The Secret Science of the Stock Market

By Michael S. Jenkins

Jenkins True Trend Line
With Semi-Log Scale

Jenkins True Trend Line
Low 10/09/02 33 75
(Sqrt(33.75)+2^2)=6¹
