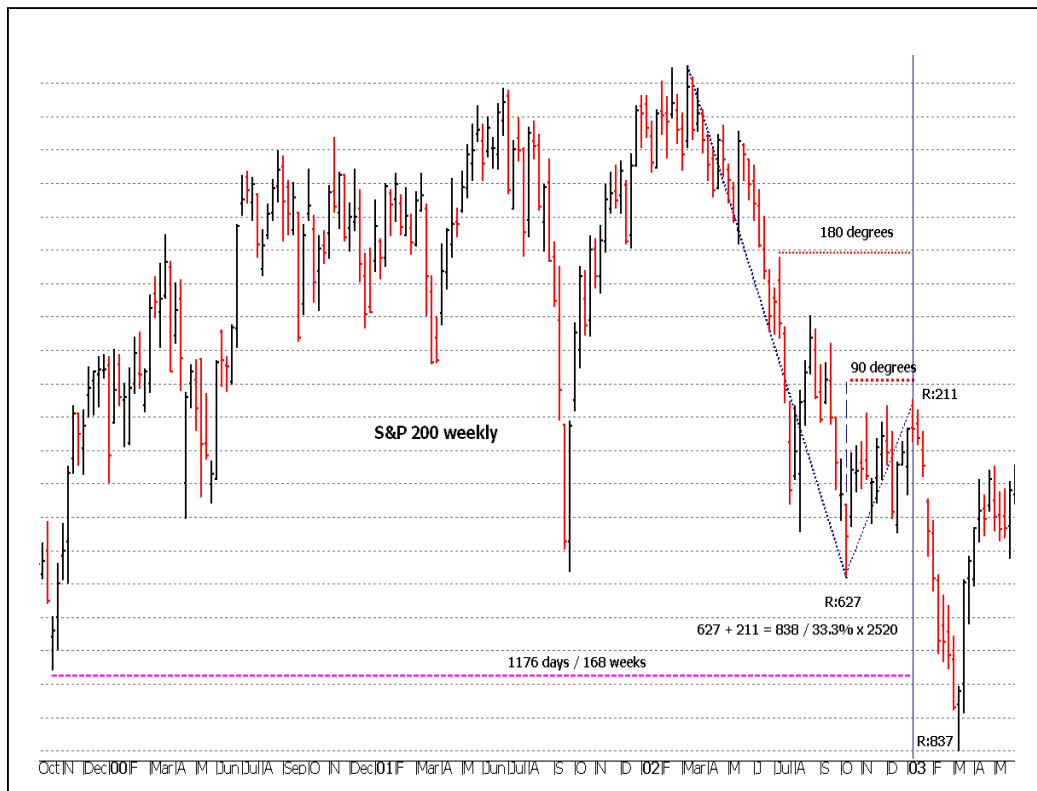
To obtain accuracy with time cycles when applied to markets it is necessary to count the cycle in calendar days or solar degrees rather than using weeks. Weekly counts can be used on the weekly chart, but you must calculate from the exact date within the reference week.

As with all cycles the first two quarters and one third are usually more important as time tends to dissipate the cycles effectiveness.
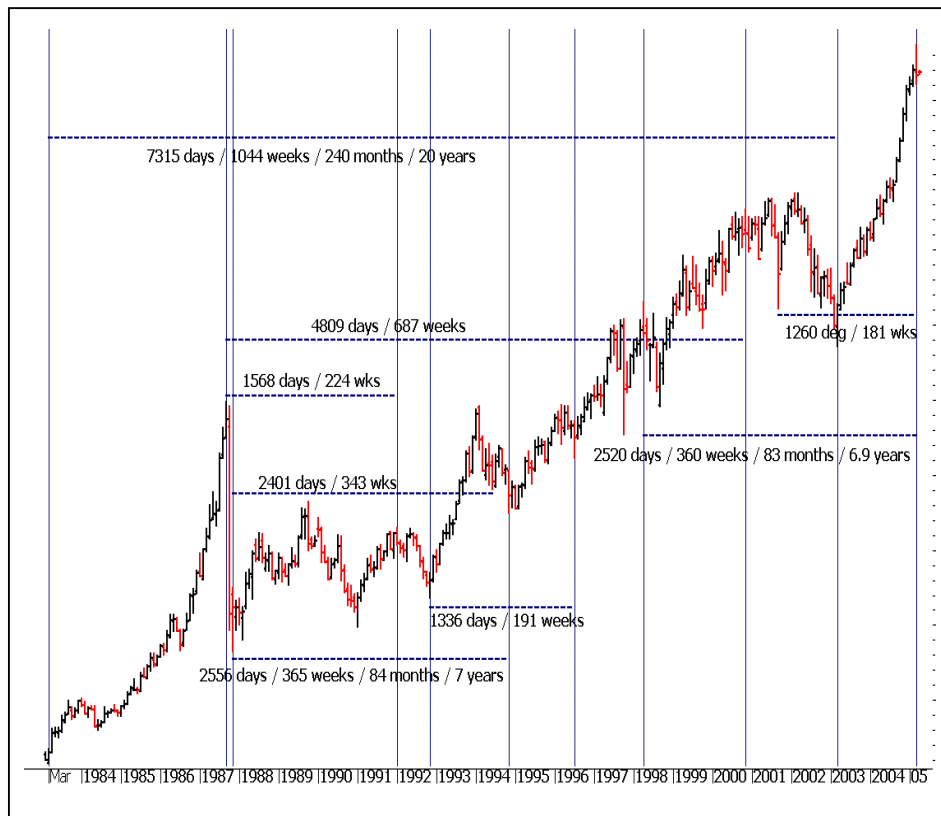
The 7 year cycle:
The 7 year cycle is 84 months or 365.14 weeks, very close to the Earths orbit number. At 2556 days, the one quarter divisions are 639 days, 1278 days, 1917 days and 2556 days. The one third divisions are 852 days and 1704 days. Gann in his courses said to watch for turns in the 42nd and 43rd month. 1278 days is almost 42 months.

The 360 week cycle:
This is 83 months or 2520 days which is very close to the 7 year cycle of 2556 days. It can be calculated in solar degree and calendar days. 630 solar degrees is ¼, 1260 solar degrees is ½, 1890 solar degrees is ¾, 840 solar degrees is 1/3 and 1680 is 2/3rds. This cycle in days is 631, 1262, 1893, 840, 1680, and 2524 days. 1262 days is a little over 41 months and 1260 degrees is within a few days of 1278 days or 50% of the 7 year cycle.

The 20 year cycle:
This cycle is 240 months in duration, or 2/3rds of 360 months or 30 years. With cycles of this magnitude the accuracy found with the one year cycle, the 360 week and 7 year cycle and other cycles detailed here is not as precise. For a trader it is not realistic to take a position using a 1 week to monthly window in which to expect a market to reverse. This cycle works out to about 7315 days or 1045 weeks.

Mercury cycle of 88

Divisions and multiples to be monitored are; 88, 132, 176, 220, 264, 308, 352, 396, 440, 484, 528 etc. Often 90 degrees of the 1 year cycle will be on the same day as an 88 day period meaning a date of greater significance.


Venus cycle of 224

Divisions to be monitored are; 56, 112, 168, 224, 280, 336, 392, 448, 504, 560, 616, 672, 896, 1120 and 1344. This planetary cycle is very close to 2/12ths or 60 degrees of one of the key cycles detailed further on.

Mars cycle of 687

S&P 500 weekly chart from Nov 2001 to Sept 2003;
The one quarter and one third divisions at 171, 229, 343, 458, 515 and 687 days and degrees are important, as well as multiples of these numbers. 49 x 7 or 343 weeks is 686 days. Often these numbers are present at important reversals.


687 days from 1st Nov 2001 to 19th Sept 2003
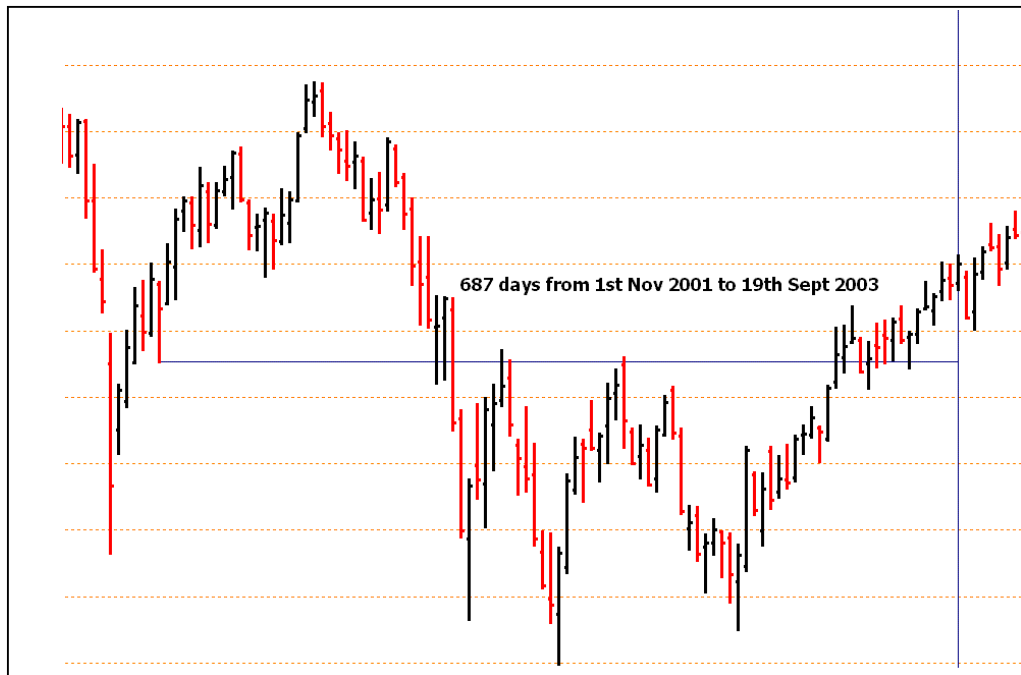
1262 day cycle

S&P E-mini weekly chart from 19th July 2001 to 1st January 2005; important divisions at the one quarter and one third sections are 315, 420, 631, 840, 945 and 1262 days. The $1/8^{th}$ part is 156 and $1/12^{th}$ is 105. 1262 days is a little over 41 months.

Sept 21 2001

06/03/2005
[Calendar Days: 1262/1262]

631 day cycle

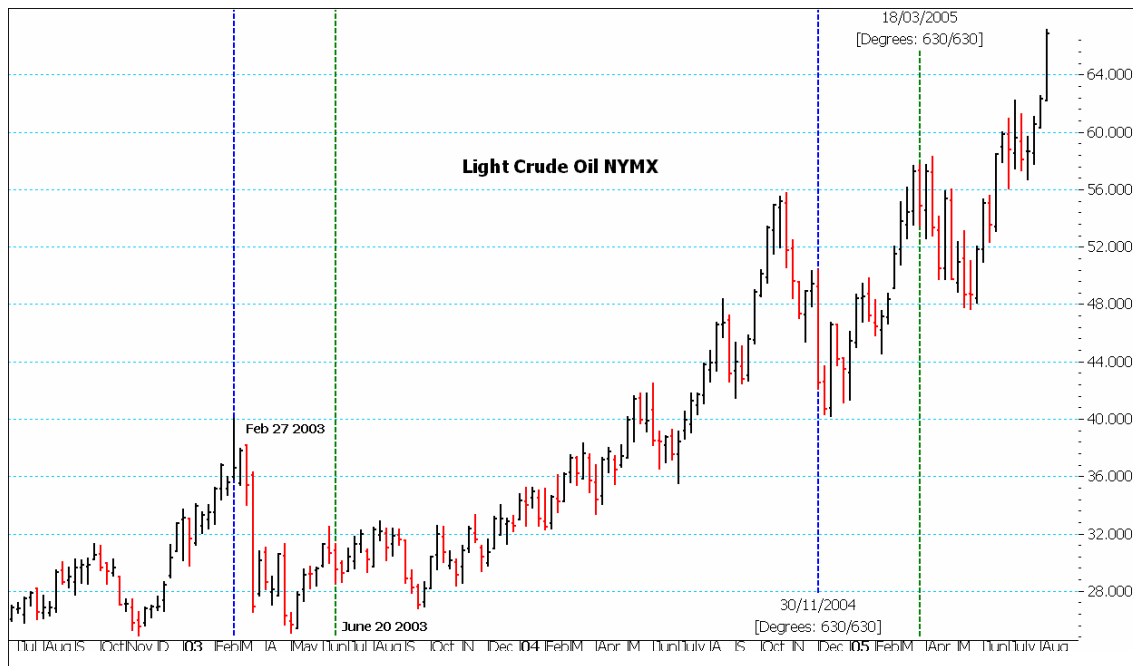S&P 500 (50% of 1262 days)
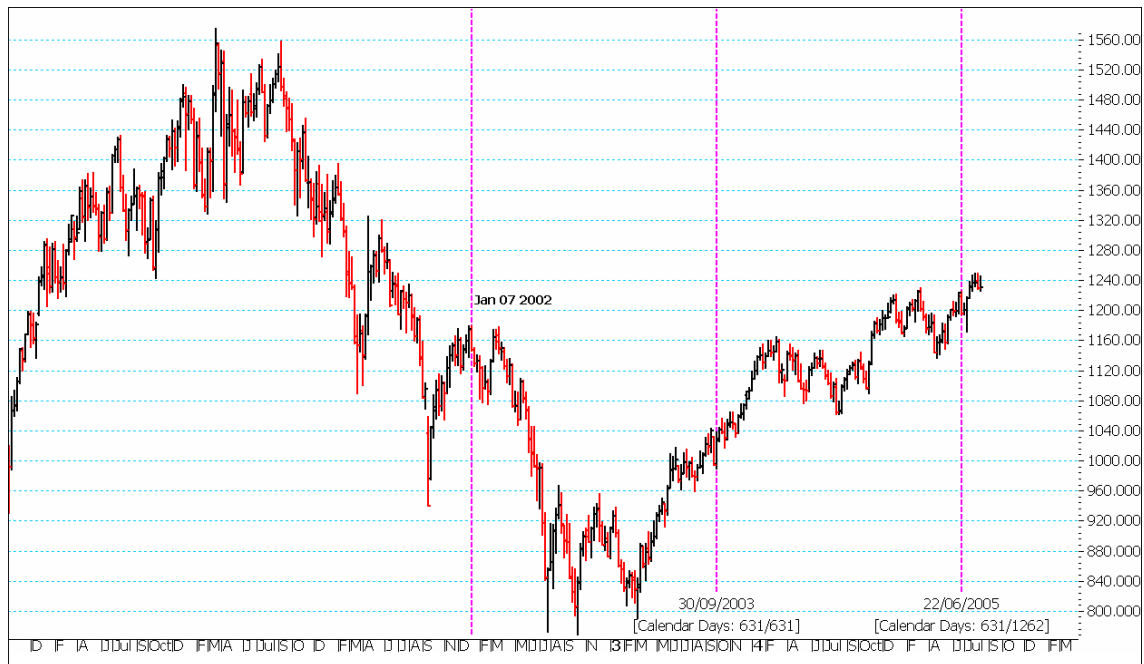
1260 degree cycle

S&P 500 from 2nd July 2001 to 1st Jan 2005; important divisions are 315 - 30wks, 420 – 60 wks, 630 – 90 wks, 840 – 120 wks, 945 - 135 wks and 1260 – 180 wks.

630 degree cycle

Light Crude weekly chart. 630 degrees is approximately 91 weeks, 639 days or 90 degrees of the 7 year cycle is a little over 91 weeks.

1336 day cycle

Most often works out to 1336 days or degrees exactly, however often there will be a reversal between 1332 and 1336 days or degrees.

The 1/8th or 45 degree divisions are 167, 334, 501, 668, 835, 1002, 1169 and 1336 days or degrees. The 1/12th or 30 degree divisions are 111, 223, 334, 445, 557, 668, 780, 891, 1002, 1113, 1224 and 1336 days or degrees.
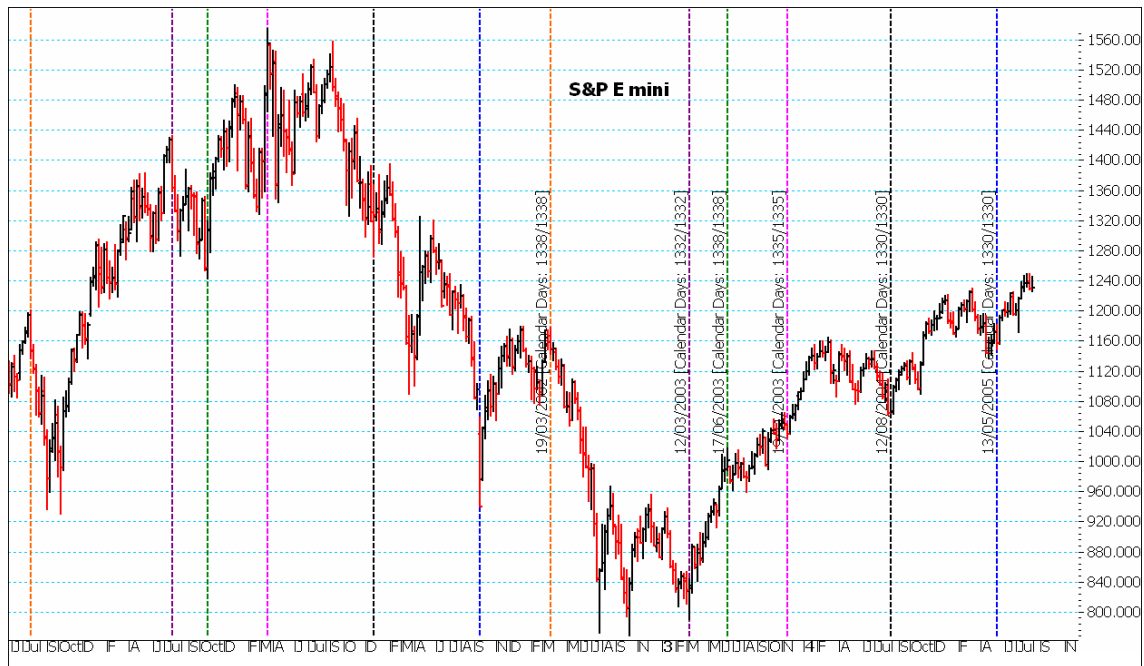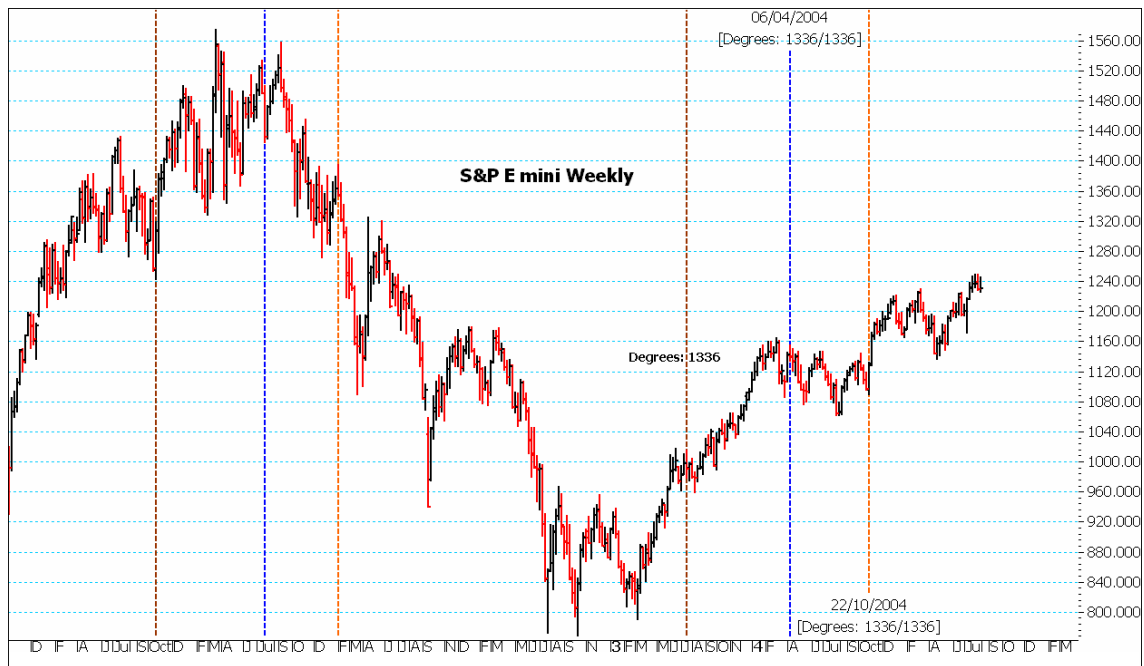
668 day cycle

50% of 1336

1336 degrees cycle

Often a market will react at the 1/8th division of 167 days or degrees. On occasions the 168th (detailed earlier) day or degree will.


668 degrees cycle

S&P E-mini weekly chart. Reactions can often occur at 666 days (symbolically significant) and 672 days which is 3 x 224 (Venus cycle) and
4 x 168 (hours in a week)

1290 day cycle

The important divisions are the $1/8^{ths}$ of 161.25 with the 50% at 645 days. The $1/12^{th}$ divisions are 107.5. $1/3^{rd}$ is 430, 2/3rds is 860. Often the reaction will occur at the 644th day. As with all cycles the quarters, 25% or 90 degree parts and the third, 33.3% or 120 degree parts are most important.
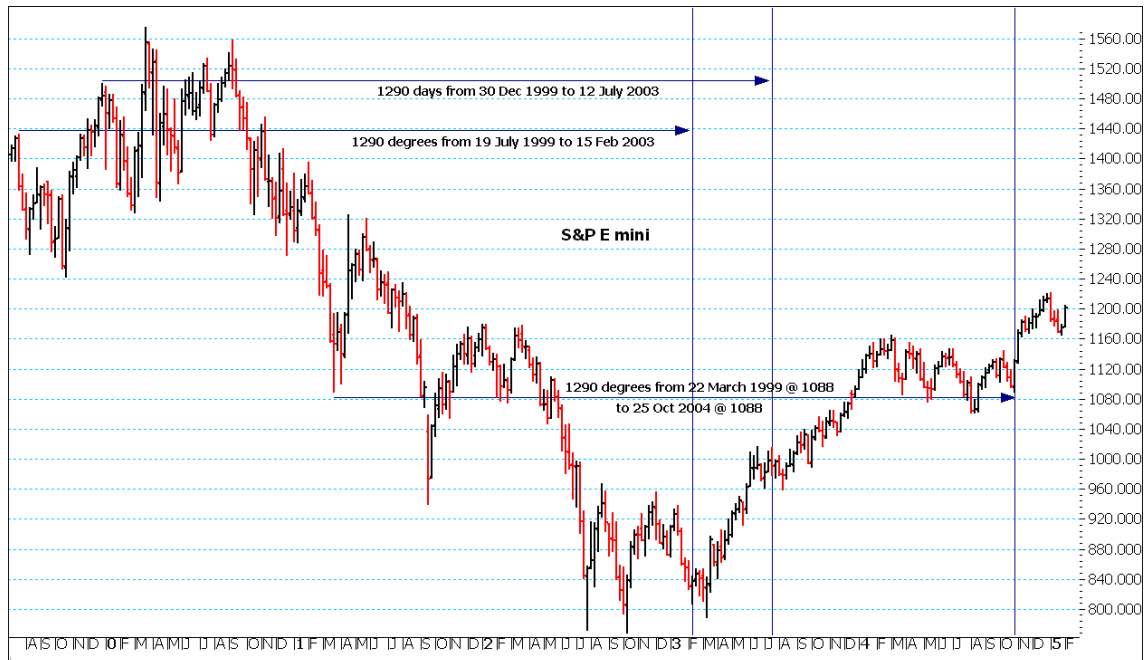
852 days

S&P weekly chart from the major high.
852 days is 33.3% of 2556, or the number of days in 365.25 weeks, (Earth cycle) or the 7 year cycle. 1631 days is 233 weeks; 233 is the 12th number in the Fibonacci series.
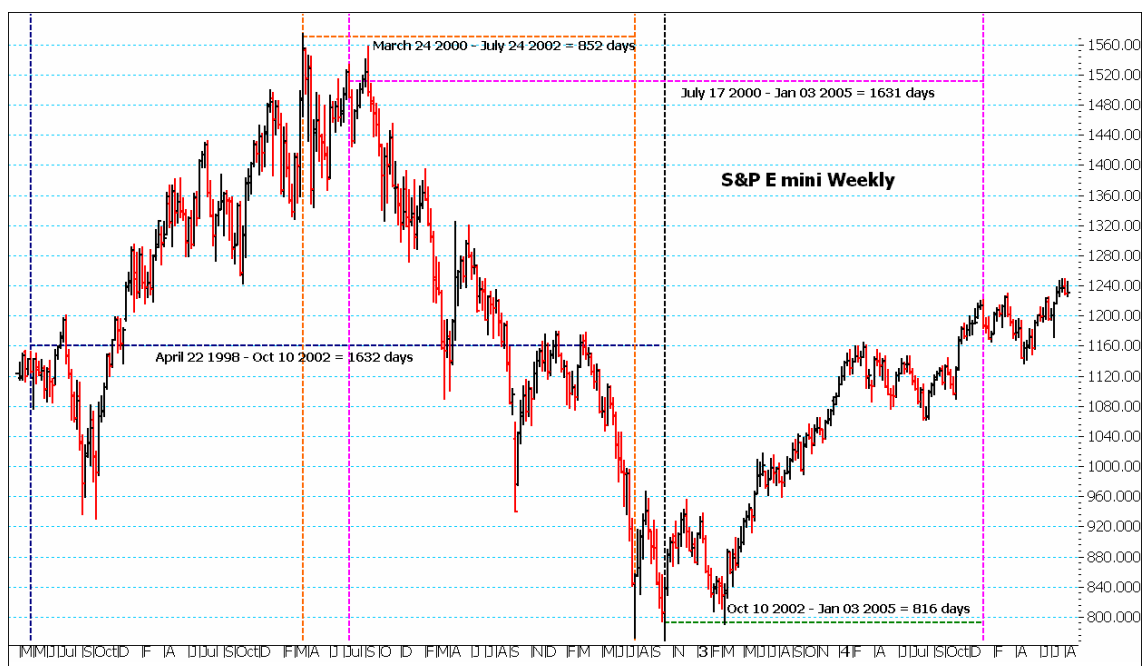
The 1 year when calculated as 360 degrees is a minor cycle, but at times a market can react very well to the 90, 120, 180, 240, 270 and 360 degree vibrations from a past weekly high or low.

The 90 and 120 degree sections can be extended out until at least 2520 degrees, which is then 360 weeks in degrees, 900 and 1200 degrees are the one quarter and one third divisions of 3600 degrees. This is the concept of the wheel within the wheel.

All these numbers whether as a whole, parts or multiples regularly appear in markets in time and in price movements. Where there are a number of cycles culminating on the same day it is a time of greater importance.

The two cycles of most use to a trader are derived from the biblical terms of **"a time, times and half a time",** the ancient Hebrew year of $360 + (360 + 360) + (\frac{1}{2} \times 360) = 1260$. This is an important symbolic "time" from the Bible.

The other is to be found in the biblical term **"blessed is he that waiteth, and cometh to the thousand three hundred and five and thirty days"** or 1335 days. This is an equally important symbolic "time".

Other biblical numbers that appear in markets in time and price are 390, 430, 490, 666, 888, 1150 and 2300. You will see the combined price ranges from 24 Jan 05 to the 17 June 05 totaling a cycle of 2300 in the DJIA at the supplementary information section further on.

The frequent appearance of these cycles throughout history is proof that the timing of events is more than coincidence. Some well known events in recent history that are examples of the cyclical nature of our existence include the following.

It was reported in the Wall St Journal on the 19th November 1860 that "it was a gloomy day on Wall St, paper was not negotiable" 3600 weeks forward brings you to late 1929.

From Armistice Day at the end of WW1 on the 11th November 1918, to the day of the Normandy landings on the 6th of June 1944 it was 9,339 days or 1334.5 weeks.

From the 7th December 1941, the day of the Pearl Harbor bombing by the Japanese, until the Hiroshima bombing on the 6th of August 1945 there were 1338 days or 191 weeks, the anagram of 191 is 9/11.

In more recent times there has been the September 11 incident. The numbers 9/11 being involved could appear to be a coincidence. When you take into account that the Madrid train bombings in 2004 caused 191 fatalities and from the London train bombings on 7th July 2005 less 1336 days results in the date of 9th November 2001 or 9/11/01 it adds an intruiging perspective on what may actually be responsible for the events in our world.

From the start of our AD calendar, plus 1336 years and half of 1336 years, or 668 years, a total of 2004 years, results in the 25th December 2004. One day off the exact 2004 years was the second worst earthquake in recent history in Asia. The other was in 1556 in China when 830,000 people died, from 1556 to 2004 is 448 years or two times 224, the number related to the cycle of Venus.

Also of interest, considering that many numbers that appear in our markets today having had their origins in biblical Hebrew times, is the fact that from the birth of Christ until 1948, the year in which modern Israel was founded there were 1,948 years or 1,262 + 343 + 343 years. 343 is 7 times 49, the number 49 was often quoted by WD Gann as being the fatal number.

Often the number 49 and its multiples appear in time and price ranges. In the case of the S&P 200 in Australia, from the record high at the time, on the 14th February 2002 to the low on 13th March 2003 it was 392 days or 8 x 49.

Once familiar with these numbers and the variations of them, such as their percentages and multiples you will see them in the markets in price ranges, time ranges and absolute numbers such as the historical high on the DJIA on the 14th January 2000 at 11,840 points, what you have here is 11 times 1000 plus 840. 840 is one third or 33.3% of 2520 which is the number of days in 360 weeks. The DJIA on the 10th of October 2002 at the major low point of 7,180 points is 7 x 1000 plus 180 or 1/2 of 360.

It is academic as to the origin of these numbers, and why they are documented in the bible. If they can be used in markets to accurately predict dates in the future, then that is what we will do. When conversion of the important numbers to current day usage is done, the 1260 stays as 1260 degrees and in days becomes 1262, the half is 630 degrees and in days 631. The 1335 becomes 1336 days or degrees and the half is 668 days or degrees.

Using the concept of "a time, times and half a time" or three and a half times a time period, good results can be obtained, for example the 360 day Hebrew year becomes 1260. There is a further adjustment to this number of a "leap" month of 30 days, which then becomes 1290 days or degrees, a symbolic Hebrew year with the "leap" month added is 390 days or degrees. 1336 days x three and a half will become 4,676 days or degrees. Another very useful number is 672. This is 3 times 224 and 4 times 168.

In summary the cycles of 1262 days and its solar degree equivalent of 1260 degrees, the number 1290 is the 1260 with a leap month of 30 days added to give 1290. 1336 days and its solar degree equivalent of 1336 degrees are the most important numbers to know. Their parts as calculated by the 1/8th, 1/12th and 1/3rd divisions are also to be monitored.

By applying time counts to the daily bar chart at the weekly highs and lows and by maintaining them in advance of where the market is currently trading you will be aware of dates in the future where reversals are likely to occur.

Further analysis of the market for pattern and price factors using price cycles and support and resistance levels when close to these dates is required to determine if a trading opportunity will become available.

Below is a weekly chart of the Australian S&P 200. The 1262 day cycle and the 1260 degree cycle both were present when this market reversed

The following chart of the French CAC 40 shows the major high on the 8th April 2005 and some of the time and price factors present.

Most importantly the 1336 degree cycle from the 25th July 2001 was present at this important high. 171 days or 25% of the Mars cycle and the 168 day time period are also shown at minor reversals.

An unusual in concept but commonly appearing form of balancing a time with a price can be seen at this high when a 345 degree time period aligned with a 690 point price range or 2 x 345 originating from different points.

25th July 2001 @ 2 degrees plus 1336 degrees = 8th April 2005 @ 18 degrees

2 x 345 pts (690)

345 degrees

171 days

168 days

May   June   July   August   September   October   November   December   2005   February   March   April

Cycles in calendar days are easily calculated by setting up a spreadsheet with the cycle numbers added to the reference dates. By making a list of the day of the monthly highs and lows and adding the cycles to these dates you will determine the most important cycle dates. Do the same with the weekly highs and lows. On the dates where there is a "cluster" or combination of cycle dates then that will be a more important date to monitor.

Cycles calculated in solar degrees most often work out to be different to the calendar day count dates. In each zodiac sign there are 30° or 360° in the year. To calculate 630° you will find the same degree date as the degrees of the reference date but 21 months later. To calculate 668° you will find the same degree date 22 months later for 660° and then add another 8°. An ephemeris is required for this.

In the following monthly charts of the S&P 200 the vertical blue and purple lines clearly show the ¼ parts of the 3600 week cycle or 6,310 days and the 1/8th parts of the 3,817 week cycle or 20 x 1336. Being a monthly chart the exact dates are sometimes days or even weeks inaccurate.
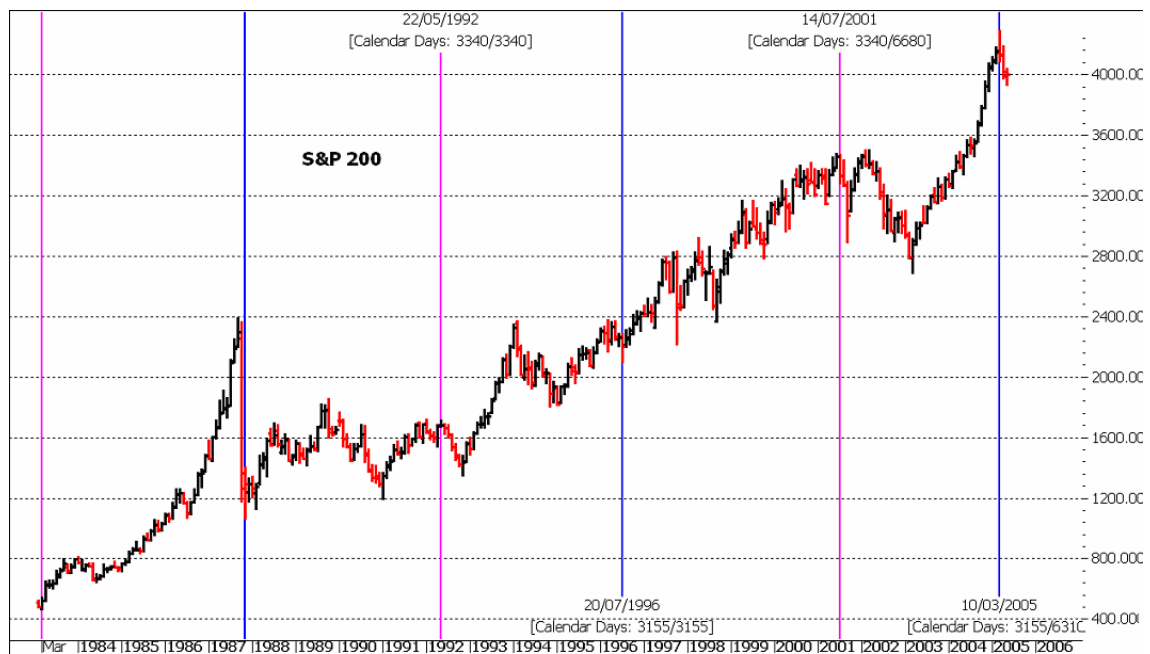
Below is the same chart with the 6300, 3340 and 4676 (668 weeks) solar degree cycles applied. 3150 is $1/8^{th}$ of 25,200 days or 3,600 weeks. 3340 is ¼ of 13360 days. Biblical interpretation of numbers allows for decimals and zeros to be ignored.
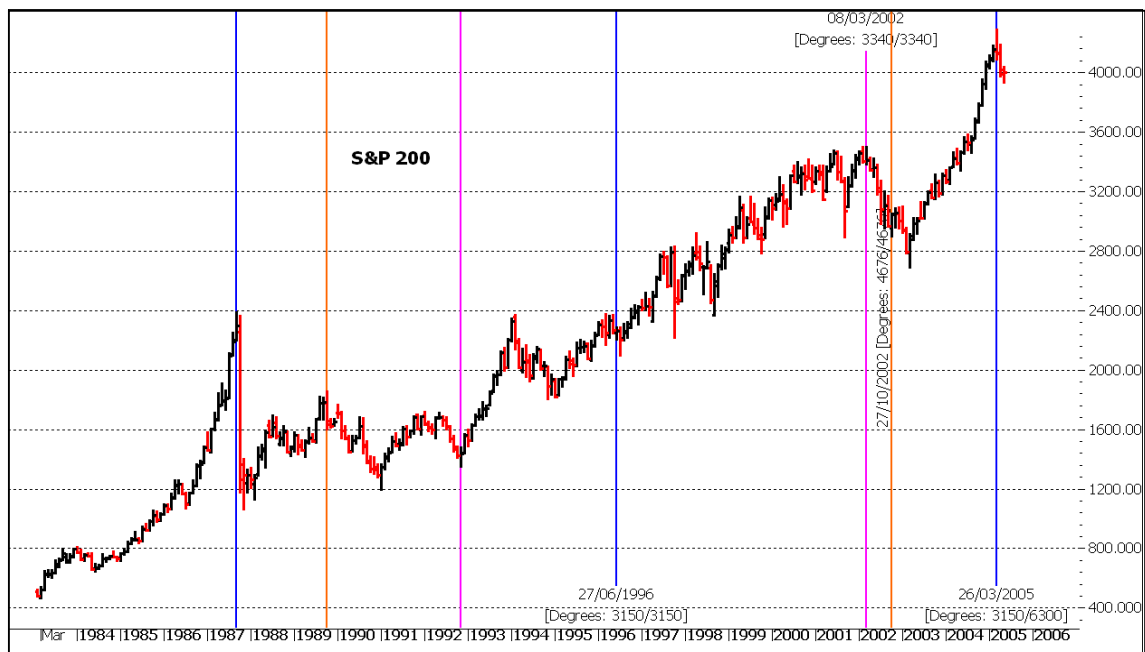

A method of monitoring a markets time ranges according to the key cycles and their divisions is by hand drawing the type of charts in the below diagrams.

At the end of each range, minor or major, add the preceeding range/s together. When a number is arrived at according to the important cycle numbers or their divisions it is a point to watch for a reversal. Always include in the time and price cycle analysis the position of the market or the wave structure before determining if it is likely to be a minor or major reversal.
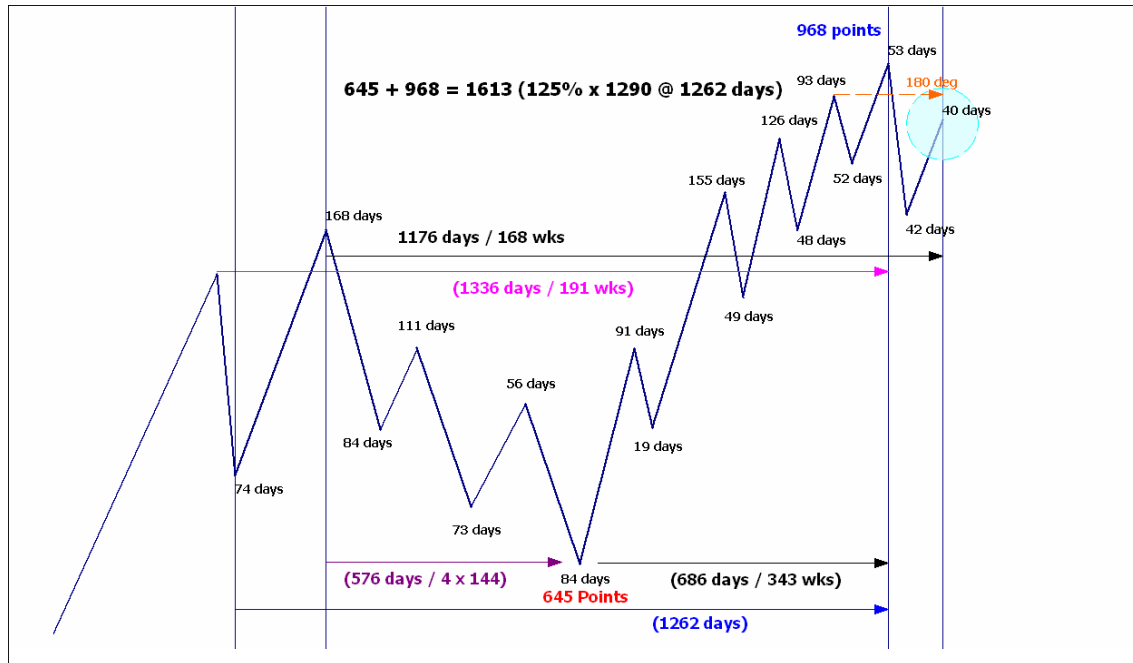
The highlighted area shows the 50% or 180° division of the one year cycle aligning at Gann's 5/8th or 62.5% level at 168 weeks after completing three sections or waves up to form a "first lower top" that Gann stated was the safest place to "sell".
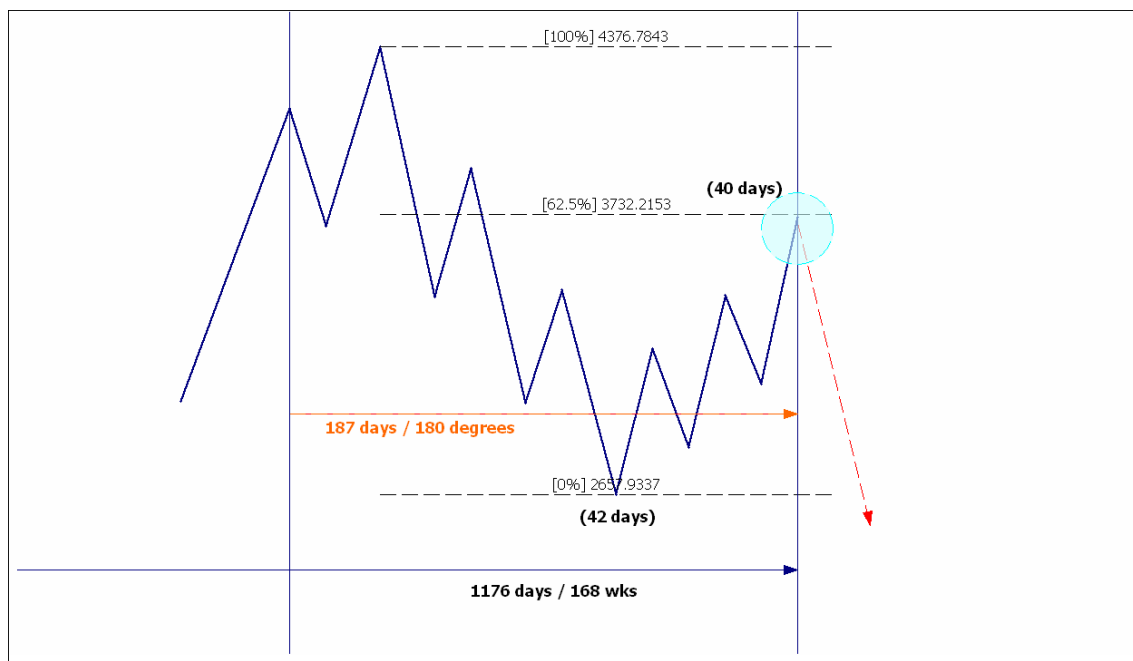
16. Seasonal Time

The orbital cycle of the earth is why there is seasonal change. These changes often affect the behaviour of human nature as the climate changes from warm to cold. Due to weather inconsistency, some years are times of plenty and others are years of shortage. Consequently, prices will rise and fall over a period of time and will form a cyclical pattern. An example of this seasonality is the way the cost of Oil rises during cold weather.

The ninety degree annual astrological dates are strong times for change. Their significance is greater when other planetary cycles such as full and new moons, planetary conjunctions or oppositions coincide with these times.

These four times of the year are when the sun crosses the equator, at the March equinox or zero degree cardinal point of the year, which is the $21^{st} - 22^{nd}$ of March. The next is when the Sun crosses the equator into the Southern Hemisphere, when night and day have equal length. This is the 180 degree cardinal point on the $21^{st} - 22^{nd}$ of September. The June 21 - 22 solstice is when the Sun reaches its highest position in the sky over the Northern Hemisphere. This is the longest day of the year and at the 90 degree cardinal point of the year. December 21 - 22 solstice is when the Sun reaches its lowest position in the sky over the Northern Hemisphere. This is the shortest day of the year and the 270 degree cardinal point in the year. These dates are important to watch as they often signal a cyclic change in the markets. There are two other times of the year that are also important. The perigee and apogee, these are the times when the Earth is at its closest and most distant from the Sun.

The astrological year begins at the March equinox or the zero degree date. This is when the Sun crosses the equator to the Northern Hemisphere. From this date, as with the twelve signs of the zodiac, each month is thirty degrees in progression until the full cycle of 360 degrees is complete. These zero degree dates each month are possible times for changes in a markets trend, especially if other cyclical time and price analysis is present.

If these times coincide with other planetary phenomena, or the other important cycles, they have a stronger significance for change, as with new or full moons and solar eclipses. The March equinox is often a time of change in various markets.

The below weekly chart of the Australian S&P 200 shows the 90 degree sections at major high and low points. Most markets are affected by Seasonal Time.
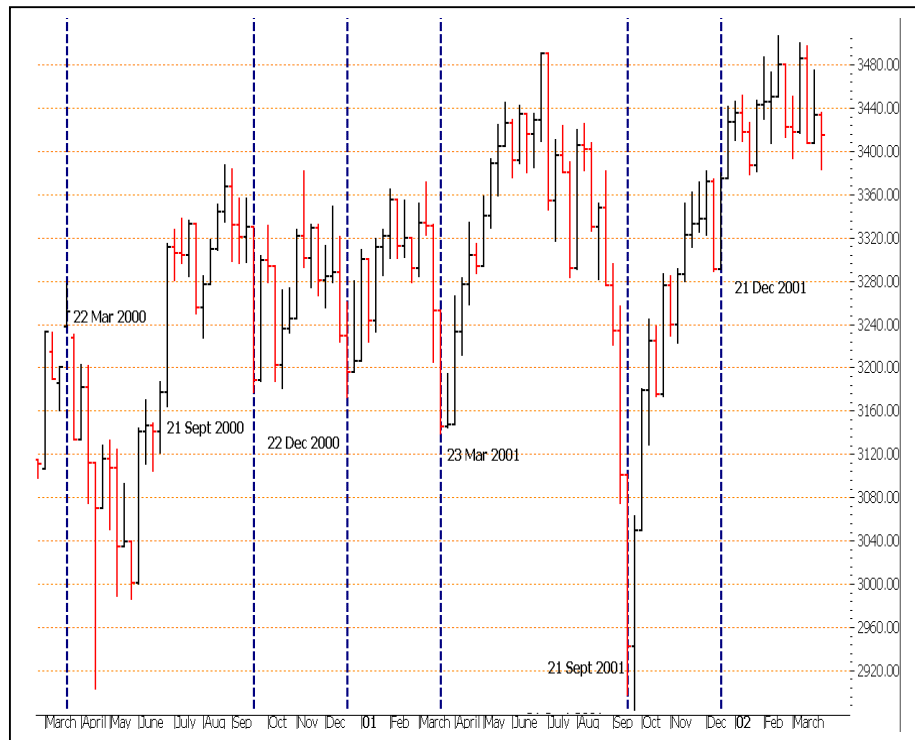

The below weekly chart of the S&P 500 showing the 0° sections at high and low points. Often the change of trend will occur exactly at the 0° date, and sometimes can be a few days either side of the 0° date.
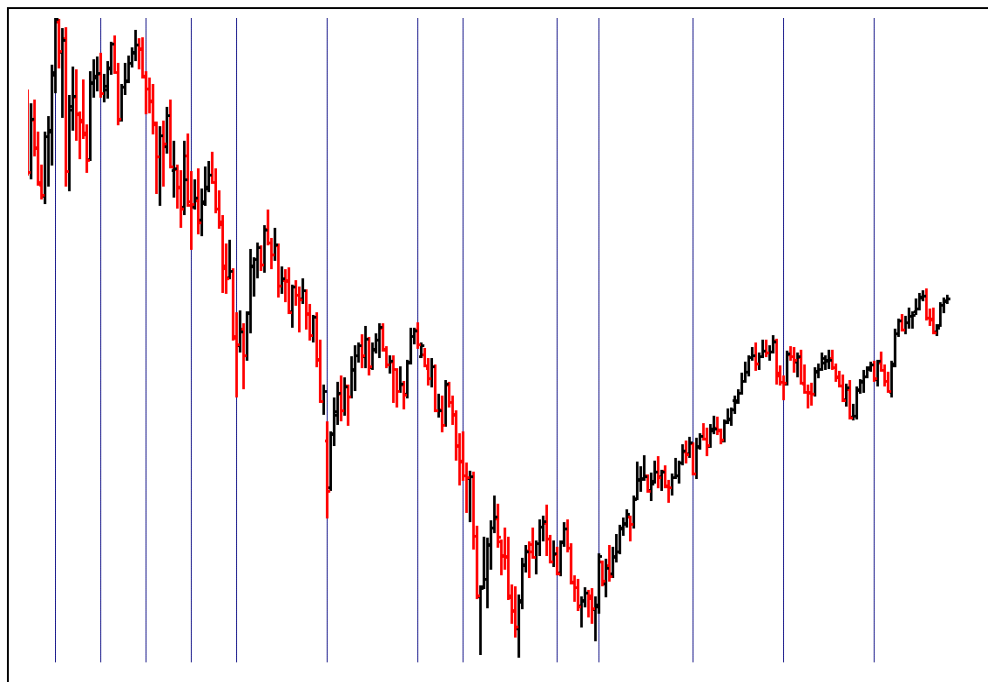
"Seasonal Time" is not a stand alone timing indicator, but when coinciding with other timing techniques it adds support to the analysis.

As an example, the S&P 500 high on Friday the 21st March 2003 was at the 0° time, it was also at 180° from the 22nd August 2002 high (to Saturday the 22nd March) and it was also 240° from 24th July 2002 low (again to Saturday the 22nd March). When a cycle culmination date is forecasted for a weekend or other non trading day, the market will most often react on the Friday or the trading day before. If the reaction does not occur on this day then the first trading day after the break needs to be monitored.

The example below, even though exhibiting some factors for a reversal, was not a signal for a short position unless short term trading as the high was above the previous weekly highs, indicating the trend was up. It also showed an expanding market from a range of 54.6 to 73.8, which usually means there is more to come in this direction. If a long trade had been in progress from the outside day reversal on the 17th March, closing this trade at 100% of the 54.6 range would have locked in profits.
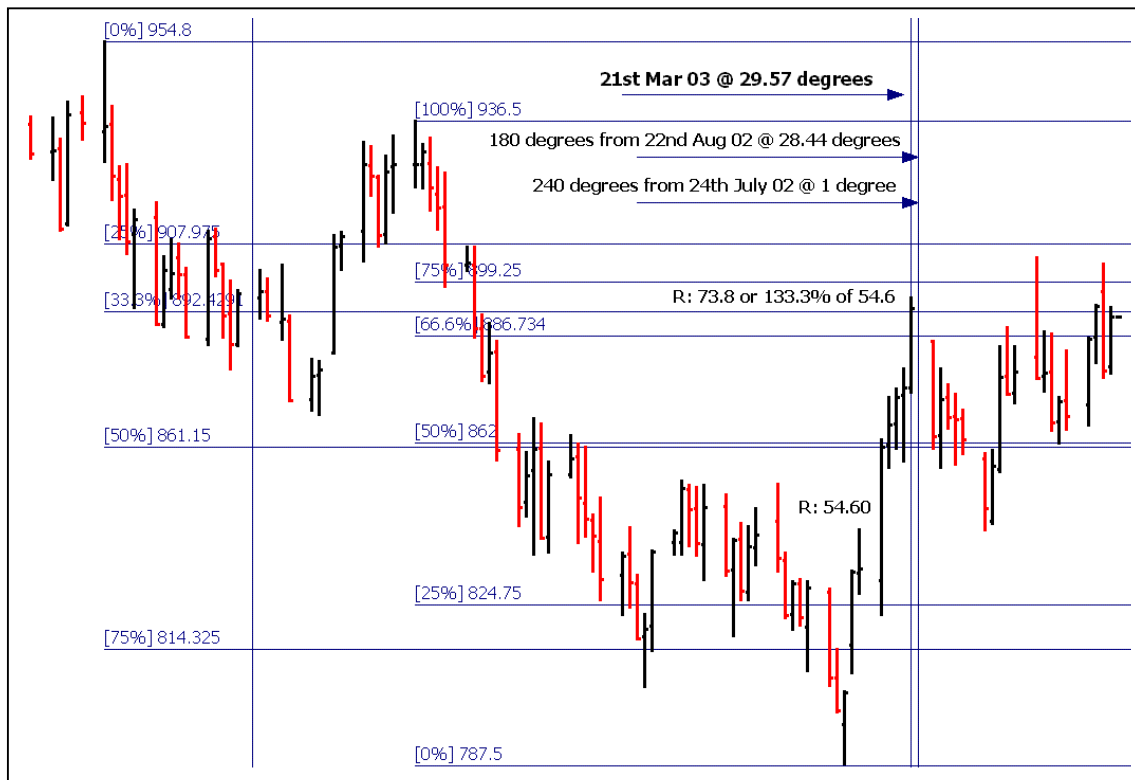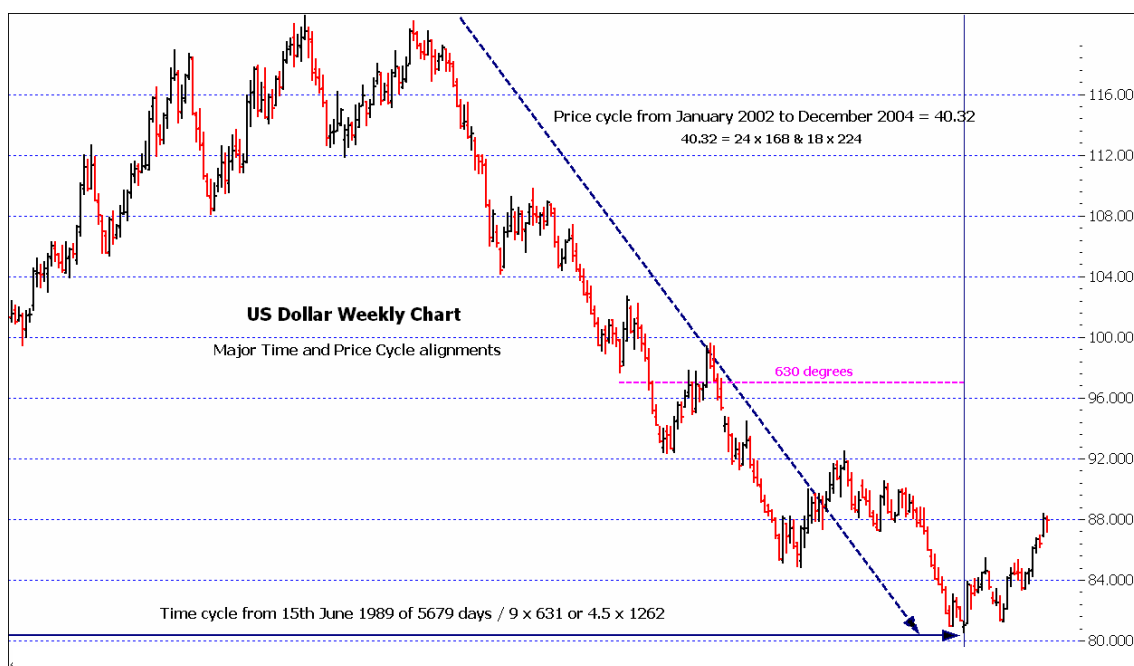
17. Price Cycles

Gann stated that time and price can be treated in the same way.

Time is measured from a past reference point, and by knowing the duration of a time cycle a future date can be calculated. The same concept can be applied to price. From a high or low point on a chart, by knowing the cycle numbers that price moves in, the price ranges will indicate when resistance will be met, enabling price projections to be made. For example, if price made a range of 168 points and it was at 168 days and 630 degrees from various reference points, at a 50% price support level, you would expect a reaction. Another example is, if a particular date has been calculated, such as 630 degrees from a past weekly turning point, and within a few days prior to this date a price range was a little short of 630 points or cents you would watch to see if this important number aligned in time and price on the same day. If it did, there is a high probability of a trend change. This would mean that time and price have met a point of balance.

Variations of the above can be found when a time cycle meets a price cycle that has originated from a different source. For example, if price had declined 168 points from a high, and a time cycle of 1260 degrees had aligned with the 168 point decline at the same time, then the moment this occurs you could expect a price reaction.

An example of this is in the "Time Cycles" section, where in the CAC 40 at a time range of 345 degrees, price from a different reference point had traveled 690 points or time and price balanced at a ratio of 2 x 1.

To be aware of these events, a good knowledge of cycles and their divisions and their multiples is required. By noting the price ranges at each weekly range, and the other intermediate and major ranges, you will become familiar with the numbers. You will find they are all related to the numbers in the "Time cycles" section in some form or other. It is unlikely that you will be counting from 1989 to have calculated the 5,679 days as in the US dollar chart however there was present the 630° time period.

Price cycle from January 2002 to December 2004 = 40.32
40.32 = 24 x 168 & 18 x 224

US Dollar Weekly Chart
Major Time and Price Cycle alignments

630 degrees

Time cycle from 15th June 1989 of 5679 days / 9 x 631 or 4.5 x 1262

Following is an example from the Australian SPI at the 23rd March 2001 low. At the time of the March equinox, at 360 degrees from the March 2000 high, when 33.3% of the Mars cycle of 687 had completed there was a trend reversal.
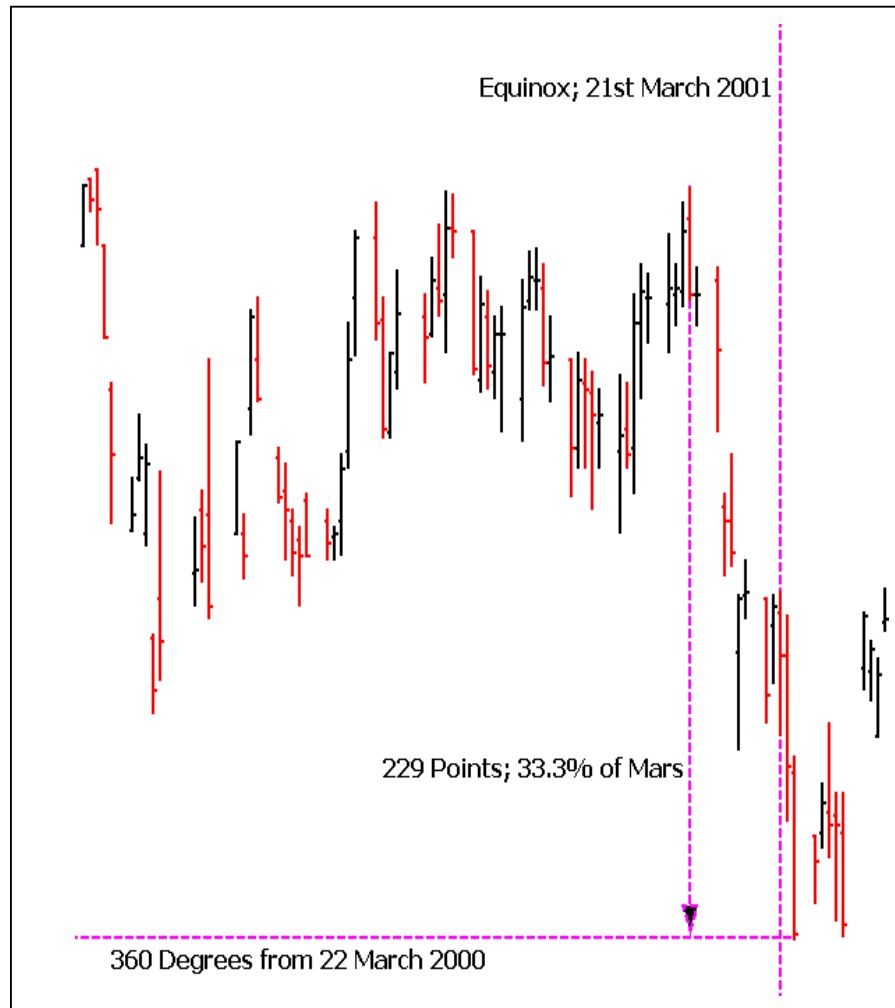
Certain cycles, their parts and multiples appear frequently in markets. As time cycles often repeat so do price cycles. By dividing the cycles by 1/8th and 1/3rd you will calculate the various ways in which they can appear as a price.

Some of the more common are 42, 49, 52, 84, 88, 89, 98, 104, 122, 128, 132, 144, 147, 156, 162, 168, 171, 188, 191, 196, 224, 229, 244, 252, 264, 272, 288 & 312. By recording the price range on the chart below each low and above each high you will become familiar with these numbers.

In the below chart of the Share Price Index, the market shows how it works its way through the different cycles and repeats past moves.

648 is $1/32^{nd}$ of the square of 144 (20,736)

674 is midway between 672 (3 x 224 and 4 x 168) and 676 or 25% of the square of 52 (2,704)

630 is 25% or ¼ of 2520.

210 is 12.5% or $1/12^{th}$ of 2520.

420 is 16.66% or $1/6^{th}$ of 2520.

835 is 62.5% or $5/8^{th}$ of 1336.

645 is 50% or ½ of 1290.

162 is $1/8^{th}$ of 1290.

808 is 62.5% of 1290.

The April 2004 high was at a range of 808 points.

900 points is 25% or ¼ of 3600.

The March 2005 high is again at 808 points or 62.5% of 1290.

627 + 210 + 421 = 1258, almost 1260 or the important "time, times and half a time".

The market at the time of writing met resistance at 4255 on the 1262nd day and at the 808 point range. The 1576 range is 1260 plus ¼ of 1260 or 62.5% of 2520.
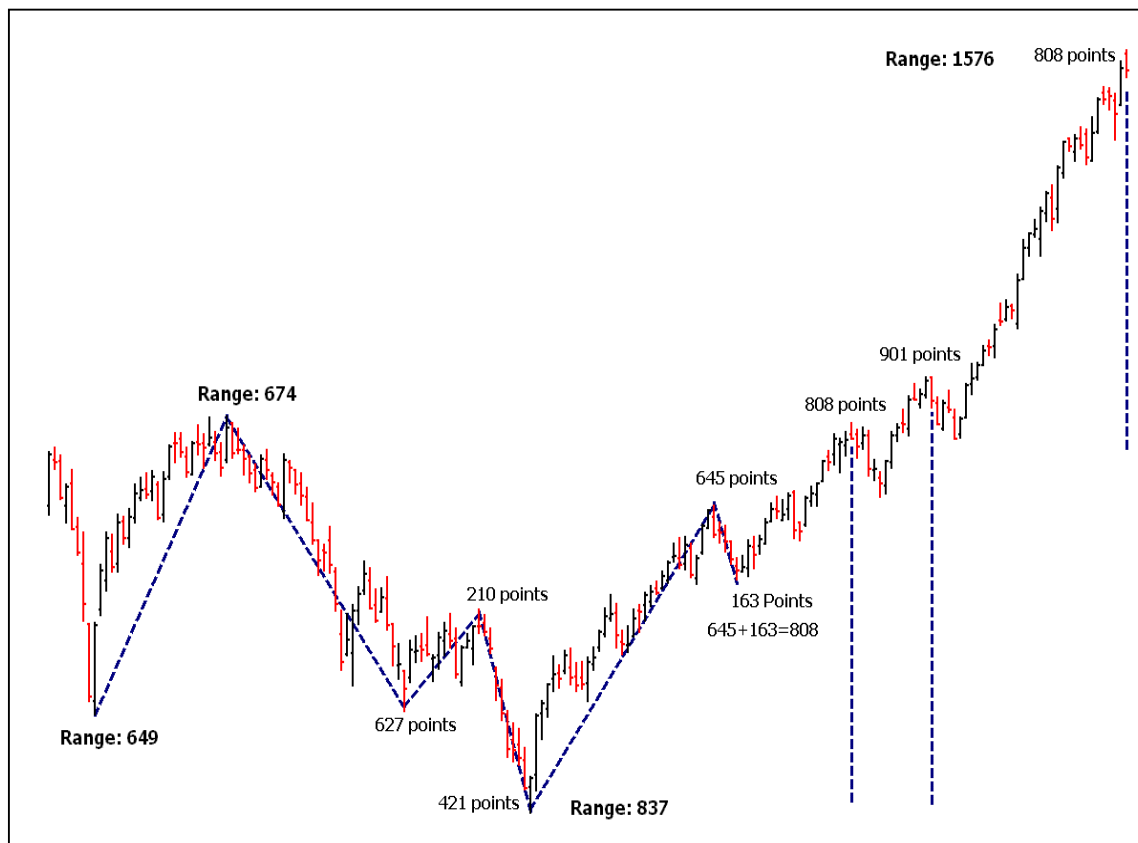
The following chart of the DJIA shows an exact price cycle of 1290 points completing at a time cycle date of 1262 days. Identifying these important alignments can be all that is required to initiate a trade at these times once price reaction confirms the reversal is underway. Short term traders would only need intraday price bars to identify a lower swing high to initiate a "short" position.

DJIA

The following chart of IBM has the divisions of the cycles of 1290 and 1336 shown at the reversal alignments of time and price.

Note that 1169 days is 167 weeks or 1/8th of 1336 weeks

IBM
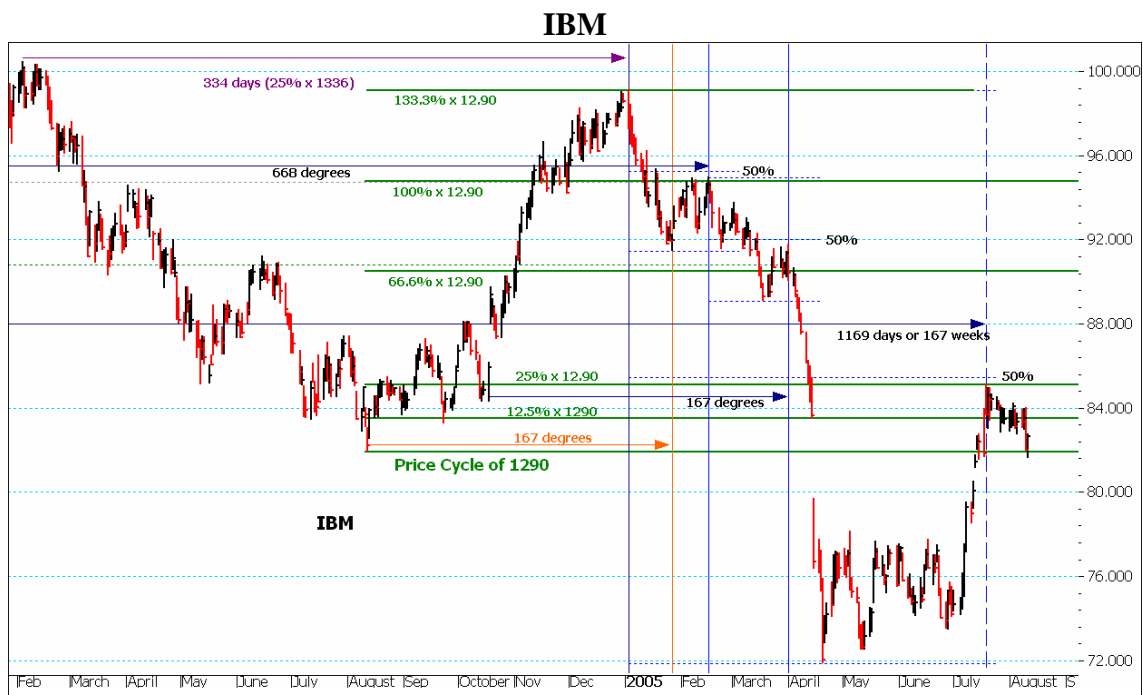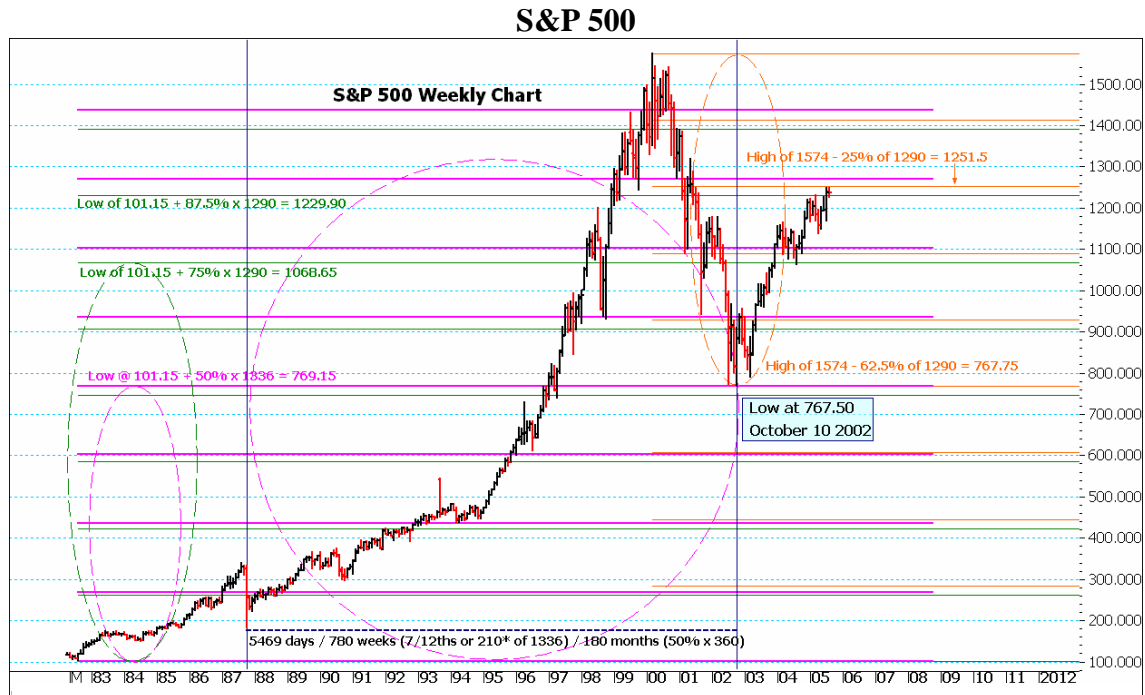
S&P 500

The S&P 500 chart displayed at the Ganncycles.net website is detailed above.

By calculating the $1/8^{th}$ and $1/12^{th}$ divisions of the main cycles from major highs and lows you will determine the important price support and resistance levels that a market will encounter as it progresses up or down.

This is essentially the same concept as calculating the cycles from past highs and lows. The difference is that time does not reverse. Calculating these price levels can be done using a simple spreadsheet. Using the S&P 500 as an example the historical low was at 101.15. By adding the Gann percentages of 12.5% or 1/8ths and the $1/12^{th}$ divisions to the low of 101.15 you will determine these levels.

If you are familiar with Tunnel thru the Air you may recall that Gann when calculating time periods used the method of adding cycles together. In the above S&P chart the low of 101.15 + 1290 = 1391.15. The March 2000 high was at 1574, 182.85 points more than 1391.5. 182.85 x 2 = 365.7 or the cycle of one year.

If a market is greater in value than one complete cycle when added to the low then continue with the percentages as 112.5%, 125% etc. When completing a full cycle begin the cycle again.

Decimals can be disregarded or added to "fit" the market. For example 101.15 + 1336 will result in 1437.15. A market trading at higher values such as the Dow will require multiples or cycles that are added together.

Below in the DJIA the horizontal lines are at levels of each of the full cycles calculated from the 7180 October 2002 low. They also can be calculated from the March 2000 high at 11840. Where there are levels that are at same value then these levels will be of greater importance. The cycle numbers colour denotes that cycles price level.

A simple way of being aware of these levels on your computer charts is to calculate the levels with the spreadsheet and lock the horizontal lines onto the charts as has been done below.

DJIA

In the following chart the first cycle or range in price to the high of 484 was 37.5% or 135° of 1290.

The range down was 191 which is the number of weeks in 1336 days.

147 is 3 x 49 – Gann's fatal number

73 is 50% of the 147 range and 168 is the hours of the week. Note that the low at this reversal was at $8.91 or 66.6% of 1336.

Adding 484 and 191 results in 675 or 25% of the square of 52. (676)

Adding 191 and 147 results in 338 or 50% of 676.

At the 168 range from the May low, resistance at the same level of $9.88 has been encountered on three occasions. Adding 191 and the range of 168 together results in 359.

Note the 1336 – purple, 1290 – green and the blue 1260 price levels from this markets historical low of $1.26.

## CML – Aust.
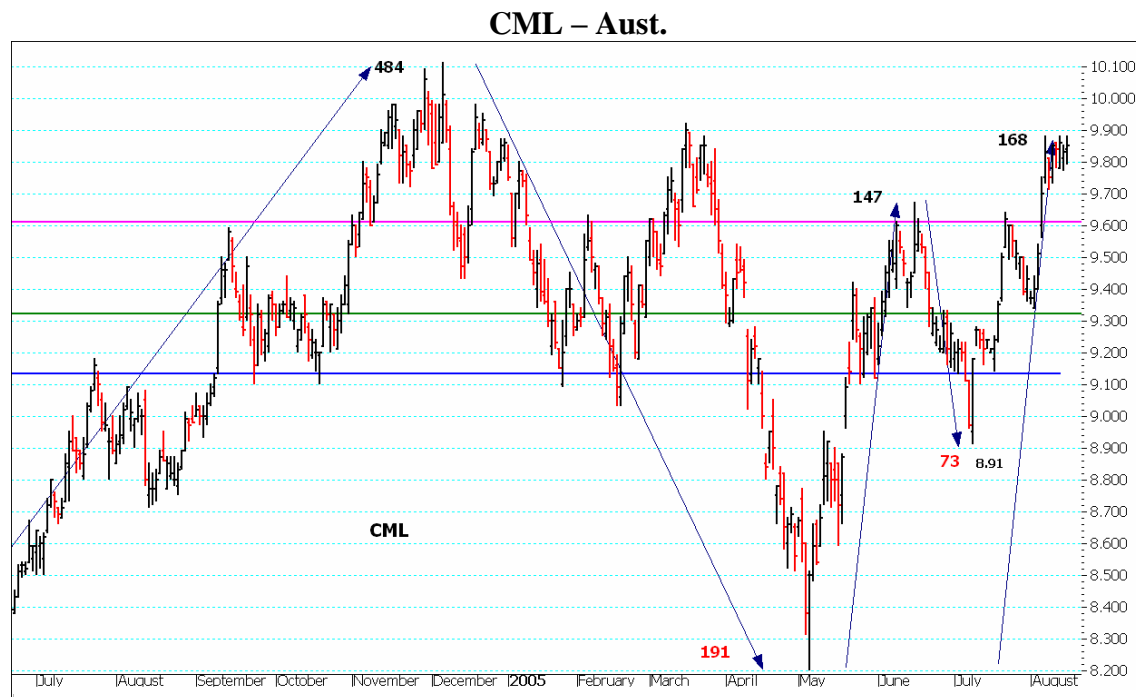
A visual representation of cycles.

Shown below are the important cycles of 360, 1260, 1290 and 1336 with the 50% divisions in time and price.

WD Gann stated that time and price can be treated in the same way. The only difference in calculating the two is the fact that as time moves away from a reference point a cycle will at some time complete. It can then work in multiples of its original form also. Price can move away from a reference point and at a later time can come back towards that reference point. This will cause a past resistance level to then become a support level.

Only shown are two aspects of the cycles, they can also be divided by the 1/8ths and 1/12ths and also be calculated in calendar days and solar degrees.

Note the cluster of resistance levels at the 50% price levels and the two reversals at the 50% time divisions.

An important high was at the 1260° date at the top right of the diagram.
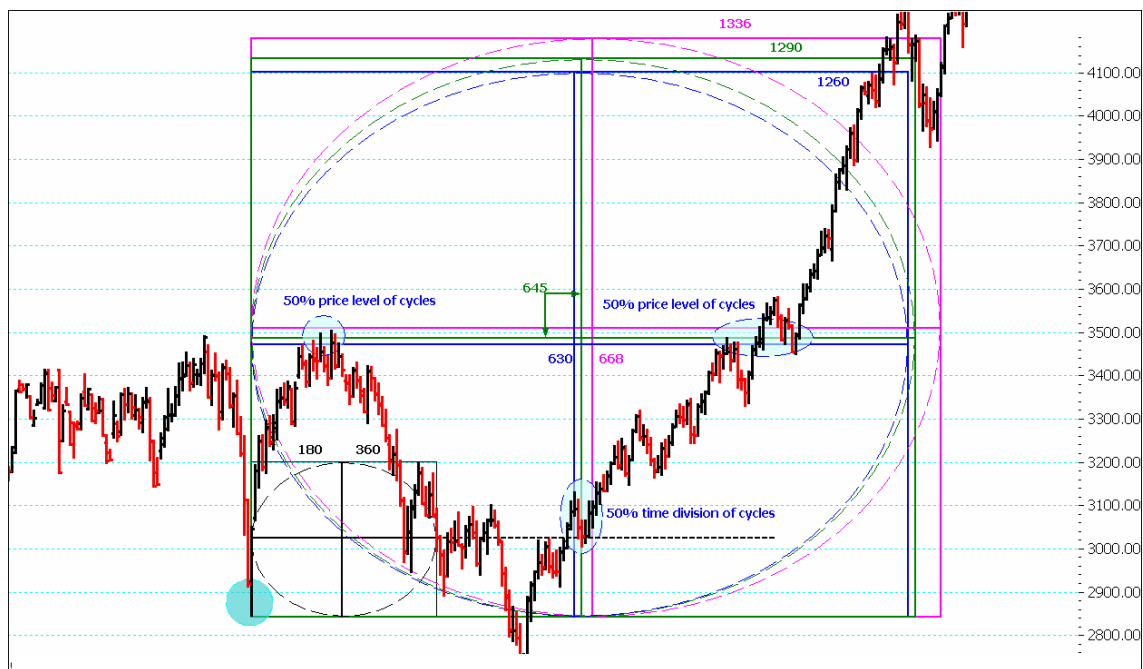
18. Market Squares

On a chart scaled at one unit of price to one unit of time, if we were to draw a square starting with a vertical line up from zero to a high price, then horizontally forward the identical units of time to the high price, then vertically back down to zero, a square will be formed. The forward vertical line will measure the first square in time of the units of the high price.

When time and price have travelled an equal distance on the vertical axis and the horizontal axis, regardless of the scale used, we have a square. If after 100 days in time, price had risen 50 points then there would be a half square, or a rectangle - if this were drawn on the chart. If you imagine a set of building blocks being stacked next to each other, and on top of each other, than this is how a market progresses, as it moves forward in time and in price. These blocks are at the size of the 1/8ths and 1/3rds of certain base numbers. These numbers are detailed in the cycle's section.

The major range in the S&P 500 up to the 24th March 2000 of 1412 points is 16 times 88. The following bear market range down to the 10th October 2002 of 807 points is 225% x 360. The next range up of 454 to the 3rd January 2005 is very close to 125% x 360 and 512.5% x 88 at 925% of 88 in days. The combined ranges of 807 and 454 equal 1261 or 3.5 times 360. The combined ranges of 1412, 807 and 454 equal 2673 or 2 times 1336.

What is happening is that price, as it progresses unfolds according to certain numbers and cycles. This is another very important concept that can indicate that a market has reached a price level where it will reverse. At the date of 3rd January 2005 in addition to the 1261 and 2673 points this date was at 1262 days from the weekly high on 19th July 2001 and 1260 degrees from the weekly high on the 2nd July 2001.
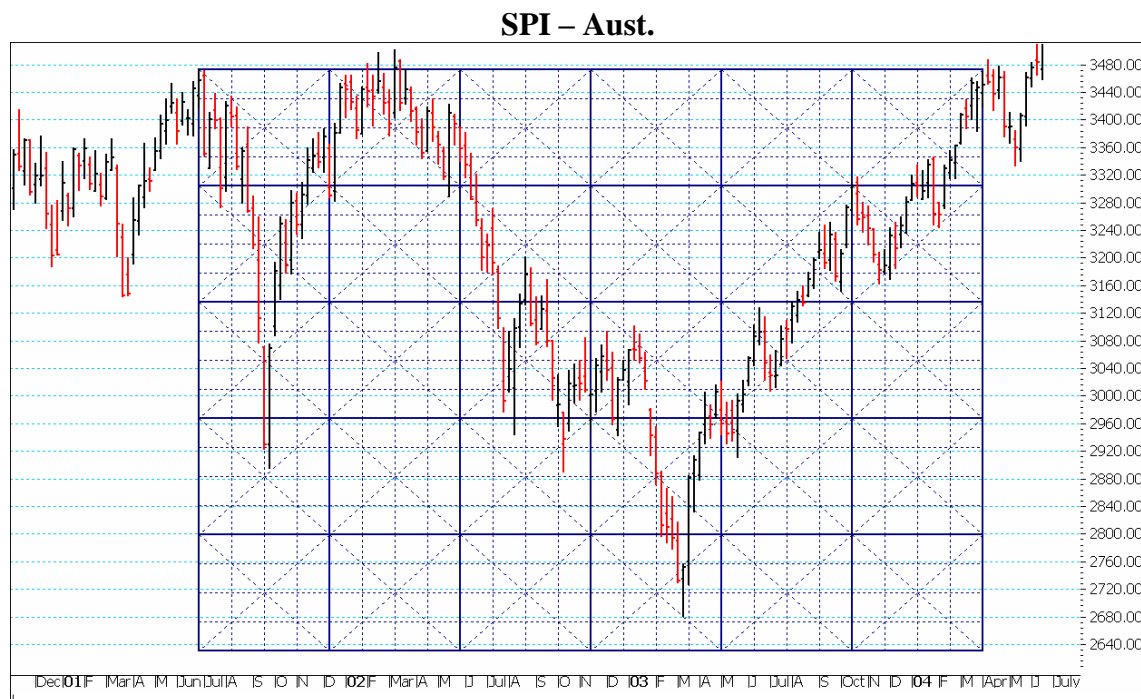
Market squares become more complex to analyse when a square, or a proportion of that square, of a particular number has unfolded in either time or price, and a square, or a proportion of the square of another number has unfolded on the other axis of time or price.

The time counts on the chart will tell you when the numbers that are important are present at the horizontal axis, the price ranges from the swing chart and the bar chart will tell you when they are present at the vertical axis.

As markets progress forward in time they conform to cycles and their divisions. As they move up or down in price they conform to these cycles as well. When a market progresses in time and price at certain points you will be able to calculate that there have been a certain number of cycles along the bottom axis and a certain number of cycles on the vertical axis. When these align at price support or resistance levels you can expect a reversal.

The following weekly chart of the Australian SPI shows the square of 168 days x 168 points. The dotted vertical and horizontal lines divide each square by 42. The time from the first high to the low was 84 days or 50% of 168. Note that this markets low actually occurred on September 21st 2001 during the markets night session. The price range down to the low shown was 631 points or 375% of 168. The time range up to the next high on March 8 2002 was 168 days and the price range was 674 points or 400% of 168.

This example shows how clear overlays that Gann developed, of 52, 144, 168 and 360 can be used. The same result can also be achieved by knowing the important numbers, their divisions and monitoring them on the horizontal axis with the time counts and on the vertical axis by the price plot.

The weekly SPI chart below from 2000 to 2002 shows this market reacting in time and price to the square of 168. From the left side high to the Sept 21 low was 84 days or 50% of 168 and 375% of 168 in price. To the 2002 high was 168 days by 400% of 168 in price.

To this high in the below chart from 11th November 1983 at the price of 1054 there was a price range of 2448 points, this is 17 squares of 144. The various numbers detailed in the "time cycles" section will appear as squares to monitor also.

SPI – Aust.

The use of this type of analysis is limited as only the perspective of calendar days or weeks is able to be viewed. The amount of time that alignments of these types appear is not usually sufficient as to warrant inclusion as a primary form of analysis.

As has been seen most time and price alignments occur when originating from different reference points. A market may have progressed 168 days in time and 168 points in price from two entirely different past reference points so it is not particularly useful to limit analysis to the limited perspective of using a chart overlay.

In the below chart of CML, an Australian retail sector stock it can be seen from the main high to the low that there was a price range of 108 points, this number is 75% of 144. The solar degree time taken to get to the low was 73 solar degrees or 50% of 144. The square, or more correctly a rectangle, formed by the addition of the four sides is 362. 362 is midway between 360 and 365, two of the important numbers.

From the next high after the main high the addition of three times 89 plus 95 equalled 362. As this exact repeat of the previous square of 362 occurred on a 668 solar degree date this market reversed. The next step in actually trading this set up would be by use of the 1 day swing chart to show a lower top, which the market did at the fifth trading day later.

Alternatively, a little after this market opened the day after the 668 degree high a short position could have been taken with a stop above the previous day.

This particular market is the same as the one shown in the "markets" section and shows the difference between more volatile markets and those that usually open the following trading day close to where they closed on the previous trading day. If you find you are having trouble with the more volatile markets there are markets such as this to be found that offer less volatility.

CML – Aust.
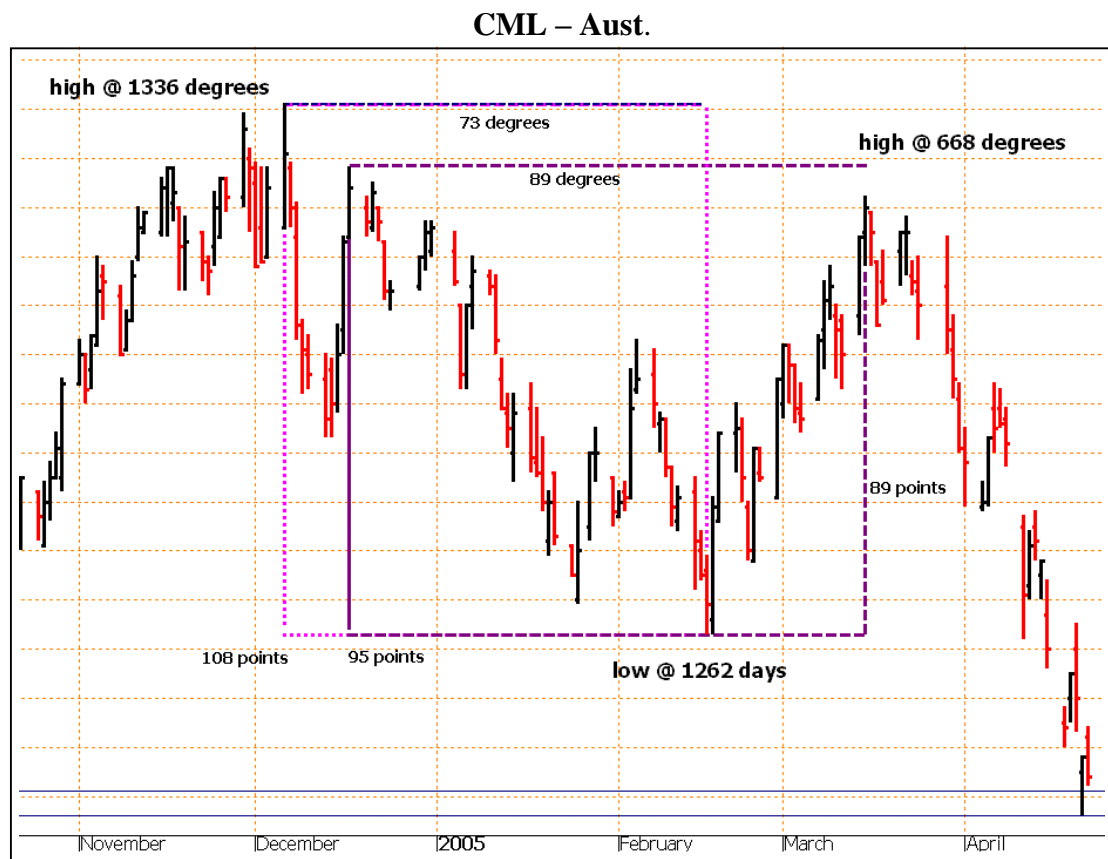
19. Balancing of Time

One of Gann's methods in determining a major high or low was to calculate the time from a high to a low, from the high to the next high, from the low to the next high and from the low to the next low. Markets tend to repeat minor time ranges and minor price ranges; they also repeat major ranges in time and price.

Below is a weekly chart of the Australian Share Price Index from 8th March 2001 to 23rd August 2002 showing this markets major reversals at times when the time periods were balancing on the cycle of 168.

SPI – Aust.
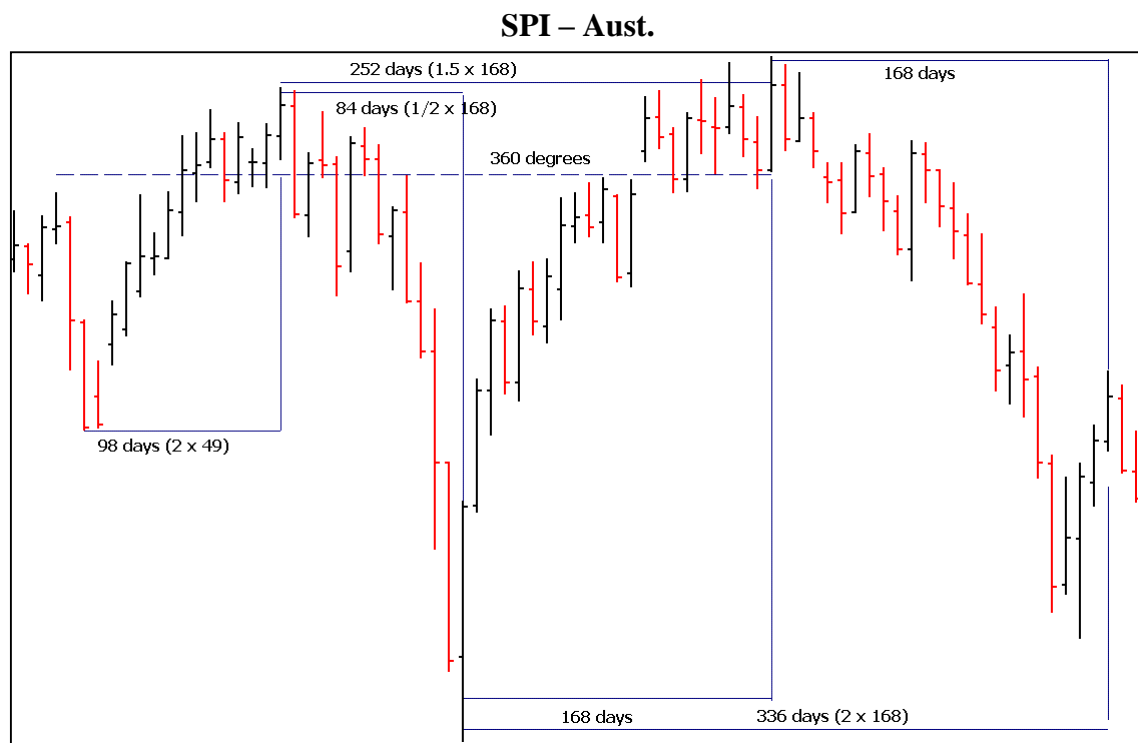
Balancing of time is an important part of market analysis when forecasting major highs and lows. Markets constantly seek order or balance in the midst of their seemingly chaotic behaviour. When this balance has been achieved technically, a markets trend will reverse, the cycles in time and price that every few days align with the support and resistance levels will then act as obstacles in the path of the market as it works its way towards the next major point of balance.

You will see in the following chart this same market balancing on the number 370. The first 370 day time period down to the 13th March 2003 (lowest point) was 366 degrees or the number related to the Earth cycle. The major high on the 21st March 2005 was at 200% of the 370 day time period.

By using the combination of time ranges and time cycles, you are able to calculate dates that may be market reversal times. By using the methods from the swing chart, price levels at which a market may reverse can also be calculated.

By calculation of the interim time ranges, or the day counts from a past weekly turning point applied to the chart, you will know on which dates these repeating sections will end. On these days if there is an important time cycle, coinciding with the time ranges, then there is a likely chance that on this date there will be a reversal.

Below is a more recent example of this market. As markets progress they encounter points of resistance when the various cycles or their important parts align. Understanding these cycles and having a chart correctly set out enables you to foresee these points in time and price where reversals will occur.

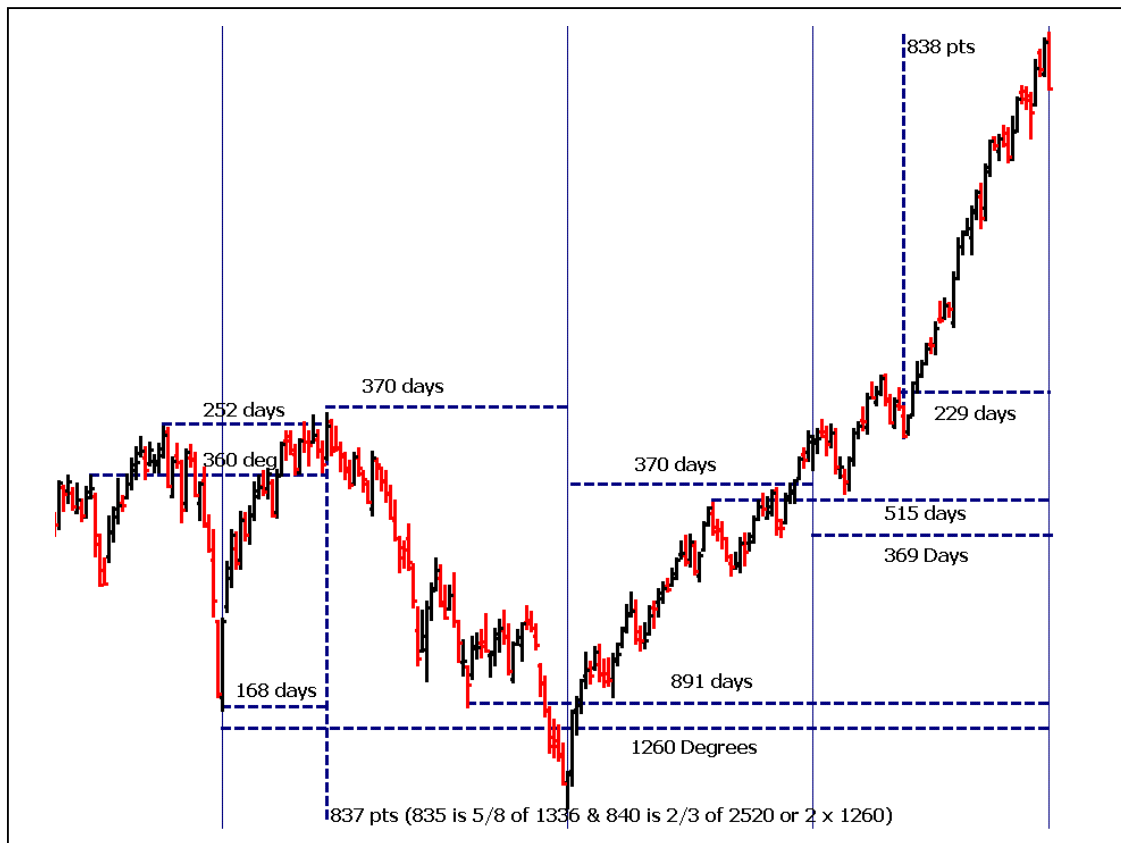515 and 229 are related to the Mars cycle number of 687.
168 and 252 are related to 168 hrs of the week and the Uranus cycle of 84.
1260 is symbolically "time, times and a half time" from the bible.
891 is 66.6% of 1336, also a biblical number.
360 is the ancient Hebrew year.
Not shown is that it was 739 days (2 x 370) from the main low in March 03 low to the final high or 2 x 370.


Balancing of time is essentially the same concept as that covered in the section on "time periods". Instead of monitoring smaller time ranges between weekly turns on the daily chart, you will be monitoring the repeating time periods, or percentages of them, using major highs and lows instead. These will be a recognisable number from the high to the high and from the low to the high as in the above chart of 3 x 370 from the high to the next high and 2 x 370 from the low to the high.

The only way to recognise these time periods and be aware in advance that they will be aligning, is by using charts that show the time counts and time cycles in a way that you are aware of them in advance. Computer charts are not able to clearly present this information visually.

The first price range out from major tops and bottoms often will indicate what cycle a market is going to be following in the new direction. In the previous chart from the major high in March 2002 the first price range down was 184 points, 200% of this is 368 and the actual time period was 370 days. From the 13th March 2003 low the first weekly price range out was 341 points and 475% of this is 4299, the ultimate high was at 4290. From this important high this markets index the S&P 200, completed a range down of 372 points.

Below is the Nasdaq 100. Shown is a 69 day repeating time period, the 168 day period, and 122 degrees, which is 33.3% of the 366 degree or 370 day time period. 8.35 are the numerals of 62.5% x 1336
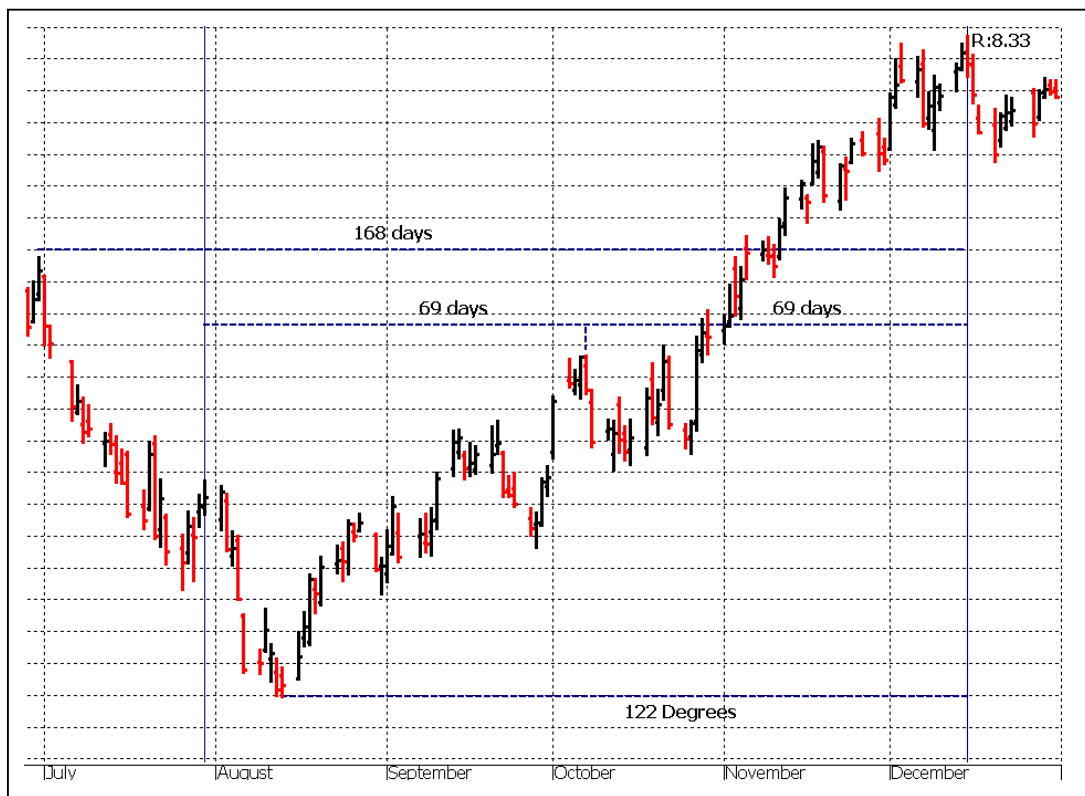
Below is a weekly chart of the French CAC 40 stock index.

The time period from the major high on the 4th September 2000 to the low on the 12th March 2003 was 919 days or 133.3% of 687. The price cycle was 4809 points or 7 x 687, this is the Mars cycle.

From the September 2000 high to the 8th April 2005 high was 1677 days or 240 weeks. This number is also 1000 plus 676 which is 25% of the square of 52. The price difference between these highs was 3053 points. This number is insignificant without knowledge of the number 1336. In Tunnel "Thru the Air Gann" emphasised the number 7 by repeated reference to it. This was his way of showing the importance of specific information. In this case 1336 / 7 = 190.8, and 16 x 190.8 = 3053.

From the 12th March 2003 low to the 8th April 2005 was a time range of 758 days or 450% x 168 and 75% in solar degrees of the 1000 cycle, again detailed in "Tunnel Thru the Air". The price range from the low to the high was 1756.5 points or very close to 10.5 x 168. Often a number that is not exactly one of the important numbers will relate to the number of solar degrees in a calendar day time period.


CAC – 40 France
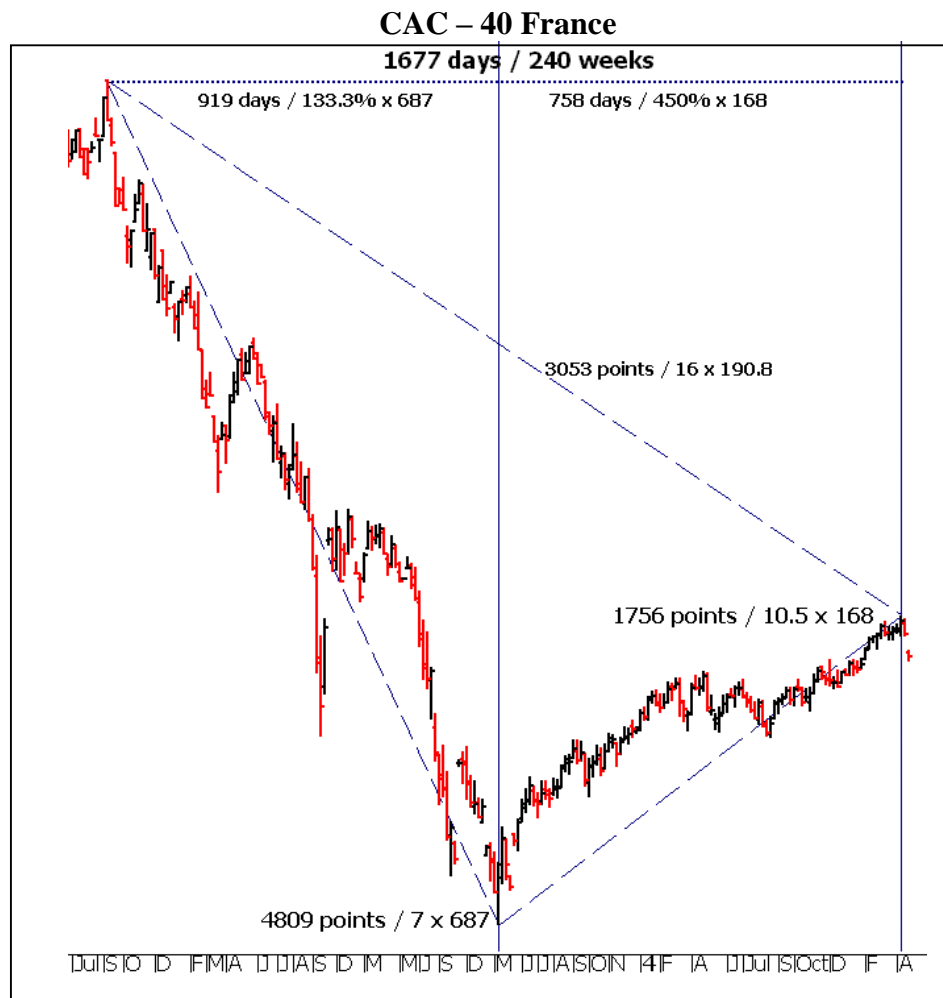
20. Forecasting

By using the time ranges together with time cycles, you are able to forecast dates that are likely to be market reversal times. By using the price forecasting methods, price levels at which a market may reverse can be calculated.

By calculation of the interim time ranges, or the day counts from a past weekly turning point, you will know on which dates these repeating sections will end. On these days if there is an important cycle of 630°, 1260°, 668°, 1336°, 1290° or 631, 668, 1262, 1336, or 1290 calendar days or (at a lesser extent) the 90° and 120° parts of the 360° cycle coinciding with the interim time range, then there is a strong chance that this date will be a reversal. The smaller cycles will not alone at major tops and bottoms indicate a reversal of the trend, an important cycle will also be present if a reversal does occur.

Recurring 68 and 91 day time frames aligning with a 180° cycle is shown in the S&P 500 below. Confirmation of this trend change was on the following Monday – where, as Gann said "the safest place to buy is after the first higher bottom", this was at the open on the Monday. There was 1290° present at this low also.

S&P 500
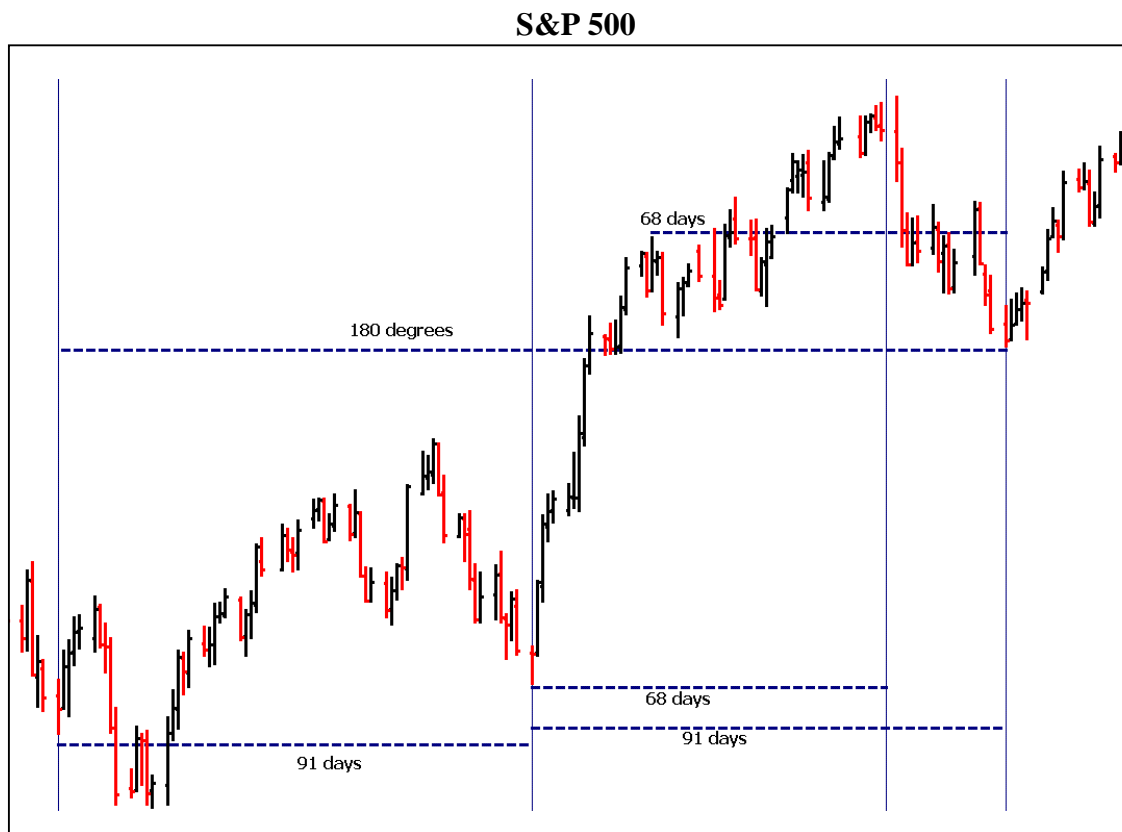
The following close up section of chart is of the Australian Share Price Index (SPI) from the section "Balancing of Time".

The first chart shows the major time elements that were present. This date, by knowledge of "Seasonal Time", "Time Cycles", "Balancing of Time" "Percentages of the low" (4293 is 837.5% of 458). 4287 is 840 points from an important earlier low or 66.6% of 1260, the absolute price of 4290 is 3000 + 1290, and "Time Counts" enabled a picture of what was likely to occur on the 21st March. A few days beforehand the micro view showed that price on this day reached important levels before reversing and ultimately confirmed what was expected. Using the "Range to calculate a high price", "Gann angles" and cumulative prices (186+58+93 = 337 which is 2 x 168 and 50% of the 2001 low to the 2002 high of 674 points) enable exact calculations of what the final price was likely to be.

There is no individual factor that determines what constitutes a forecast. The only way to construct a forecast is by in depth analysis using the various time and price analysis methods. This market was also in its 264th month (3 x 88) since its historical low in March 1983. From this 4290 top followed the sharpest fall in over two years. This market has since the March 2003 low been in a powerful bull phase. It is worth reading what Gann had to say about market corrections in "General Outlook for 1929" in the "Information on WD Gann" at the Gann Cycles website.
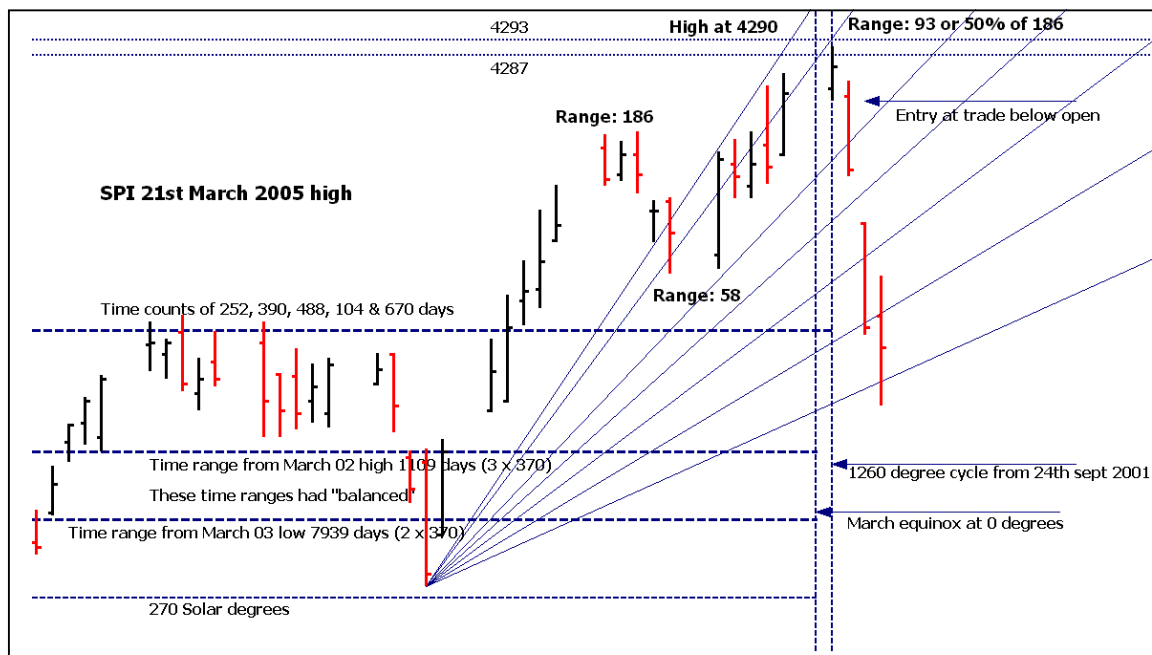
The following chart of the Australian SPI shows an example of how to calculate a date in the future by using already known factors.

Watching for the important time period of 370 days from the 8th March 2002 high to the 13th March 2003 low to repeat, showed that it did from the low on the 18th November 2003 to the low on the 22nd November 2004 and again from the low on the 6th May 2005 to the high on the 12th May 2006.

By calculating forward 370 days from the "weekly" charts high and low dates, you will determine certain dates in advance. By then calculating backwards the key cycles from these forecasted dates you can then determine if the forecasted date will also be a date on which one of these cycles will end.

Also calculate the price projections as explained in the "Swing Charts Section". This will enable a price and a date to be forecasted. Note in the chart below the 101% repeat of the 645 point (50% x 1290) price cycle. By calculating percentages of the first range out from the 13th March 2002 low and marking these levels on the chart will also add to the forecast In this case the 12th May 2006 high occurred at exactly 8 times of the first weekly range of 341 points from the 13th March 2003 low.

SPI – SFE. Australia
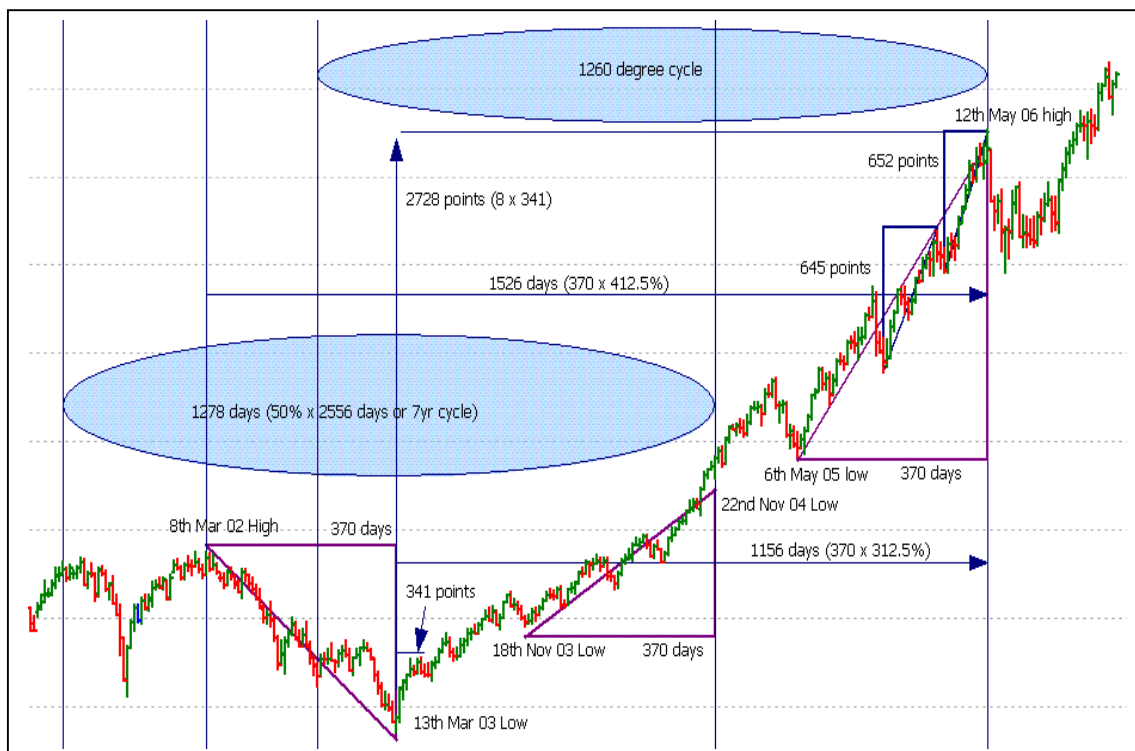
21. Intraday Trading

Using Gann analysis for intraday trading is done by using hourly time cycles, time ranges, support and resistance levels, price ranges and Gann angles to determine price levels where a reversal may occur. If you are an aggressive trader you can initiate a trade very close to these levels with a stop a little beyond the point of the reversal. You need some confirmation before entering the trade, but of course the more confirmation you obtain the more you will be giving up of the anticipated move.

It is important to know that such minor cycles are only to be used as a method of entering a trade close to a calculated turning point on a one day chart, such as at the 630, 631, 668, 1262, 1336 or 1260 day or degree dates, or to exit a position by the same technique.

Counting time, using one hour bars can indicate the approximate time of a reversal within the day, using fifteen minute or five minute bars can get you within minutes of the reversal, although a little longer may be needed for the price action to confirm the reaction. With experience, using intraday data on cycle dates, you will get to "know" a reversal as it happens. Markets exhibit similar behaviour at these points of reversal.

Time counts work as well in the smaller time frames as well as in the larger time frames. By using intraday time counts at the same parts of the division of 360 and its percentage increases ie; 30, 45, 60, 90 etc. hours on a 90, 120, 180, 240, 270, 360, 630, 1260 etc. degree date, very close entries can made at the reversal times. 56 days is 1336 hours is 55.6 days, 1290 hours is 53.75 days and 1260 hours is 52.5 days. These time periods when aligning with the larger cycle dates will indicate a date of greater importance.

There are the other numbers from the "Time Cycle" section which are important to watch. Where there are a group or cluster of these numbers at the price levels detailed in the swing chart section then that is likely to be a turning point. You will see these numbers in the following 1 hour charts.

The concept is that when large cycles align with smaller cycles it is a more important time for a change or a new beginning. For example in the 90th week, the 90th day or degrees, at the 90th hour and the 90th minute, or any other combination of the important numbers you will have the wheel within the wheel effect.

Daily counts are made from past important highs and lows, hourly counts can be made from significant turning points on a one day chart.

If you were trading the following chart you would only trade in the direction of the trend which means only long positions up to the highs and only short positions from the highest point. You would do this by drawing a swing chart on a sheet of graph paper or connect the high and low points on an intraday live chart. This swing system is detailed in earlier sections.

Gann angles are used on intraday charts as you would in any other time frame, but by using trading hours. As an example, from a low point 100 hours ago, the angle would intersect at 100 points above the originating low point.

As with using the weekly swing chart or 2 day swing chart to clearly define the daily trend, use the 1 day swing chart or 1 hour swing chart to monitor the main trend when intraday trading. Trades in harmony with the main trends are safer and stronger.

When using price support and resistance levels between a high and low point regardless of the time frame, calculate between the most recent high and low first, then the next high and low that occurred before that. When there is a cluster of price support or resistance levels in the one area it will be a more important level.

In the following 1 hour chart of the Australian S&P 200, you will see the time count starting at "0" at the low on the 9th December 2004. 42 hours is ¼ of 168 (hours in a week), 52, (weeks in a year), 56 (1/4 of the Venus cycle), 72 (½ of 144), 30 (1/12th of 360) 84 (1/2 of 168), 42 (1/4 of 168), 90 (1/4 of 360), 48 (2 x 24hrs) 54 (related to square of 144), 72 (1/2 of 144), 84 (1/2 of 168), 120 (1/3 of 360) 126 (3/4 of 168) 132 (1/2 of 264), 90 (1/4 of 360) 149 (100 + 49), 108 (3/4 of 144).

Note the time ranges of 42 hours repeating from 0 to 42 to 84 to 126. Also from 0 to 56 to 112.

These numbers have psychological effects that when combined with price levels will often indicate trend changes.
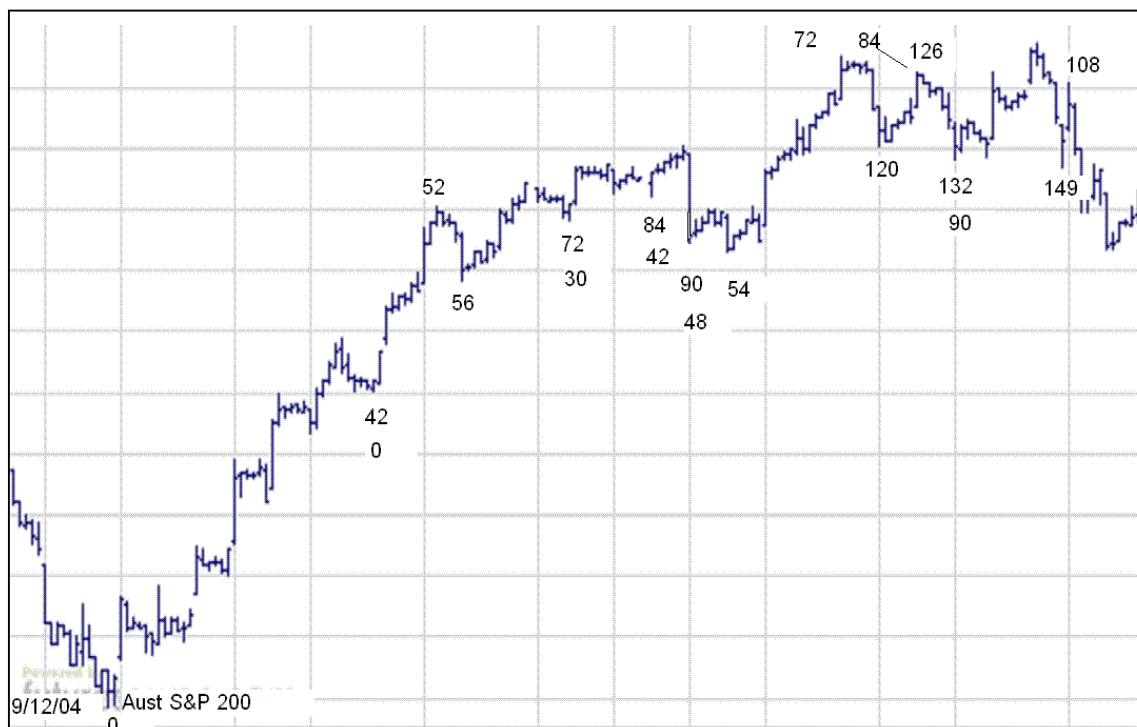
The next chart is a continuation of the previous chart and shows reactions at the 12th hour (1/2 of a 1 day) the next is the 15th hour (1/24th of 360) the next is 21 hours (1/8 of 168) then the 30th hour or 1/12th of 360, 36 hours or ¼ of 144 and 1.5 days, 39 hours or 1/10th of 390, 45 hours or 1/8th of 360, 48 hours or 2 days and 60 hours or ¼ of 360 hours.

If you continue the counts from 149 in the previous chart you will come to 162, 168, 193, 149, 171, 179 (1 short of 180 at the session close) and 216 (150% x 144). Note that at the 216th hour in the following chart (from the 149th hour in the first chart) at 4140 it was a signal bar, which indicated that the main trend was resuming. Entry would have been made on this day by watching for the market to trade above this hours open price, or by using 2 to 5 minute charts to confirm higher highs and higher lows as described in the swing trading section.

If you continue the counts from 108 in the previous chart you will come to 120, 126, 135, 144, and 162. The 120th hour was followed by the 121st hour bar having a high close and indicating the main trend resumption after the first higher low was confirmed.
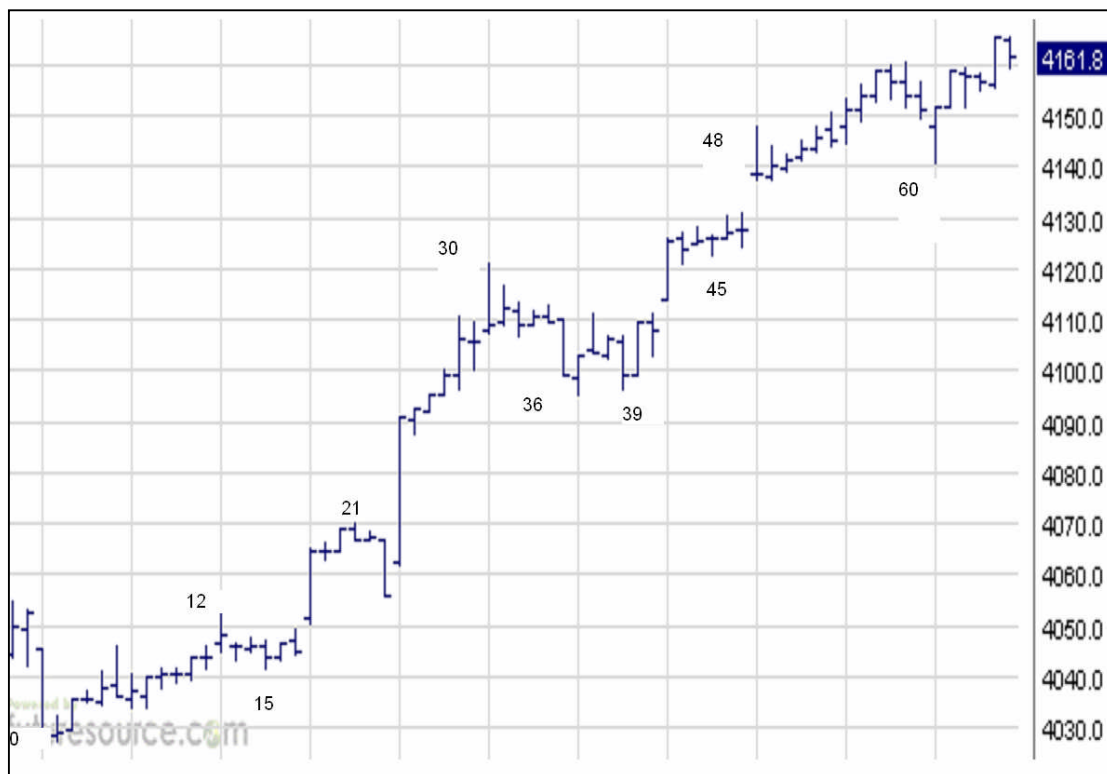
If using intraday analysis to make trade entries it is important to be aware of the fact that markets often make a "last lunge for the top". This means that on a reversal date if a market has appeared to commence a reversal it can, usually towards the end of the day, suddenly turn and make a new high a little beyond what appeared to be the reversal high point. Your analysis may have been correct for the day to be a reversal but if you are stopped out you can still lose. Using larger time frame intraday bars will delay your entry but will also provide greater certainty. The reason for this behaviour is that the gap between the apparent high and the completion of a price cycle will act as a vacuum.

Markets can often close on their high at these times and then reverse from the following day. Entries can then be made on the day following as the market move away from the previous days high.

In the following DJIA chart you will see the 15th hour (1/2 x 30), 12 (1/2 of 24) 24, 30, 12, 39 (1/10th of 390) 44 (1/2 of 88) 60 and 42 hours. The 10380 to 10560 range was repeated from 10540 to 10720. Also note the 12 hour time ranges repeating.
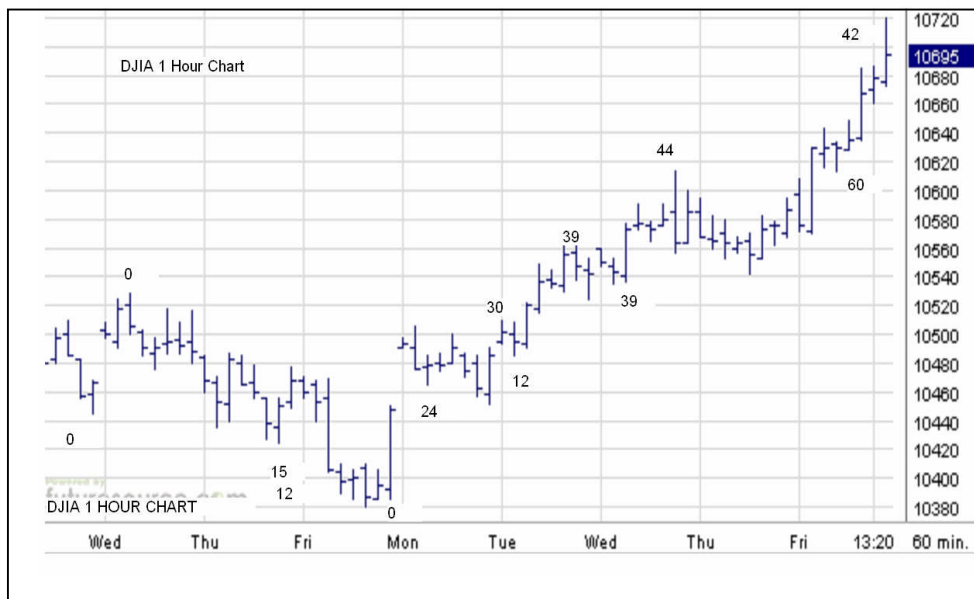
The following chart of the Australian SPI 200 shows the reaction at 4178 on 6th April 2005. This date was a cycle date; 90, 120, 270, 360, 420, 810, 900 degrees as well as 645, 687, 1290, 1262, and 1336 days.

The 7 points x 1 day Gann angle intersected at 4178, the 50% level of the range leading up to the main high was at 4179.

50% of the 96 point range (not shown) at the 4169 high (sect. 2 @ 52pts) was at 4179. 72p + 52p + 47p = 171 or 25% of 687 (Mars)
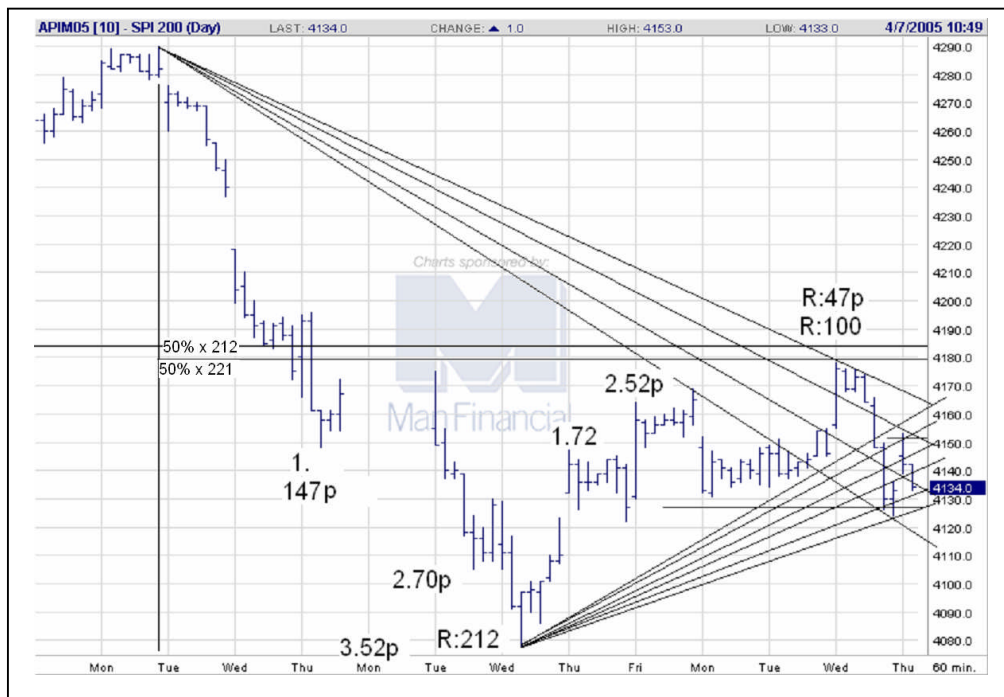
22. Reversal date analysis

This section details the factors that were analysed leading into and out of the following reversal dates including a major high.

This analysis was applied to the Australian Share Price Index futures market from the 9th March 2005, prior to the major high on the 21st March 05, and following this high to the first lower swing high on the 8th April 05.

The 1 day bar chart, 1 day and 2 day swing charts of this period are shown below. The 50% levels are marked on the swing charts.
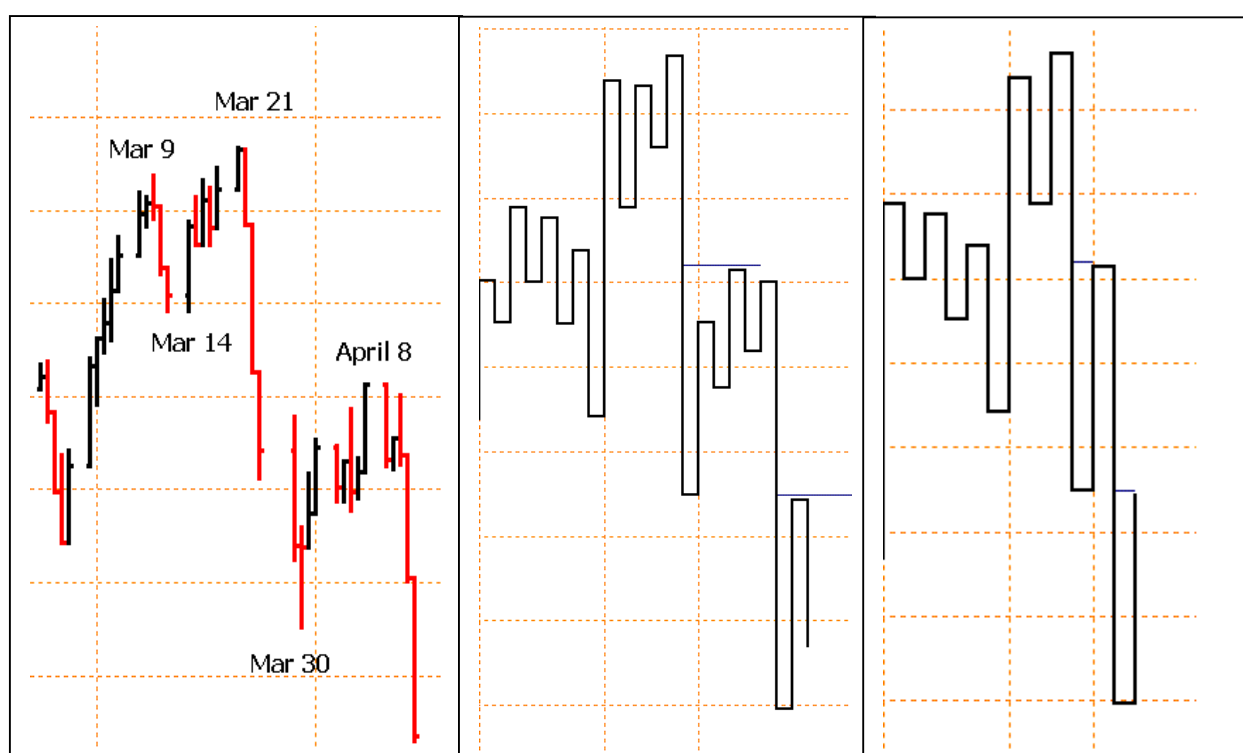
The first calculation is made by use of the time count lines to locate the cycle dates. At the March 9th high, the 1262 day cycle from the 24th September 2001, was present. This was the major low after 11th September 2001. The half cycle of 631 days from the 17th June 2003 was also present. When there has already been a reaction to a particular cycle, as with the 631 day reaction from 24th September 2001 on the 17th June 2003, it increases the chance that the next parts of that cycle will be effective, in this case the 1262nd day. On this day there were also present a number of minor cycles. All of these numbers were calculated by the time counts from past weekly turns.

It often does not matter if a past reference point that a time count is commenced from is not major. All turns occur because an already existing cycle was present. The only way to keep track of the cycles is by time count lines from each weekly turn. If reactions are insignificant at the 1260 series, it may mean that the cycle being monitored will prove to be effective on the 1336 series.

For example, if a time count is commenced from a minor weekly turn when setting up a chart, you may be picking up a cycle that has its origins much further back. At some stage in the future an important part of this cycle will reappear at a major reversal date.

Using the "Balancing of Time" technique, from the 2002 major high there had elapsed 1097 days and from the 2003 major low there had elapsed 727 days. 1097 days is 3 x 366 and 727 is a little less than 66.6% of 1097, it is also related to 224 and 168. The time factors were indicative of a possible reversal, however the price range up to this date of 1576 points did not indicate that price had completed an important cycle.

On the weekend of 11th to 13th March, there were present 1336 degrees and a number of smaller cycles. Monday the 14th was a larger than average range up day with higher volume, this indicated that the preceding two down days were a retracement and that the main trend was still intact.

Monday the 21st March was the equinox at 0 degrees. This market, as do many others, often turns around this date. It was a date that the secondary cycle of 1260 degrees from September 24th 2001 was calculated from. There were also present numerous minor cycles in degrees and days. The price cycle from 13th March 2003 of 1611 points was analysed using the description Gann gave in "Tunnel Thru the Air" of adding cycles to obtain a result that aligned with the other information. 1611 is 1260 plus 351. 352 is 4 x 88, the first major range out of this market from March 1983 to January 1984 was 351 points.

The numbers present at the various time counts from the past weekly turns are related to the numbers detailed in the "Time Cycles" section. They are all related to cycle numbers from biblical symbolism and the solar system.

March 9th 2005: 668 / 24hrs = 28 days, 168 x 37.5% = 63, 360 / 4 = 90,
93 appeared at three of the dates and was the final one day chart price range, it had been observed prior to this time period and is a consequence of the habit forming behaviour of the market. 147 is 3 x 49; 168; 240 is 360 x 66.6%; 1047 biblically is symbolic of 147 or 3 x 49; 327 was an important price range from Nov 18th 03 to April 6th 04; 504 is 3 x 168; 631; 666 is the biblical number of the beast; 670 is midpoint between the important numbers of 668 and 672; 1262; 1080 degrees (purple) is 3 x 360; 727 is almost 2 x 360 and 325% x 224 and 433.3% x 168.

March 11-14th: There were 64-66 days, this had been a repeating time period in recent months; 49 is Gann's fatal number; 93, 171 is 25% of the Mars cycle; 264 is 3 x 88, the Mercury cycle; 229 is 33.3% of the Mars cycle; 2004 is 3 x 668; 382 is 2 x 191 or the number of weeks in 1336 days; 540 is 150% x 360; 480 is 133.3% of 360; 668; 672 is 3 x 224 the Venus cycle and 4 x 168; 720 degrees is 2 x 360 degrees.

March 21st: 120 is 33.3% x 360; 270 is 75% x 360; 229 – Mars; 515 is 75% of Mars cycle; 252 is 150% x 168; 1344 is 6 x 224 and 8 x 168; 104 is 2 x 52; 891 is 66.6% of 1336; 864 represents the days for 144 squared in hours; 676 is 25% of 52 squared and 1260.

March 30th: 84 is 50% of 168 and the Uranus cycle; 132 is 50% of 264; 168; 343 degrees is 50% of 687; 1336 degrees; 229; 687; 980 is 2 x 490 and finally the important 630 degree time.
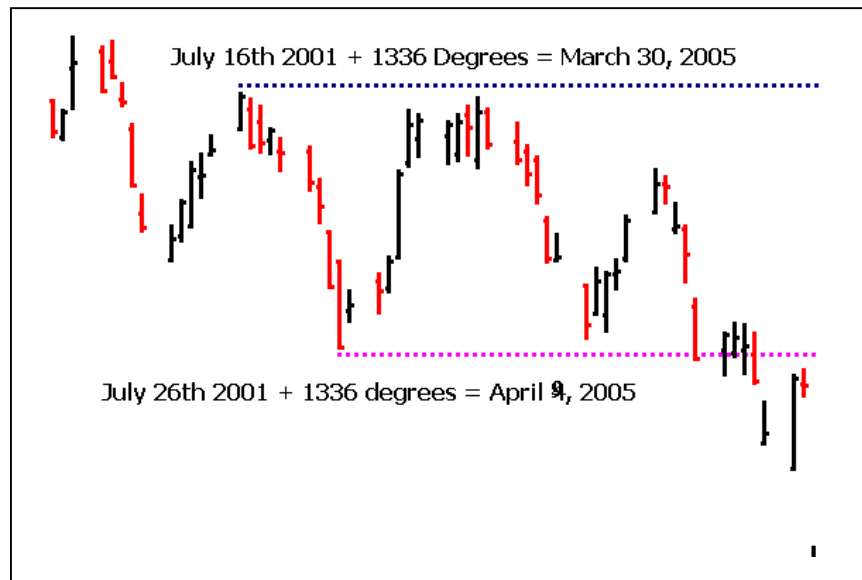
April 8th: Friday, first lower high; 93; 120; 193 is 50% of the Dow 1929 high of 386; 270; 256 is related to the 224 Venus and 366 Earth cycles; 1176 was particularly important as it is 168 weeks; 732 is 2 x 366; and 911 is symbolic of 191 or 1336 in weeks.

The final and failed attempt at a move higher was on **April 13th:** The numbers are; 90; 1260; 98 is 2 x 49; 128 is 50% x 256; 170 is 25% of 687; 512 is 2 x 256 and 666.

666 and 888 are also symbolic biblical numbers. On occasions these numbers will be present at reversal dates.
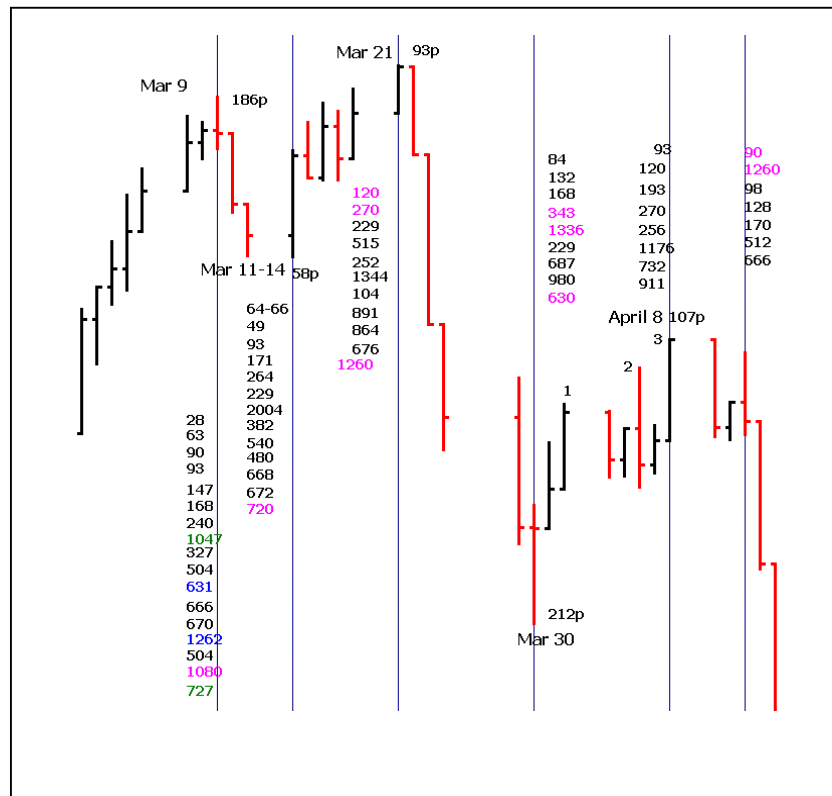
The Final Top

The first point to consider in taking a position against the main trend is to be aware of the fundamentals prevailing at the time. As it is common for markets to overshoot on the upside and on the downside, it is at these times you will find some dissenters. This serves as a warning of what is on the minds of most, but who are still following the crowd. The faster and further a market runs then the greater its chances of it becoming out of balance. Gann's article at the Gann Cycles website, "The General Outlook for 1929" paragraph 2 is relevant here.

It is the balance of a market that is most important in determining major trend reversals, the most important factor to look at is the "Balancing of Time" or monitoring the time periods between past major highs and lows.

This is done according to the explanation in the "Time Counts" section by measuring time between highs and lows. It is when these time periods work out evenly from major past reversals that these major tops and bottoms occur. Price cycles, the absolute price value and percentages of past price ranges also need to be considered.

As with time needing to balance, price does also. The most important price to be considered in the following chart of the SPI was the exact repeating of the price range from the 11th November 1987 crash low, up to the 8th March 2002 high which was 2448 points. The 2002 high down to the 2003 low was 837 points, and the 2003 low up to the March 2005 high was 1611 points, when you add the 837 and 1611 ranges they equal 2448 points.

The final high price reached on March 21, 2005 was 4290. Using Gann's method of calculating time periods in his forecasting of events in US history as he did in "Tunnel thru the Air" you would calculate that 4290 was 3 x 1000 plus 1290, which is one of the important numbers to monitor.
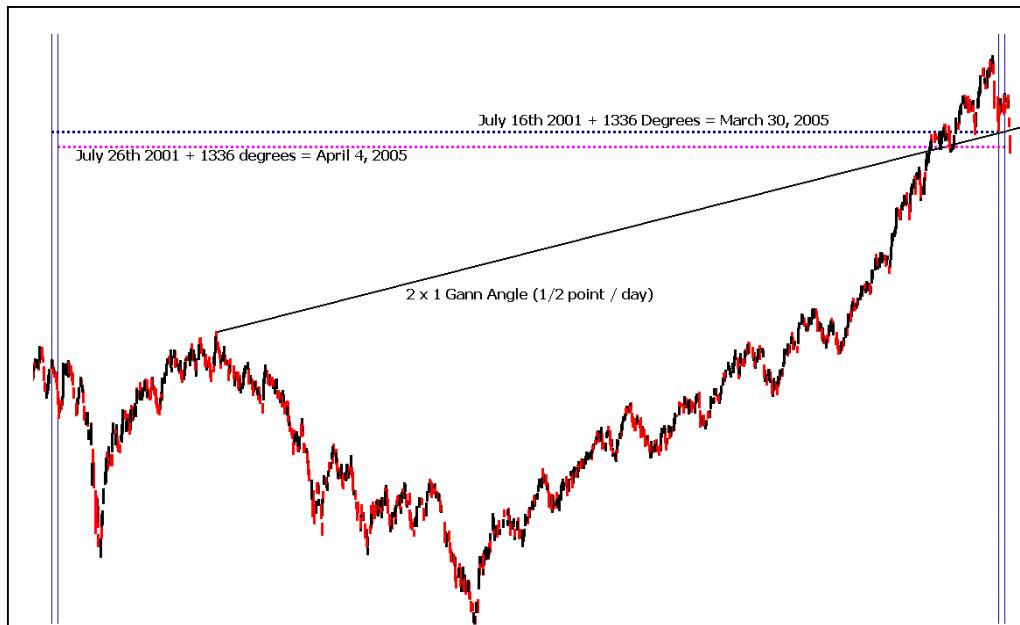
The Gann angle from the September 2001 low was at 8 points per week or 8 x 1, and intersected at 4301 on March 21, 2005. At major highs and lows it is useful to also note the forward contract price levels. The price reached on the forward contract was 4297.

Another aspect to this reversal date was that it occurred on the March equinox. This has been detailed in the "Seasonal Time" section. This market has had important reversals at Equinox and Solstice 0 degree dates on many occasions and is always a useful time to analyse when calculating time periods back to previous major highs and lows.

The next factor to consider is price relative to its previous range. As can be seen in the following SPI chart on the 21st March 2005 the 4290 high was at exactly 50% of the previous range in the same direction. This is detailed in the "Using a range to calculate a high price" The cumulative ranges of 186 + 58 + 93 = 337 or 2 x 168.
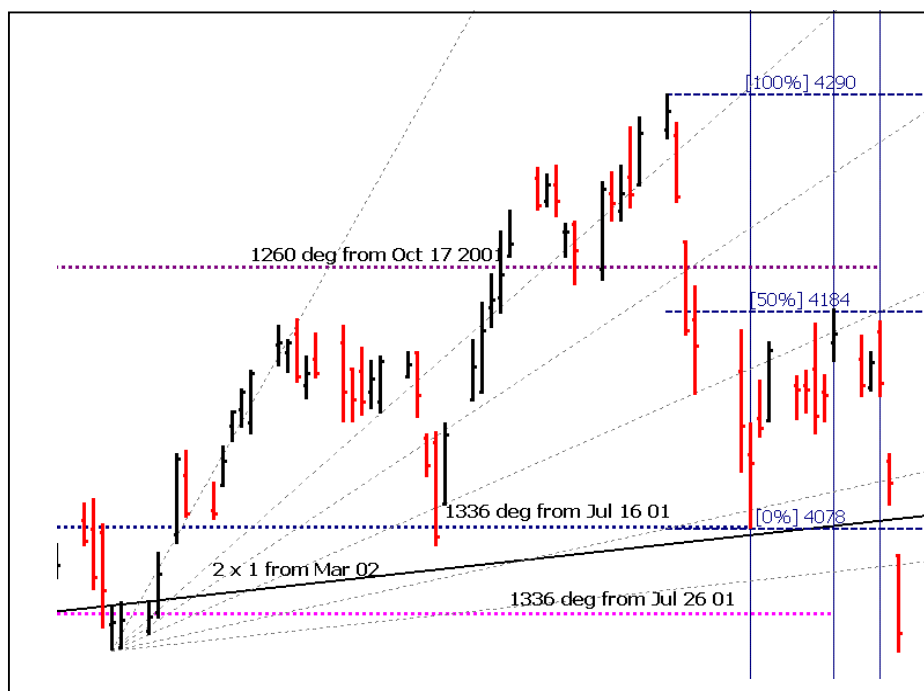

SPI 21st March 2005 high at 4290

Range: 93 or 50% of 186

Range: 186

Range: 58
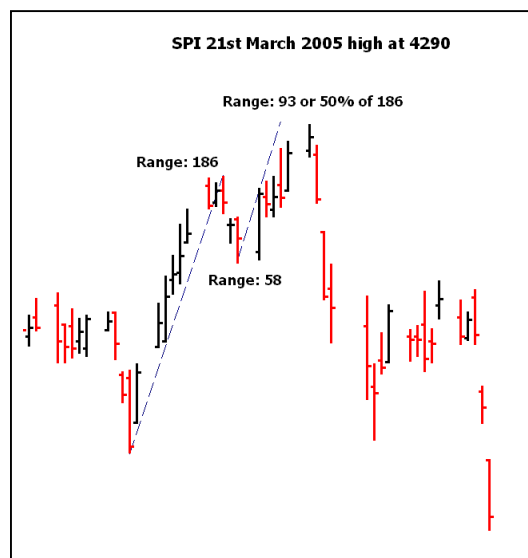
The low following the main high occurred at 4078 on July 16th at the 2 points x 1 day angle from the March 2002 high and was 1336 degrees from a high in July 2001. This chart is on the following page. From this low the market advanced and was to form the first lower high. It is important to note that this advance was against the new trend which was now down. It is now a time to watch for lower highs to form.

July 16th 2001 + 1336 Degrees = March 30, 2005
July 26th 2001 + 1336 degrees = April 4, 2005

2 x 1 Gann Angle (1/2 point / day)

The next stage of this analysis is determining where the first lower top will form after this major high was confirmed. The first step is calculating the resistance levels of the price range down from the high. These are the Gann percentages of $1/8^{ths}$ and $1/3^{rds}$. Generally this market reaches 1/2 to $2/3^{rds}$ of the previous range when in a bear market phase, which knowledge of enabled avoiding the false signals given at the first and fifth trading days out after the low. Gann's rule of three showed that there were three successive highs before finally falling away from April 8th after reaching a price level of 4185 at 50% of the 4290 to 4078 range.

The next chart shows first lower top formation at 4185. The market was unable to close above the 50% level on a 1336 degree date and shows the strategic value in placing a stop above the important 50% level.

1260 deg from Oct 17 2001
[100%] 4290
[50%] 4184
1336 deg from Jul 16 01
2 x 1 from Mar 02
[0%] 4078
1336 deg from Jul 26 01

From this 4185 high as the market declined it would be expected to conform to the Gann percentages as detailed in "Using a range to calculate a low price". The 4078 to 4185 range was 107 points or 75% of 144. The price retracement ranges of 106 to 111 were frequent in this market leading up to the high. For this range now to occur as an upward retracement is further evidence of a new main trend.

It is important to know that a cycle that has been calculated from a past reference point is initially a method of knowing in advance a date that requires further analysis before it is traded from. The cycles that are of practical use to a trader, or those that are of a magnitude to be effective and still retain their accuracy, will indicate in advance a possible reversal date, however to calculate a major high or low, the "balancing of time" and other factors need to be taken into account. At times of regular market activity these cycles in conjunction with minor time periods enable trading opportunities. It is the markets balance that ultimately determines a major reversal.

The major cycles that Gann detailed in his courses such as the 60, 49, 20, and 10 year cycles are useful to be aware of, however it is unlikely that a trader would take a position based on a one or two week "window of opportunity" without using more accurate smaller cycles such as those of the 1 year cycle and the 1260, 1290 and 1336 series to initiate a trade.

The times when the larger cycles affect markets is when global markets of similar categories such as a stock index make high or low at the same time. The most recent was in March 2003 when global stock indexes made major lows. These dates can be traced back using historical events. An example of this was on the 19th November 1860, when the Wall St Journal stated there was "a gloomy day on Wall St, paper was not negotiable" this was the day when war with the southern US states appeared to be inevitable. From this date 3600 weeks or 69 years forward gives late 1929. War dates were of particular importance to Gann. From the 1929 crash low in 1932 plus 69 years gives 2001, again a year of importance.

The examples used in the above charts of the Australian SPI are no different in concept to analysing any other market. These are Gann's methods of analysis, he applied these methods to markets many years ago and they can enable an analyst of today's markets to do the same.

Unless charts are kept that are able to detail the required information needed to determine when these market reversals will occur then it is best that the important cycles detailed in the cycle's section be used in combination with the swing charts to trade the swings as they present themselves.
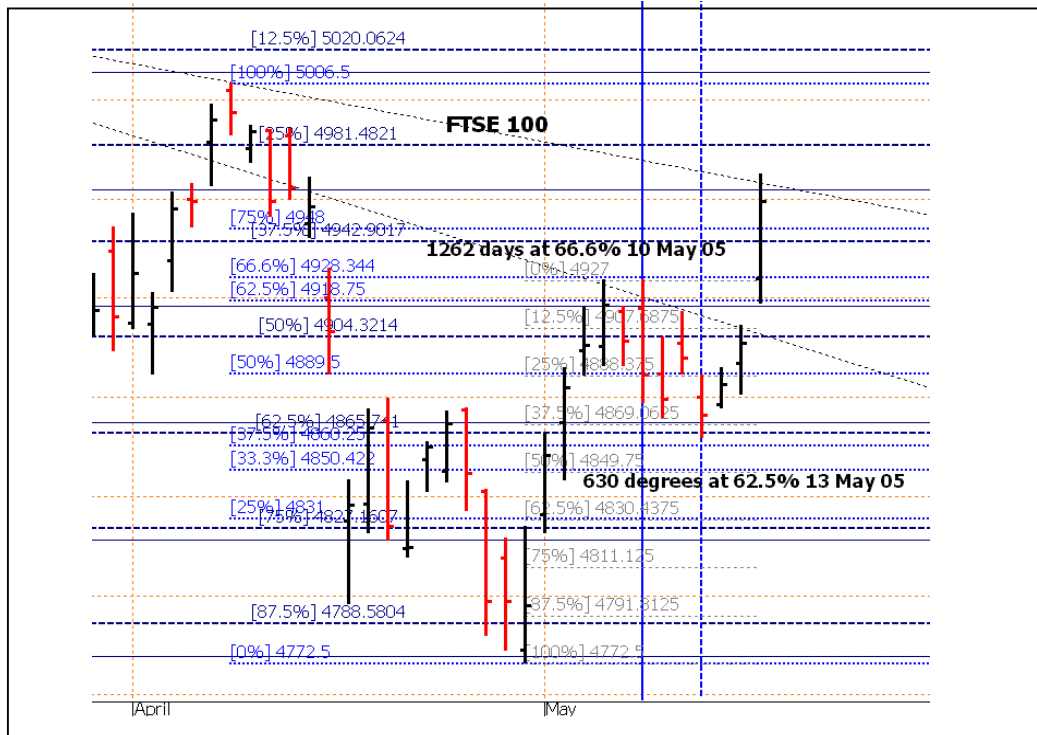
The FTSE 100 when it reacted at the 66.6% price resistance level at a cycle of 1262 days was an excellent set up for a short term trader.

A position trader would have gone long the day after the 630 degree date as a swing chart turned up. Note the 4928 high at 66.6% formed the top of the first new range out by being higher than the last lower tops before the final bottom.
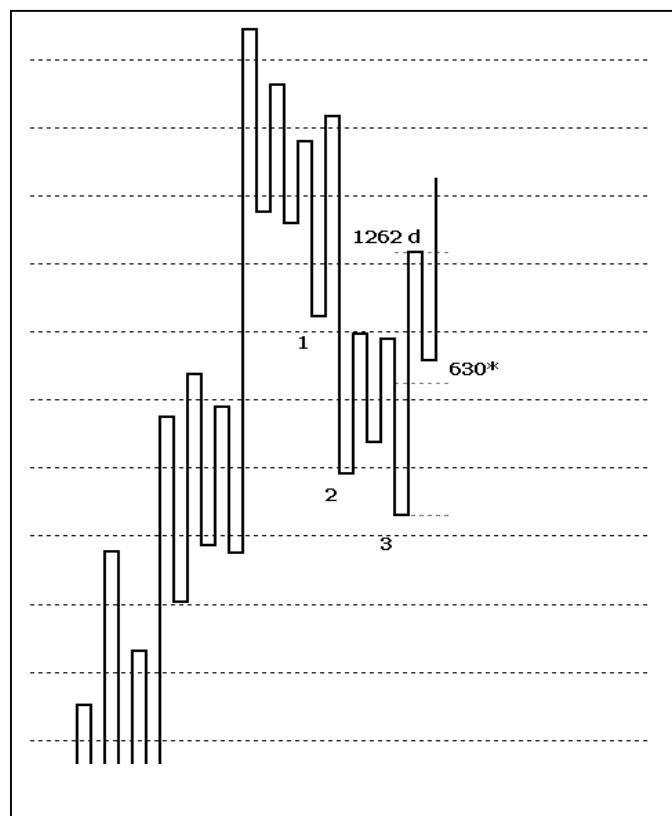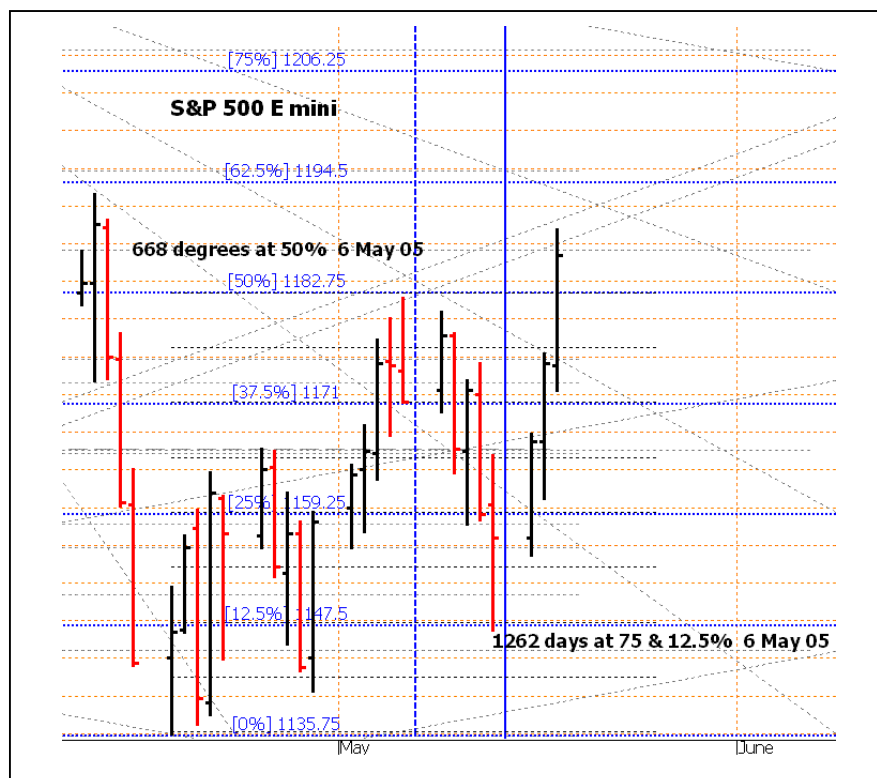
The S&P presented an excellent short term trade at the 668 degree date at the 50% resistance level.
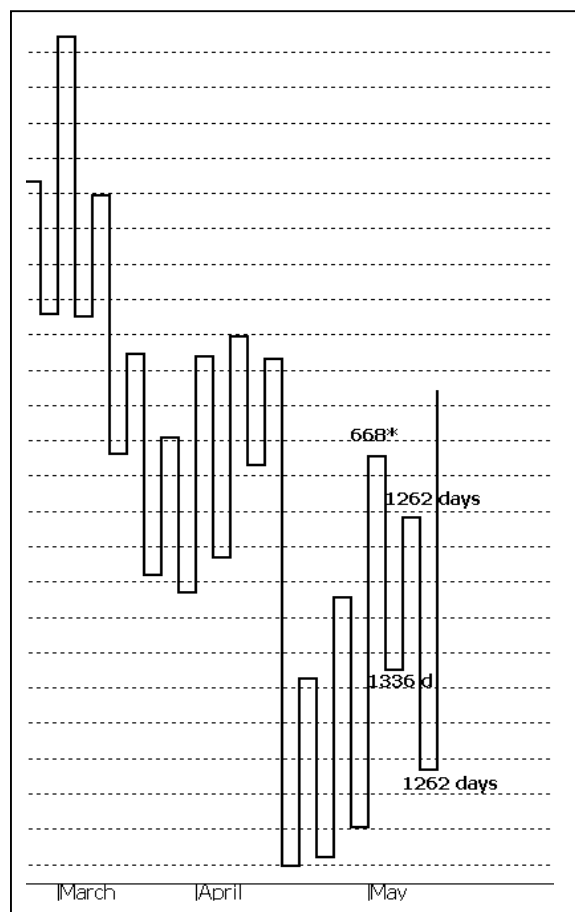
23. Trade Management

The techniques described in this manual are those that Gann used. There are other techniques described that without doubt he would have been aware of. These techniques are meant to be used in conjunction with each other. I have seen important time cycles not effect a market because the price levels were not met. Many traders depend on price support levels to reverse the market they are trading and often they do not, because the time cycles were not present. The **time periods** or time ranges are equally important. A **time and price squaring** from an important high or low serves as a confirmation when there is the balancing of time with price. A strong **cycle** needs to be present as does the **market position need to be considered**, the **price projection or retracement,** from the previous range needs to be completed at the Gann percentages. In addition to these factors the markets **pattern, sections** or wave structure needs to be complete before there is a major trend change. **Volume** will assist with the analysis of a nearing trend change.

This is fulfilling Gann's statement of **"when you use time and price together you know how to trade".**

In summary, a market, on a **time** pressure date, if the current **range** has completed a percentage of its last range, and at a price **support or resistance** level, and **time and price have balanced**, will encounter strong resistance. These factors will then be followed by a main trend reversal, **if the market has completed its sections or wave counts.** If these sections have not completed, then the reversal may only be temporary as in a retracement. This is why Gann said "the safest place to buy is at the first higher bottom" and "the safest place to sell is at the first lower top". This concept confirms that a new trend has commenced. Swing charts show this clearly.

Application of these techniques will enable calculations to be made in advance of when a market changes trend. Coordinating the swing chart with the bar chart tells you when the price and time factors have aligned.

The safest way to trade is with the trend. Successive higher highs with successive higher lows indicate an uptrend, lower highs and lower lows is a down trend. When a top or bottom does occur it will have present the combination of time and price factors, the trend needs to have completed before this will happen. By applying the information in this system to these higher bottoms and lower tops you are sure to profit.

Every market turn can be calculated using these methods. There are some that say Gann's methods don't work, what they should be saying is that they can't get them to work. The trade failure rate using these techniques should not be more than 25/30%. When these failures occur it is because the market was not ready, or had not completed what it needed to do. This means incorrect interpretation was responsible. Always use stops. If the markets intentions are unclear, wait for the next set up, you won't lose by not trading.

Reversal Dates

Before a reversal date is traded the following factors must be considered *Time, Price and Pattern*. When these three come together, this is when opportunity to profit exists. The cycle date will identify when the market should react. The price levels calculated at the Gann percentages of cycles and retracement and support levels on the swing chart will determine the price levels the reaction will occur at, and the wave section or pattern will indicate whether the market is at a trend reversal point or only retracing temporarily before resuming the main trend. The first thing to do is, identify **Time.**

Time

The time of an expected reversal is identified by the projected cycle and time periods from a past weekly turning point. A common mistake *is the idea that the market must reverse on every signal date.* Often, the market will reverse on the calculated date. Sometimes the market will encounter resistance before resuming the prevailing trend. At other times a small correction may result before resumption of the main trend.

This is why *pattern – the swing chart*, and *price – piece cycles, percentage levels* of the *last range* and relative to the *previous range* in the same direction must be coordinated with cycle dates to ensure only trades *with the trend* are taken.

Pattern

After identifying a reversal date you then need to form a picture of the market. This is best done with the swing chart. If the one day chart is unclear then expand the time frame by using a two day swing chart. Gann's rule of three, and expanding or decreasing time and price ranges are important to monitor. When determining main tops and bottoms the balancing of time periods, time cycles, price cycles and pattern are critical. It is very easy to identify a cycle culmination date and conclude that this is where the market "will" reverse. It may, but what is more important is that you let the market show its hand and act only when all the required pieces fall into place. It is not as important that you are right about what the market will do before the day of a trade entry, but that you are right on the day.

Price

When a reversal date has been identified, and the market is forming lower tops, higher bottoms or a main trend reversal, then the price level needs to be calculated that the market is likely to stop and reverse at. Price cycle levels and the Gann percentages of the previous range in the same direction, and these percentages applied to the range that the market is currently trading within, relative to previous highs and lows, in addition to the other price levels determined by percentages of the lows and highs will enable you to identify where clusters of price levels are. Gann angles that intersect at these price levels will add to the analysis of where support and resistance levels are.

Trade Entries and Exits

On the pressure dates that this system relies upon to make trade entries, intraday price action can get you in very close to the actual top or bottom.

The first method of entering a trade from a pressure date is by using small time frame bars such as 2 or more minutes. 4 minutes is 1 degree of 1 day. For short position trades, when the intraday chart pattern forms a lower top, that is, has failed in an attempt to take out the high and starts to decline, an entry can be made and a stop placed a little above this failed high. Alternatively, using a O/H/L/C or candlestick bar, by watching the market after it opens, if it trades up then starts to decline and pulls back below the open, the trade can be entered with a stop placed above the high. This is usually best left for about ¼ to ½ hour after a markets open. This is shown in the following chart, these are the red bars.

With a long position, wait for the market to trade above its open or has made a higher bottom on an intraday chart. Markets can move quickly on occasions, so an intraday swing chart may not present an opportunity to enter a trade so be prepared to use both methods.

In the following chart of the S&P 500, the arrows indicate where to enter a trade once analysis has indicated a reversal date. The long trades are entered a little after the market traded back above the open. The short entries are made when the market trades below the days open. Intraday entries can be used if the intraday patterns allow for this.

In this chart at each of the turns there are time cycles present. Often on the day of the reversal a clear entry signal is not given. By leaving the entry to the following day and entering as the market traded above or below the open price on the day means that the negative bias to the anticipated reversal has dissipated. In fast moving markets you will need to act promptly to avoid missing the trade entirely. When a market trades above or below its open price and also the open and close of the previous day it is a stronger entry signal.
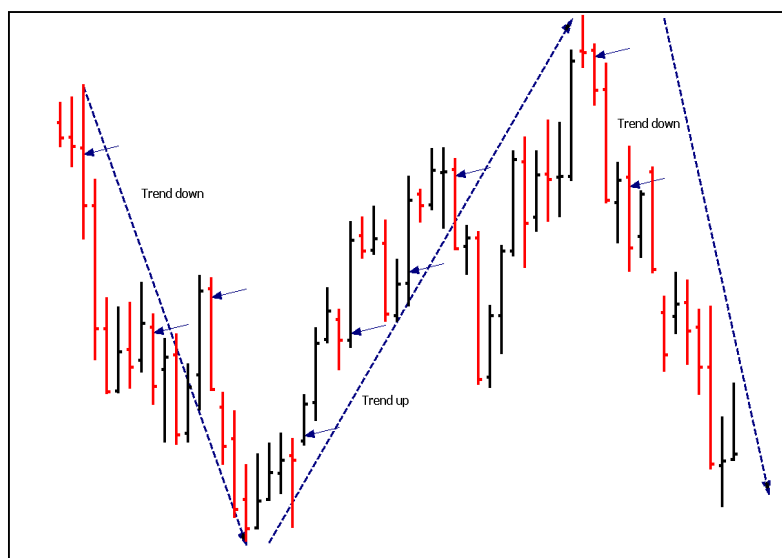
The following daily chart of CBA, an Australian bank shows the low on the 4th May 2000. This date was at 90 degrees from the 3rd February 2000. You would have had this date marked as 90 degrees on the chart beforehand. The low on the 4th May 2000 was at a range down of 143 points from the high on 26th April 2000. 144 is an important number mentioned in "Price Cycles". The price support level was at 33.3% of the main range, and time and price squared out at 7 points per day or at a 7 x 1 angle. The actual low at $25.20 is 4 times 630, or 7 times 360. The chart had shown it was in an uptrend by the successive higher lows and higher highs. A trade entry could have been made near the close of the day.

CBA Daily Chart
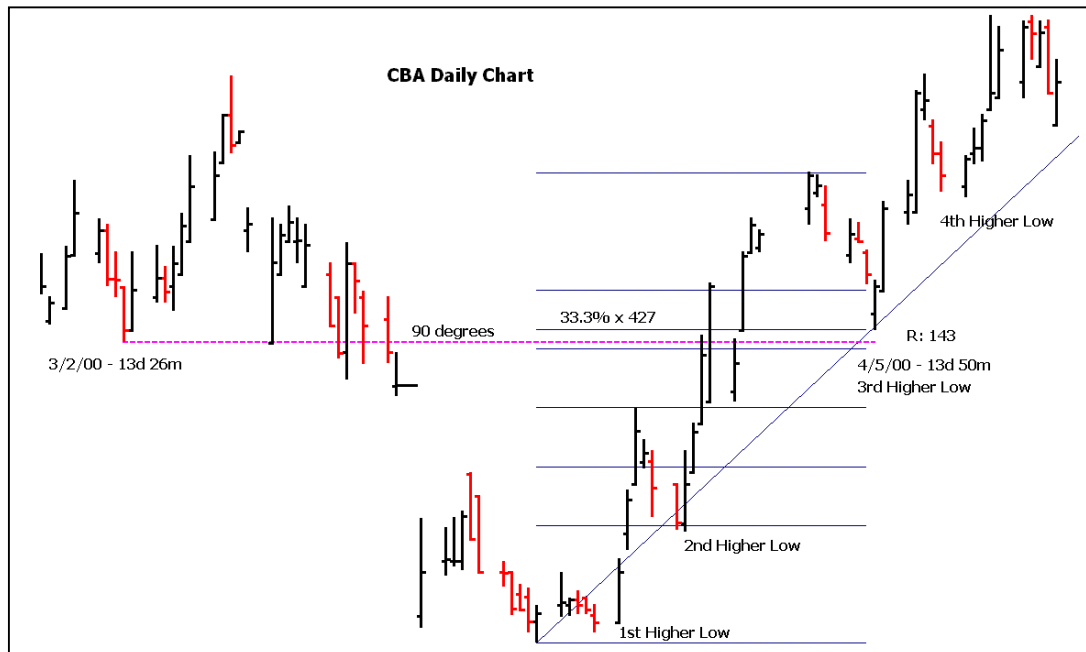
The range up from the 4/5/00 ended a little short of 75% of the immediate prior range, and a little over 50% of the range coming off the main low.

What is present is what Gann emphasised. The aligning of time on the vertical axis, price on the horizontal axis and the balancing of time and price at the diagonal.

The following chart is of the Australian SPI. It shows the lower high made on the 16/7/04. This date was at 84 and 168 calendar days, and at 30 and 120 solar degrees. Importantly, it had failed to reach the 50% level of the previous range. The first daily low from the high was also below the last low leading up to the high.

The following Monday signalled a short entry when the market traded below the open and below the 3 points per day, or 3 x 1 Gann angle, from the 12/5/04. This is shown by the arrow.

The position was closed on the day of the next low, the 26/7/04 at just a few points from the low of 3469. This day was at 120 and 240 degrees from previous weekly turning points. It was also at a 35 days repeating time period (this chart is on page 2 of the "time counts" section) The 33 point range is 3/8th or 37.5% of 88.

In the following chart of the Australian SPI; A, B and D show SHORT trades. They are in the direction of the trend and each of these reversal days would have been calculated by using timing methods. Entries are made as the market trades below the open, on the day or the following day in A. C could have been a short trade, however three waves or sections had completed, so caution would have been in order.

1 to 7 show LONG trades. They are in the direction of the trend, entries are made as the market trades above the open on the day or the following day. The first four ranges up were very close to the previous ranges. Trade 4 did not continue the previous pattern and a small loss would have resulted. Trade 6 would have locked in profits by use of a trailing STOP. Trade 7 did not follow thru and small loss would have resulted. Below is the swing chart of the previous chart. A weekly swing chart used in conjunction with the 1 day swing chart showed that main trend was up. At "1" the weekly trend continuation had been confirmed.
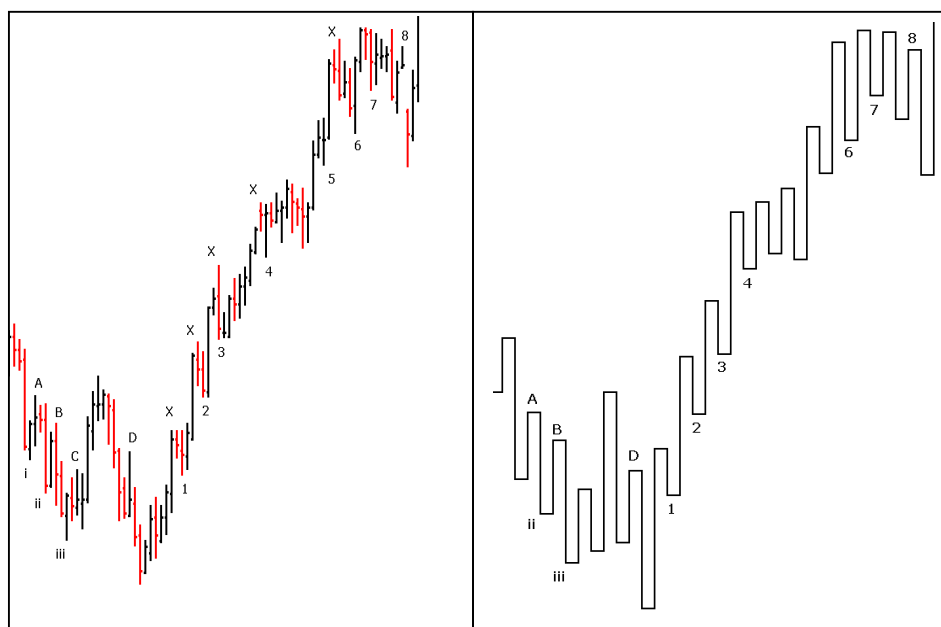
The main or weekly high and low points can be determined by the important cycle numbers, 631, 668, 840, 1262, 1290, 1336 days and 630, 668, 840, 1260, 1290 and 1336 degrees. These are marked on each time count line if using a hand drawn chart. They can also be calculated once a weekly high or low has occurred by setting up a spreadsheet table with the reference date and the forecasted dates calculated.

Money Management
Money management rules are critical to protect your trading capital. Gann's method was to never outlay or have at risk more than 10% of his total trading account. This way, he said, he would have had to have 10 losing trades before he lost all his capital.

The Trading Plan
You need to set up a system to document your analysis. You can do this by listing the cycles present on the day of the reversal, the support or resistance level at the turning point with the Gann angles and the price retracements or projection percentages. Always keep records of trading information such as the date, time, price, and quantity and market position of your order.

Handy Hints
Be cautious with other peoples advice. Be responsible for your trading decisions. The swing chart tells you the markets trend, it doesn't lie. If unsure then don't take the trade. The first step to winning is not losing. When in a trade often ask yourself would you take the position now that you are in.

Never trade on a hunch or because you feel you need to. Don't let emotions interfere with your decisions.

Always trade with the trend unless you have clear indication, using time and price set ups that a counter trend move is starting. An old Wall Street saying is, "top and bottom pickers go broke".

Entries "at market" may be the best way to enter a trading position. It's certainly the easiest way to enter and by trying to save a point or two you can miss a trade entirely.

Set profit targets, don't be greedy when in a successful trade, if you don't want to close a trade use a trailing stop placed behind the day before, or the other side of support or resistance levels.

Always use a stop loss order and don't trade if you can't place it within a percentage of your trading capital. Gann used 10%. Don't let small losses become large losses.

Don't fight the market. Go with whichever direction it is going, not the direction you think it should be going. The 1 and 2 day swing charts clearly indicate this.

Get to know your market, they can have their own unique characteristics. Hindsight will then become foresight.

Watch volume levels, increasing volume in the direction of the trend indicates strength, declining volume indicates less activity in that direction.

Keep your charts up to date, on the dates that are calculated as possible reversal times you will be ready to act and profit.

The simplest way to trade is to calculate the possible reversal dates and price levels by using the key cycle numbers and coordinating them with the swing chart. Always considering the main trend with the swing charts, at <u>Time and Price</u> alignments, when you have a higher swing bottom, then BUY. When you have a lower swing top, then SELL. The price levels to do this at on these days are detailed in the "Support and Resistance levels" section.

Below is the type of market setups to watch for. On a TIME cycle date, if PRICE has reached an important support or resistance level, and intraday, the market is reacting back in the direction of the main trend, then a trade can be entered.

Deciding to take profits intraday or holding the trade for longer can be decided on the day based on factors prevailing at the time. One strategy is to close half the position and place a stop near entry.

Using the earlier sections to calculate precise time and price levels can be done, however by combining the two most important factors as in the below chart and letting the market tell you what it is doing, much less analysis is required.

My approach to trading is to select a group of markets that meet my criteria as detailed in the "markets" section. I monitor these markets regularly to find a market that is exhibiting the patterns I prefer. Once I have found a market that appears to be ready for a move I then check for the Time and Price cycle alignments. The next step is to monitor the markets live price action and enter the trade according to the signal generated at the time.
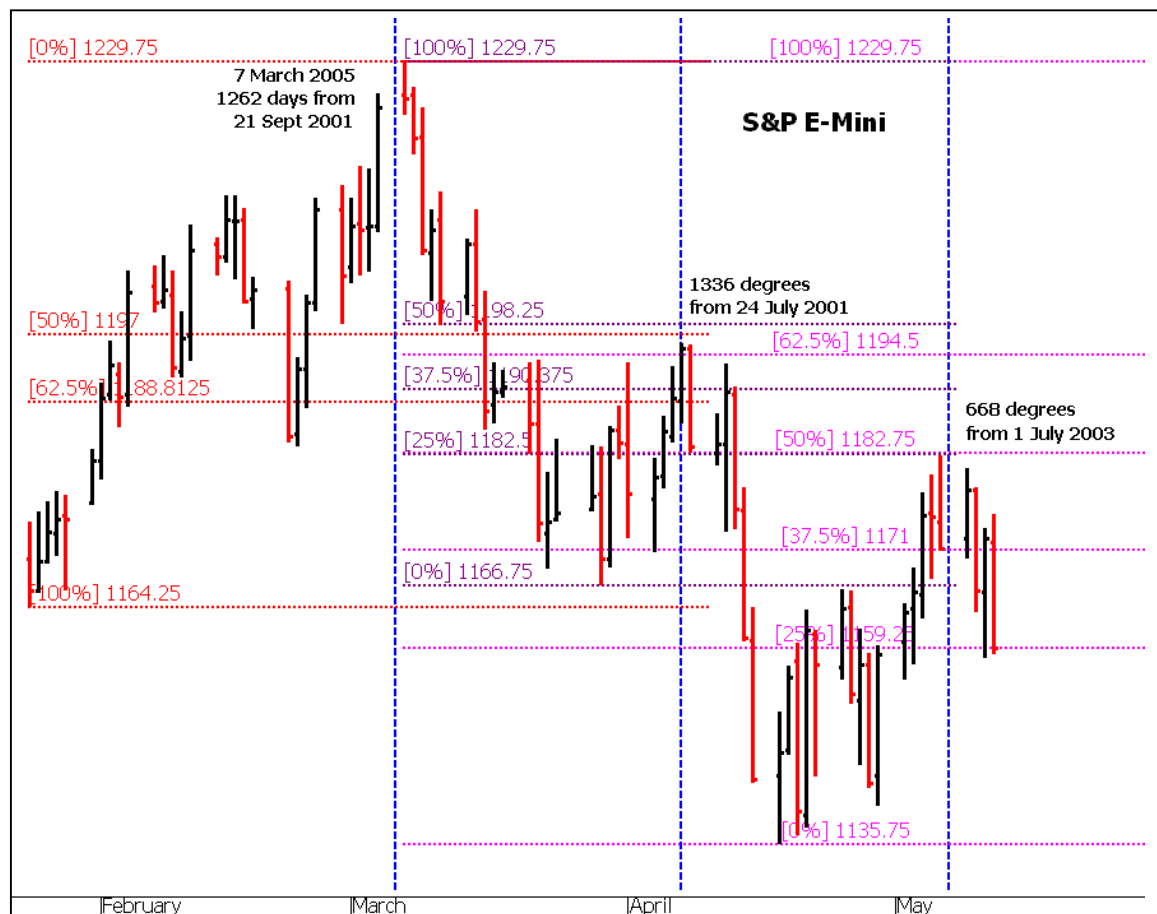
The following chart shows what can be one of the most reliable types of trades. It includes trend, price and time. Selecting these types of setups and using sensible money management rules will ensure safe and profitable trading. The basic rules are; **trend direction** confirmed by 3 being above 1. 4 being a **cycle date** and retracing 50% or less of 2 to 3 and the following day trading comfortably above its open price with good volume. Stops are placed below 4.
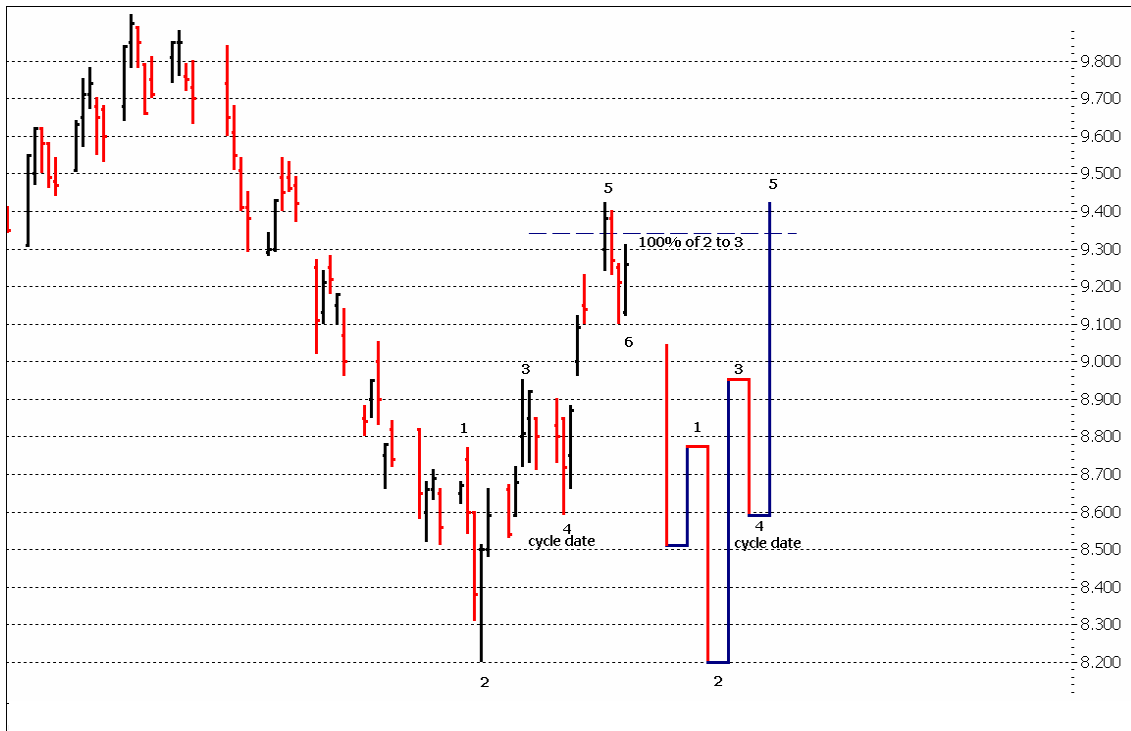
Below is the same scenario for a short position. 3 is below 1, 4 is below 2, the day closed below its open price, or the 2nd day from 4 caused the swing chart to turn down. Stops are placed above 4.
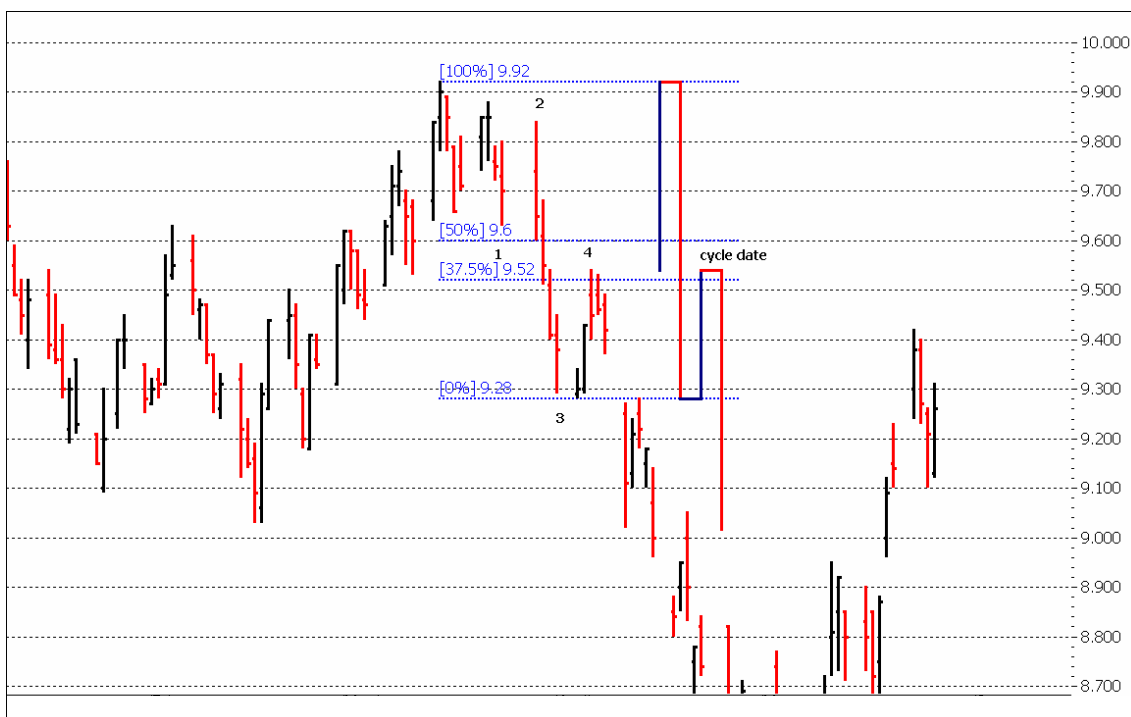
W. D. GANN'S TWENTY-FOUR NEVER-FAILING RULES

1. Amount of capital to use: Divide your capital into 10 equal parts and never risk more than one-tenth of your capital in any one trade.

2. U se stop loss orders. Always protect a trade when you make it with a stop loss order 3 to 5 points away.

3. N ever overtrade. This would be violating your capital rule.

4. N ever let a profit run into a loss. After you have made a profit or 3 points or more, raise your stop loss order so that you will have no loss of capital.

5. D o not buck the trend. Never buy or sell if you are not sure of the trend according to your charts.

6. When in doubt, get out, and don't get in when in doubt.

7. T rade only in active stocks. Keep out of slow, dead ones.

8. Equal distribution of risk. Trade in 4 or 5 stocks, if possible. Avoid tying up all your capital in any one stock.

9. N ever limit your orders or fix a buying or selling price. Trade at the market.

10. Don't close your trades without good reason. Follow up with a stop loss order to protect your profits.

11. Accumulate a surplus. After your have made a series of successful trades, put some money into surplus account to be used only in emergency or times of panic.

12. Ne ver buy just to get a dividend.

13. Ne ver average a loss. This is one of the worst decisions a trader can make.

14. Never get out of the market just because you have lost patience or get into the market just because you are anxious from waiting.
15. Av oid taking small profits and big losses.

16. Ne ver cancel a stop loss order after you have placed it at the time you make a trade.

17. Av oid getting in and out of the market too often.

18. Be just as willing to sell short as you are to buy. Let your object be to keep with the trend and make money.

19. Ne ver buy just because the price of a stock is low or sell short just because the price is high.

20. Be careful about pyramiding at the wrong time. Wait until the stock is very active and has crossed resistance levels before buying more.

21. Select the stocks with small volume of shares outstanding to pyramid on the buying side and the ones with the largest volume of stock outstanding to sell short.

22. Never hedge. If you are long one stock and it starts to go down, do not sell another stock short to hedge it. Get out at the market; take your loss and wait for another opportunity.

23. Ne ver change your position in the market without good reason. When you make a trade, let it be for some good reason or according to some definite plan; then do not get out without a definite indication of a change in trend.

24. Av oid increasing your trading after a long period of success or a period of profitable trades.

"Charts are records of past market movements. The future is but a repetition of the past. There is nothing new. As the bible says, "The thing that hath been, it is that which shall be". History repeats and with charts and rules, we determine when and how it is going to repeat. Therefore, the first and most important point to learn is how to make charts correctly because, if you make an error in the chart, you will make an error in applying the rules to your trading". WD Gann.

On a chart set out in calendar day format, that is, leaving gaps for each non trading day of the year and at each significant turning point – a weekly chart will be a guide as to these points. Mark on these dates on the chart, or below the date axis on the bottom of the chart, the date and solar degree of the month. By counting forward from these dates the important numbers of 1262, 1290 and 1336 days and 1260, 1290 and 1336 degrees and their $1/8^{th}$ divisions you will know what dates in the future are to be further analysed using time periods and price cycle levels, to determine if a reversal is likely.

When a previously recognisable time period is occurring on one of these time cycle dates then that date is a more likely date on which a reversal will occur. Some of these time periods that often occur in all markets are 49, 52, 144, 168, 191, 224, 372, 666, 888, days and multiples and $1/8^{th}$ divisions of these numbers.

When writing in time counts use a fine point pen or pencil for clarity and for solar degrees use a different colour so these numbers can be easily seen. Start the time counts from each new weekly turn. Placing a coloured sticker above or below the reference point will easily identify reference points when a chart becomes large. Continue time counts for 1336 degrees into the future. Underline the numbers that are at each new significant high or low point. Keep these time counts continued in advance so that as the market trades into these numbers already on the chart you will be aware of the cycles and time periods beforehand. Then on the date or a day or two beforehand refer to the swing chart for market pattern and the price support and resistance levels.

When calculating the horizontal support and resistance levels of the key cycles initially apply the 50% level then the others as required as the market trades into the area. Price cycles when intersecting with a time cycle date and a time period date are where and when reversals are more likely to occur. Where a price cycle level is close to a division of a range using Gann percentages or Fibbonacci levels then it is more important. Also apply the range percentages using the swing chart which can be drawn at the far right of the chart at the same scale to the bar chart.

When applying Gann angles calculate at least three points before drawing in any line. As an example, after 30 days out from a high or low, mark where the line will intersect 30 points below or above the starting point, then 60 days out, mark on the chart where the line will intersect 60 points above or below the starting point, and then 90 days out, mark where 90 points up or down is, then draw the line connecting the three points. It should, from the original point intersect the three points exactly. Do this in pencil at first for most lines, so they can be erased and so as to not excessively clutter the chart.

When an important high or low point occurs, initially draw the angle that best fits with the markets current position. This may be a 4 points per 1 day angle or more if the market is moving away sharply. Adding angles in 1 point increments can be useful, such as 1 x 1, 2 x 1, 3 x 1, 4 x 1, 5 x 1, 6 x 1, 7 x 1, 8 x1, 9 x 1, etc.

Write in the weekly price ranges above and below the weekly turning points on the bar chart and the swing chart, in red for down ranges and blue/black for up ranges. Price ranges have a tendency to repeat. They will be related to the numbers related to the cycles and percentages of these cycles and to the previous ranges in the same direction. By adding them together they will also relate to cycle numbers. When straight line ranges and previous ranges in either direction are added together they will also relate to the cycle numbers. These are cumulative ranges. A good example of this is the S&P 500 where the 1984 to 2000 range was 1412, the next range down to 2002 was 807, and the range up to 3rd January 2005 was 454, 1412 + 807 + 454 = 2673 or 2 x 1336. On this day at 1221, 807 + 454 = 1261. Additionally it was at a 1262 day, 1260 and 630 degree date. Having these important cycles present in time and price was a very powerful indication of this reversal. This concept can be used in any time or price frame.

Swing charts or the trend indicator can be constructed in different ways. The bar chart with an accompanying box style swing chart in the same scale is best. The days taken for each range, the price ranges and the support and resistance levels can be marked on this chart as well. A swing overlay can be applied to the bar chart, it will serve the same purpose but don't clutter the main chart.

A business/financial calculator is very useful for calculating dates in the past and forward. The Sharp EL-735 is suitable. Dates can be calculated in the MS Excel spreadsheet on the accompanying CD. This spreadsheet table can be created by placing in cell A1 the reference date to be calculated from, in cell B1 put 631, in cell C1 put the formulae of "= sum(A1+B1)". Do this for 631, 668, 1262, 1290 and 1336 days. 630, 668, 1260, 1290 and 1336 solar degrees will be at dates further on calculated by using an ephemeris.

You will need an ephemeris for calculation of solar degrees. When calculating 668°, add 660° to the reference date to determine the month, and then add another 8°. Use the same procedure for 1336°. When calculating the 30 solar degree dates for the cycle of 360°, go to the next month and locate the degree date that is the closest to the one you are referencing from. If it is on a weekend, or other non trading day then the reaction will occur on the closest trading day to the calculated date but watch both the Monday and Friday.

To apply the timing calculations to computer charts you will need a calendar day and a solar degree count tool. By setting the degree counter to intervals of 30° you will pick up the 1/12th sections of the 360° cycle. This same method can also be used with the degree counts for 668 and 1336 degrees. The calendar day counter is set to 631 day increments and 668 days to calculate these times.

Below is the daily bar chart of the Australian SPI futures market
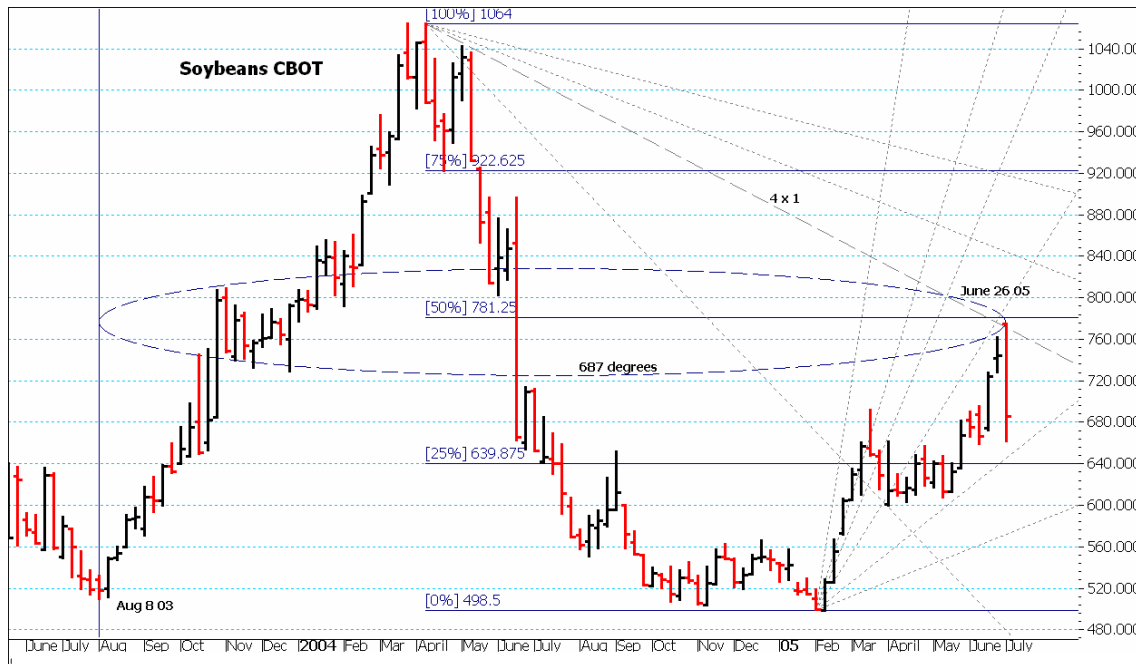used by Charles Shephard.
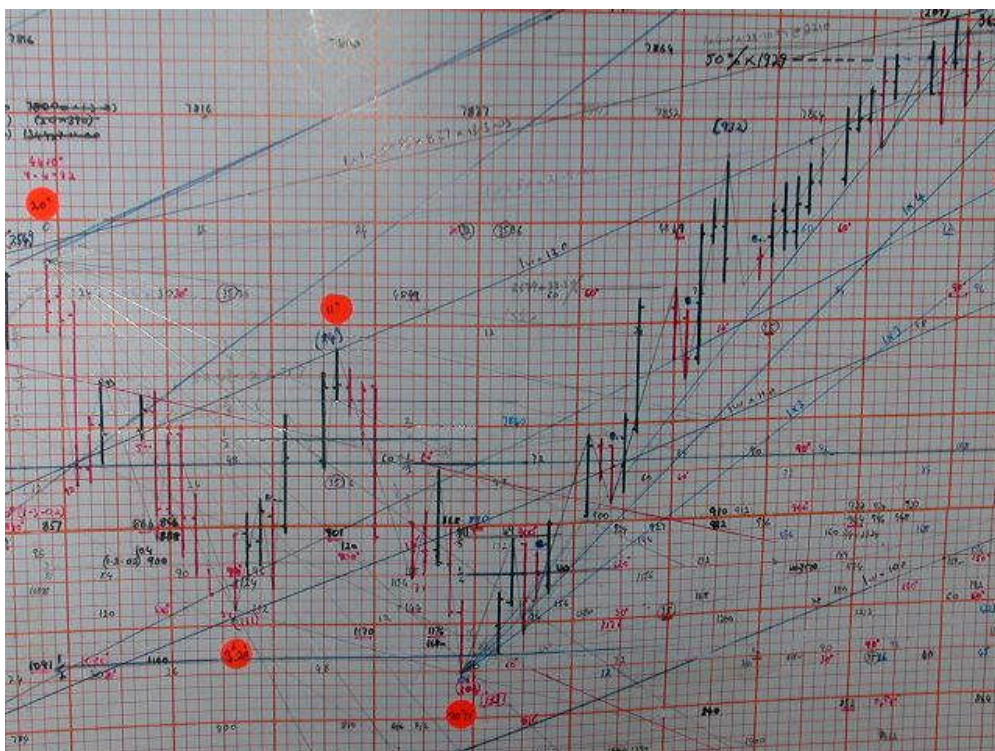
Supplementary Information

Time cycles and Price cycles aligning at reversals in the SPI 200
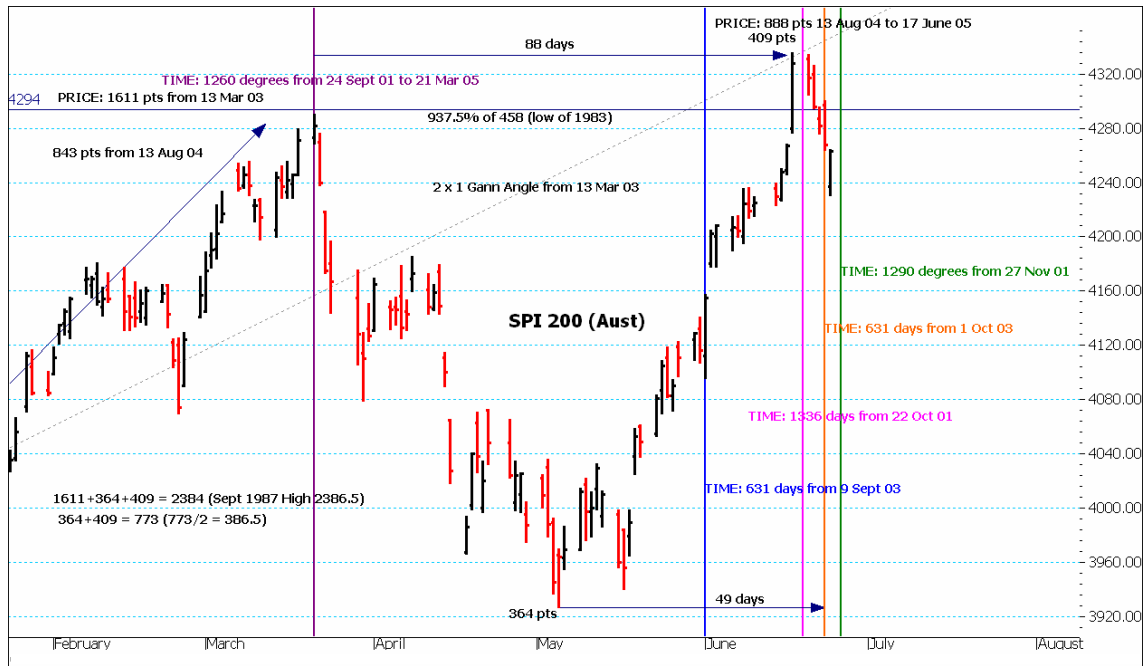
Time cycles and Price cycles aligning at reversals in the DJIA

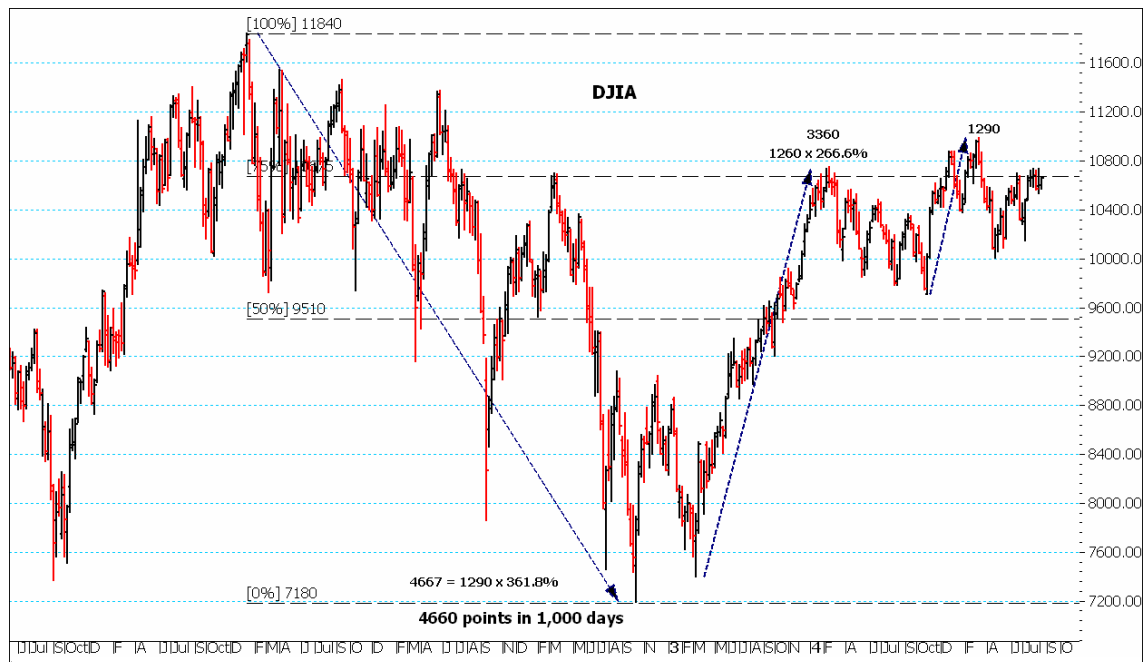Time and Price aligning at the June 26th 05 reversal in CBOT Soybeans

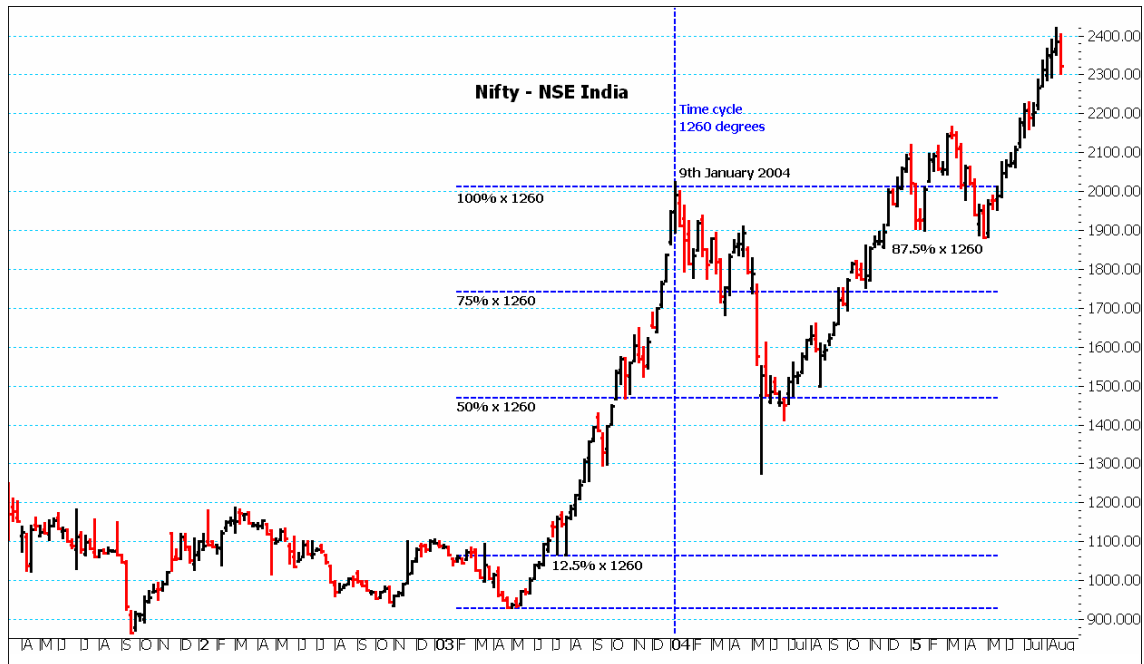Markets set up their cyclical patterns soon after initial trading.

US Dollar Weekly Chart

Major Time and Price Cycle alignments

[100%] 121.29

Price cycle from January 2002 to December 2004 = 40.32
40.32 = 12.90 x 312.5% (3 & 1/8th of 12.90)

630 degrees

Time cycle from 15th June 1989 of 5679 days / 9 x 631 or 4.5 x 1262

[25%] 90.6825

[0%] 80.48

Fibonacci divisions can also be applied to time and price divisions

DJIA

[100%] 11840

3360
1260 x 266.6%

1290

[50%] 9510

4667 = 1290 x 361.8%

[0%] 7180

4660 points in 1,000 days
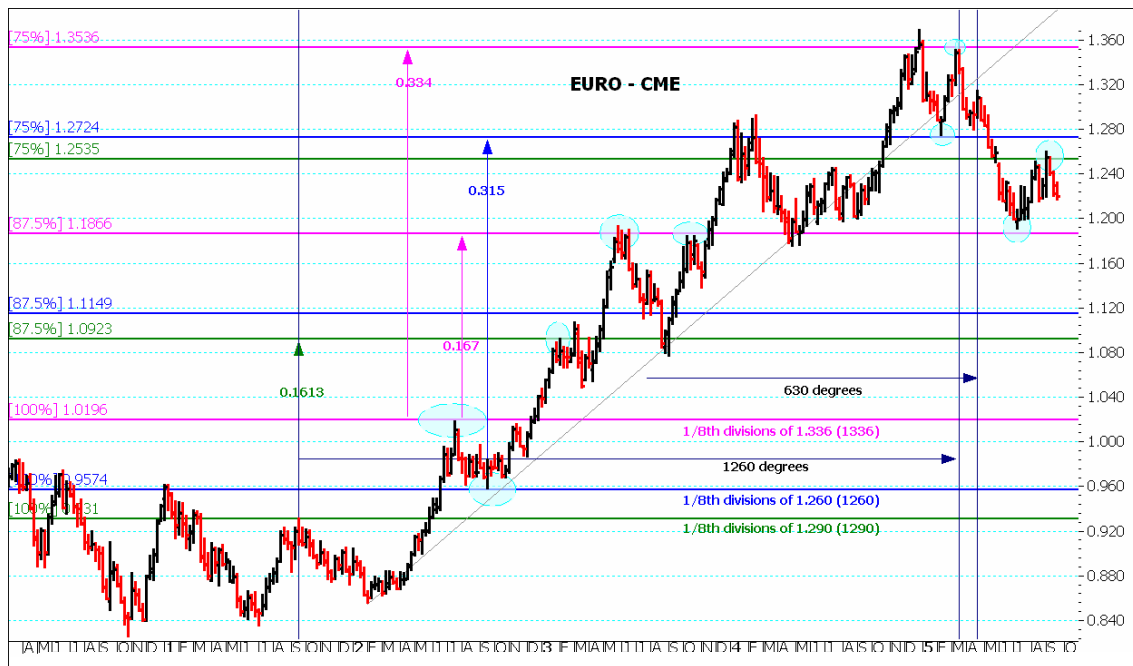
Indian "Nifty" reacting at the divisions of 1260.

Nasdaq 100 reacting at the divisions of 1260.
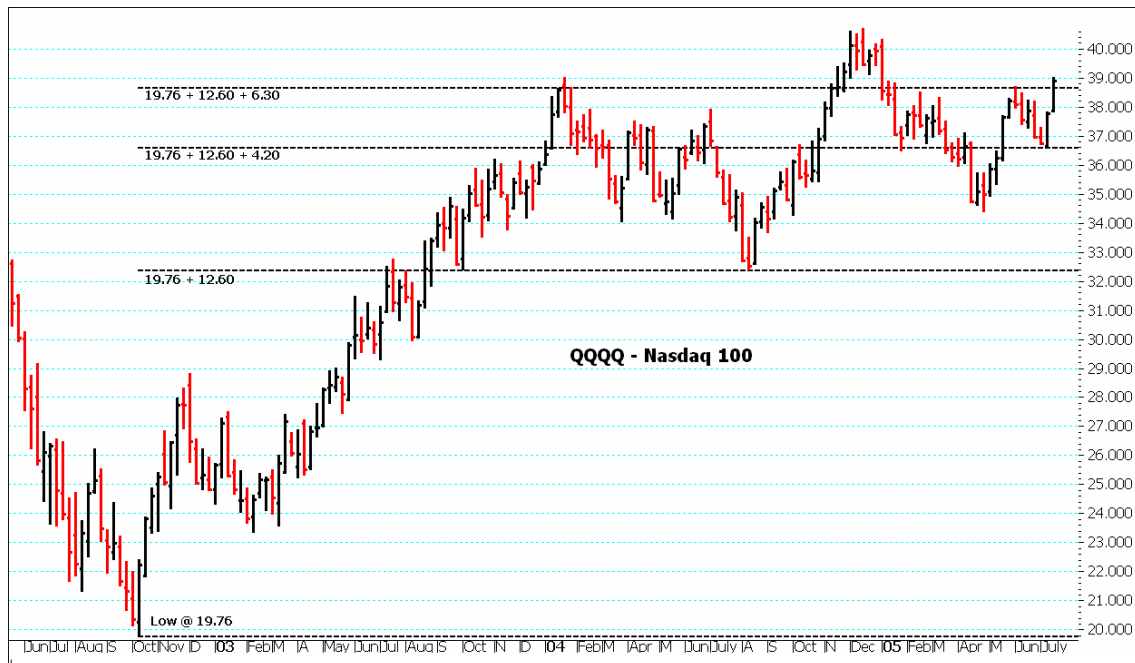
When calculating divisions of cycles in different markets you may need to experiment with the placement of zeros and decimals.

The following chart of the EURO required division of the cycle numbers by 1000.

S&P E mini: From the 2000 high at 1574.5 less 62.5% of 1290 was within 1 point of the 2002 low at 767.25 (1574.5 x 62.5% of 1290 = 768.25)
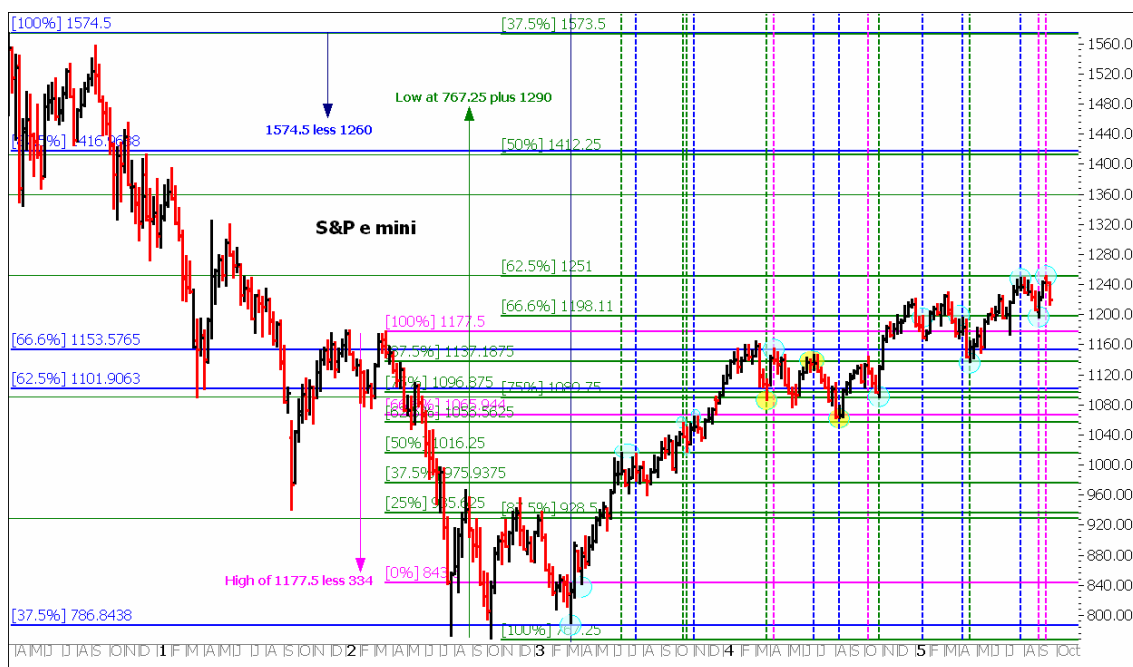
Gann's words "a sure buy" with reference to his trade in "Eggs" from his stock and commodity courses is applicable to the set up shown below. The main factors of Trend direction, reaction to a price cycle level on a time cycle date is all that is required to safely trade these set ups.
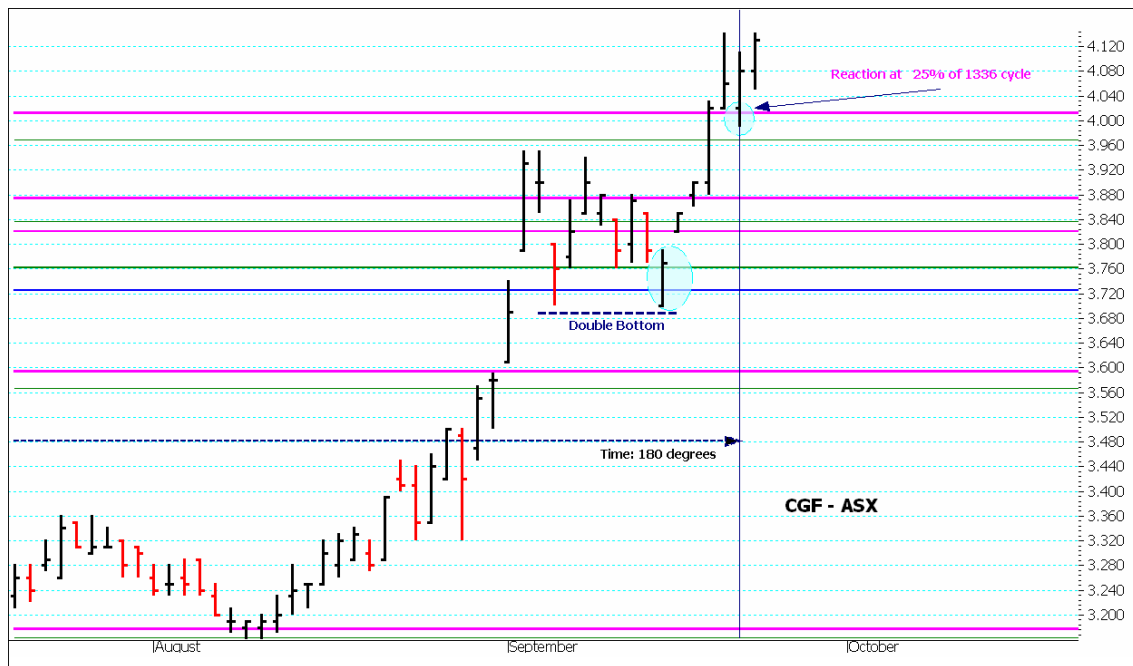

The above chart of CGF and the below chart of BSL traded on the Australian stock exchange showing the reactions at price levels determined by the key cycles and the trading opportunities highlighted as these markets indicated their intentions at the reactions.

Note the additional support and resistance levels provided by the Gann angles and trend lines on the chart of BSL below.
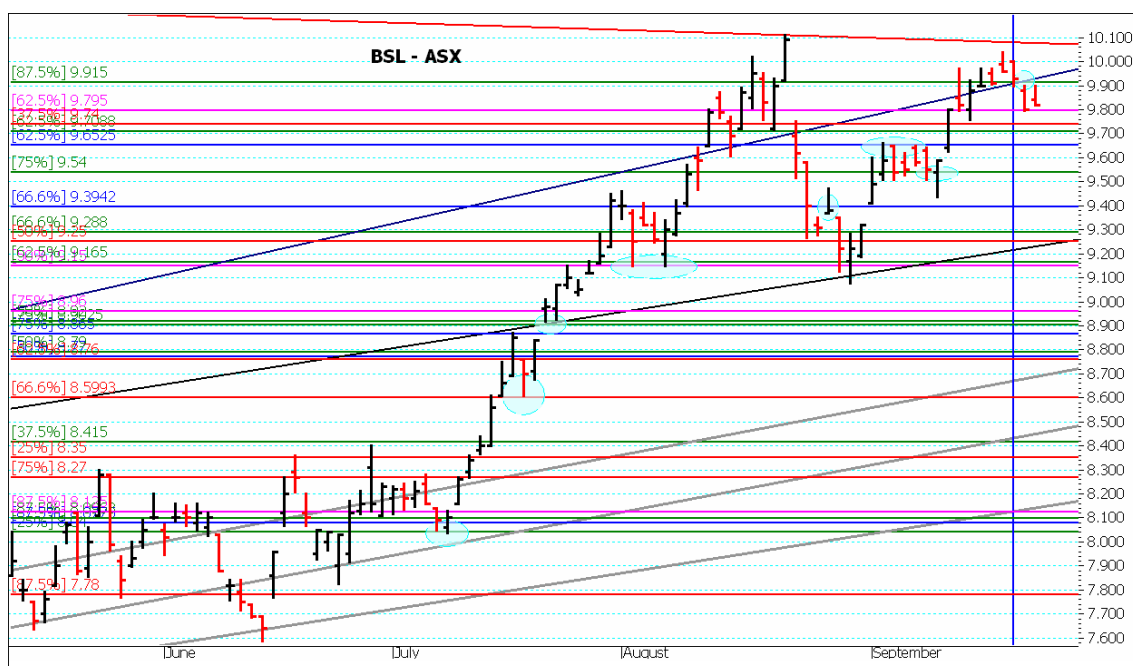
The 7 year cycle or 2556 days when divided by 16ths, 32nds and 12ths gave levels where the S&P 500 met resistance and support that often was the point of important reversals.
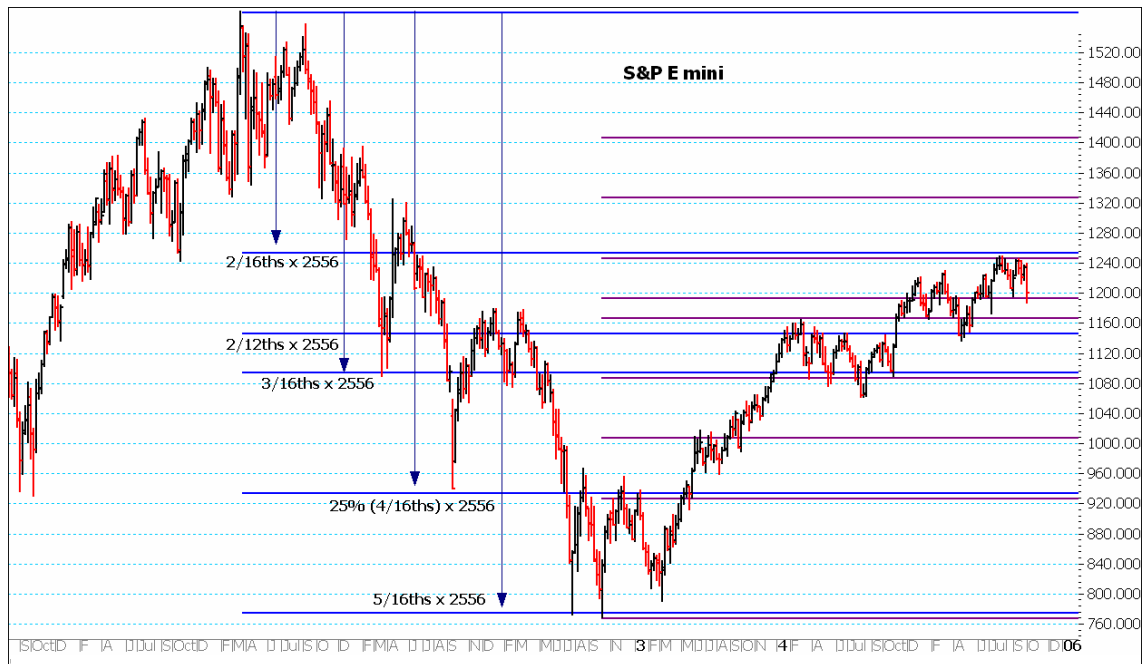

The 7 year cycle divided by the Gann percentages of $1/8^{ths}$ and $1/3^{rds}$, calculated from the DJIA March 2000 high and giving the levels at times of important reversal.

Cycles and their parts will form resistance and support levels that when predetermined and drawn onto a chart will provide valuable information as to where a market may turn.

In the following chart of the Australian SPI the price action around these areas was useful to monitor prior to trade entry and exits using intraday charts.

Note the 4868 level that has provided support and shows an area beneath the intraday swing turns where stops can be placed for long positions.
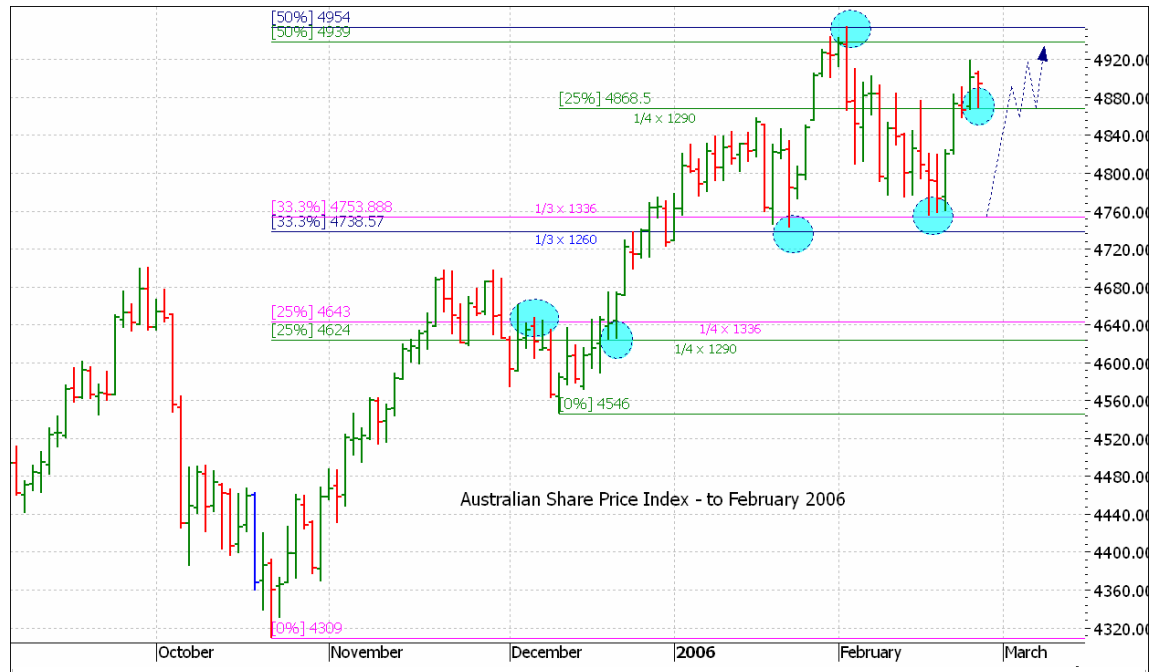
The prophetic cycle of "times, times and half a time" with the additional prophetic leap month of 30 days is "1290". When calculated from the important support level in March 2005 and divided according to the Gann percentages gave levels that future important reversals occurred at.
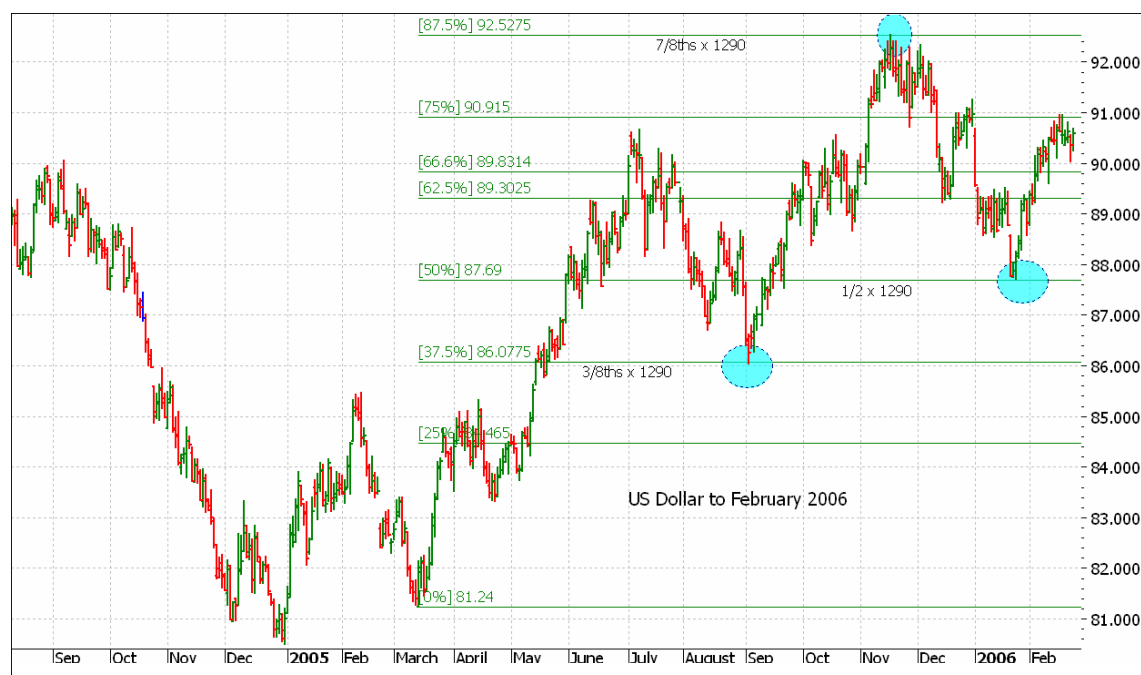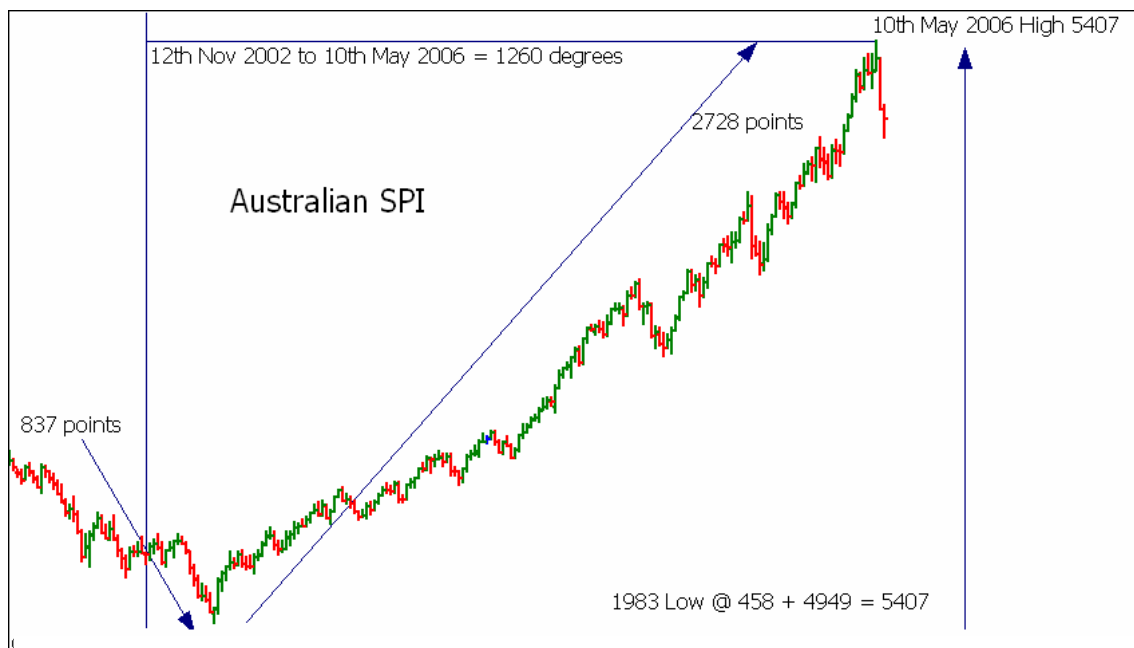
Price: from 1983 low of 458 to 2006 high at 5407 = 4949
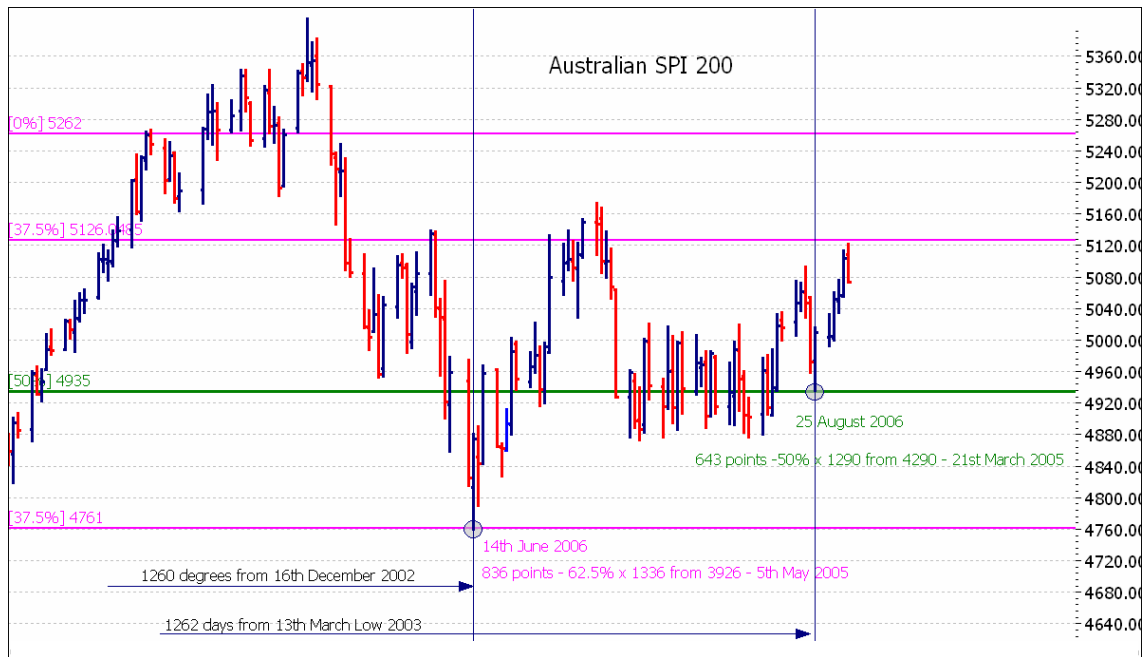Note the double "49". Numbers when doubled or tripled are of greater importance.
Price: from 2002 high to 2003 low (837) to 2006 high = 3565 or 1336 x 266.6%
Time: from 12 Nov 2002 to 10 May 2006 = 1260 degrees
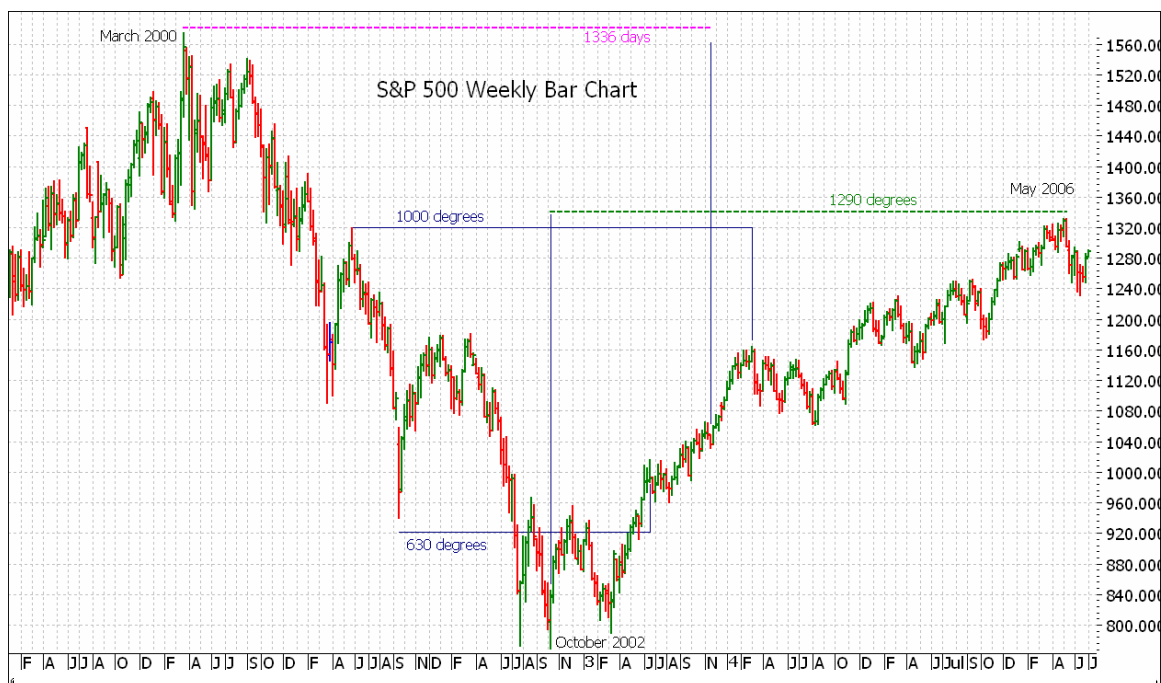
Constantly monitoring a market as it progresses thru "time and price" and familiarity
with the key numbers is often all that is required to identify a reversal as it occurs.

In the above chart of the Australian SPI 200 stock index futures market the highlighted lows occurred at alignments of the key cycles in TIME and at percentages of the key cycles in PRICE.
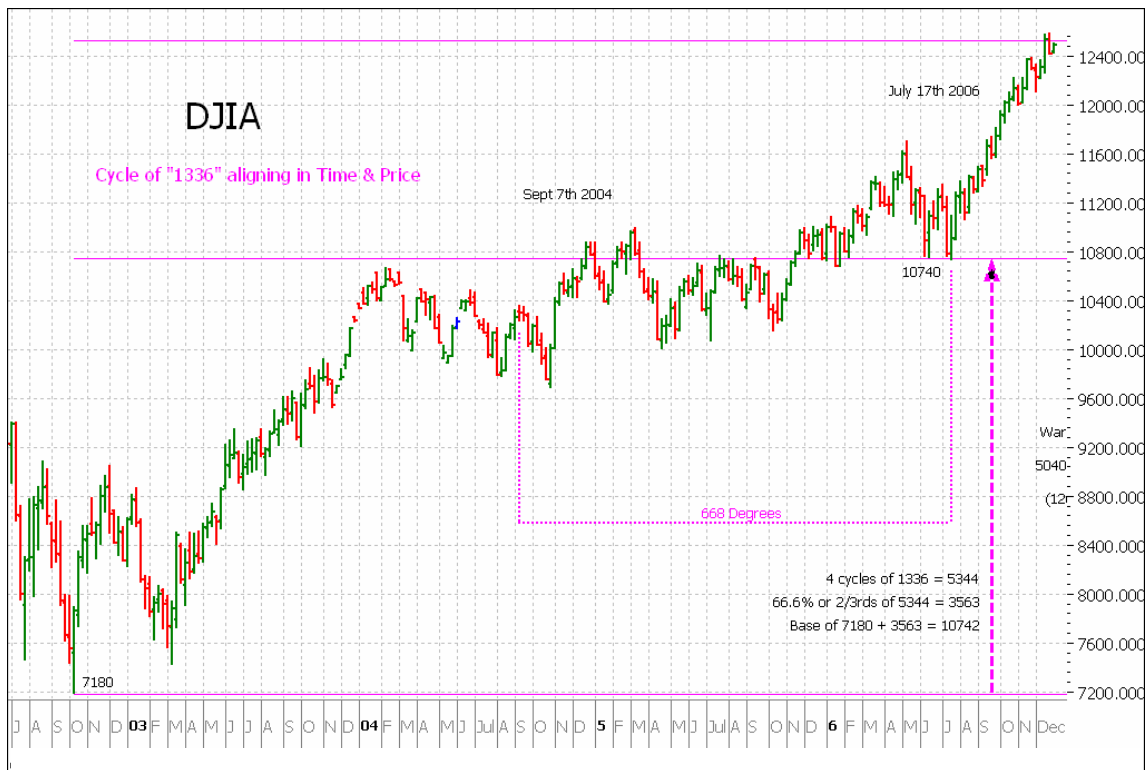
Using multiples of the cycle of 1336 (in this case 4 cycles) added to the 2002 low of 7180 on the DJIA projected a price level of 10740. Note the support at this level and the final move upwards after a "triple" bottom at the date of 668 degrees from September 2004.

DJ-SpotV - Weekly Bar Chart

High Jan 2000 = 11853

1260 x 8 = 10,080
10080-4673=5407
7180+5407=12587

High @ Dec 06 = 12579

Low Oct 02 = 7180

11853-7180=Range of 4673=3.5x1336

1999   2000   2001   2002   2003   2004   2005   2006   07

The Dow Jones Industrial Averages reached a high of 12,579 on the 18th December 2006. This was a level of resistance. Note the mathematical calculations that gave a price value of 10,080 or 8 times 1260.

Subtracting the bear market range of 4,673 or 3.5 cycles of 1336 from 10,080 results in 5,407. Add 5,407 to the October 2002 low of 7,180 results in a price level of 12,587. This is just 8 points short of the target level of 12,579.

By calculating multiples of the other cycles and using similar calculations you will forecast other price levels at where reversals can occur.

Familiarity with the main cycles would have forewarned of the 20th February 2007 reversal date.

12900

"Symbolic" level at 12900 (June contract made a high of 12908 on 20th February 2007)

February 2007
Range = 5728

DJIA Weekly Bar Chart

January 2000

2556 degrees. 7 x 365.256 - 7 year Cycle

840 or 33.3% x 2520 (7 x 360) degrees

490 degrees

672 days (4 x 168, see page 101)

Note: The addition of 4673 + 5728 = 10401 or 200 x 52.
The 52 year cycle is prominent in the DJIA since 1884.

1440 or 4 x 360 days (often known as the "Presidential cycle")

October 2002   Range = 4673

Origin of Cycles

Of all the techniques used in technical analysis, the use of time cycles is the only method that allows you to project and anticipate a time in the future where a market may change its trend.

This is possible because price action unfolds in repetitive rhythms over time. WD Gann used his knowledge of cycles to make incredibly accurate market forecasts. Because a cycle literally refers to a circle, Gann knew that the harmonic divisions of the circle would be accurate in determining the important divisions of a circle.

Time and Price progress according to the same cycles. Gann stated that time and price can be treated in the same way. Time is measured on a chart from a reference point left to right. Price is measured as it moves upward or downward from a reference point. The important increments in which to make these measurements are the key cycles detailed.

Gann was an avid reader of the bible. He stated in his romantic novel Tunnel thru the Air that everything one needed to know could be found in the bible. The key cycles and their method of application detailed in the preceding pages are to be found in biblical references.

Biblical prophecy numbers use the "day for a year" principle. That is, the numbers such as 1260, 1290 or 1336 can be used to calculate any time unit including solar degrees. The number 1,000 was also detailed as a cycle in Tunnel thru the Air. Note the DJIA chart on page 135 and the 1,000 day time period from this markets high in January 2000 to the October 2002 low.

Prophecy numbers intersect both smaller and larger numbers of like kind, on both a one tenth and a ten times ratio. For example 49 and 4900, or a large "wheel" intersecting a small "wheel". Another example is 63, 630 and 6,300. The number 1336 is 3.6525 x 365.25 - Earths cycle, and 1260 and 1290 are both derived from the symbolic Hebrew 360 days to a year.

It has commonly been used by Gann analysts to base most cyclical calculations on the number 360. However as has been shown the best use of this number is when it is used in its biblical interpretations of 1260 and 1290.

The bible refers to "a time, times, and a half a time" regarding the prophetic number 360. It is described in the bible how the number 1290 is the prophetic 1260 with the addition of the leap month of 30 days added to it. That is why on occasions the number 390 is also important. Also anything that is repeated three times in the bible is exceptionally important. Gann stated in Tunnel thru the Air that the "three days and three nights in the belly of the whale" from Jonah was most important. You will find "triple" numbers such as 666 and 888 often are present at reversals.

Why do markets react to biblical numbers? Biblical numbers indicated a span of time that passed before things came to an end or then began a new beginning. It may be simply no more than the collective unconscious of traders recognising numbers that symbolically indicated endings and beginnings. The planetary cycles appear to have their cyclical rhythm embedded in our behaviour also and they often add to the effects of biblical numbers at times of market reversals.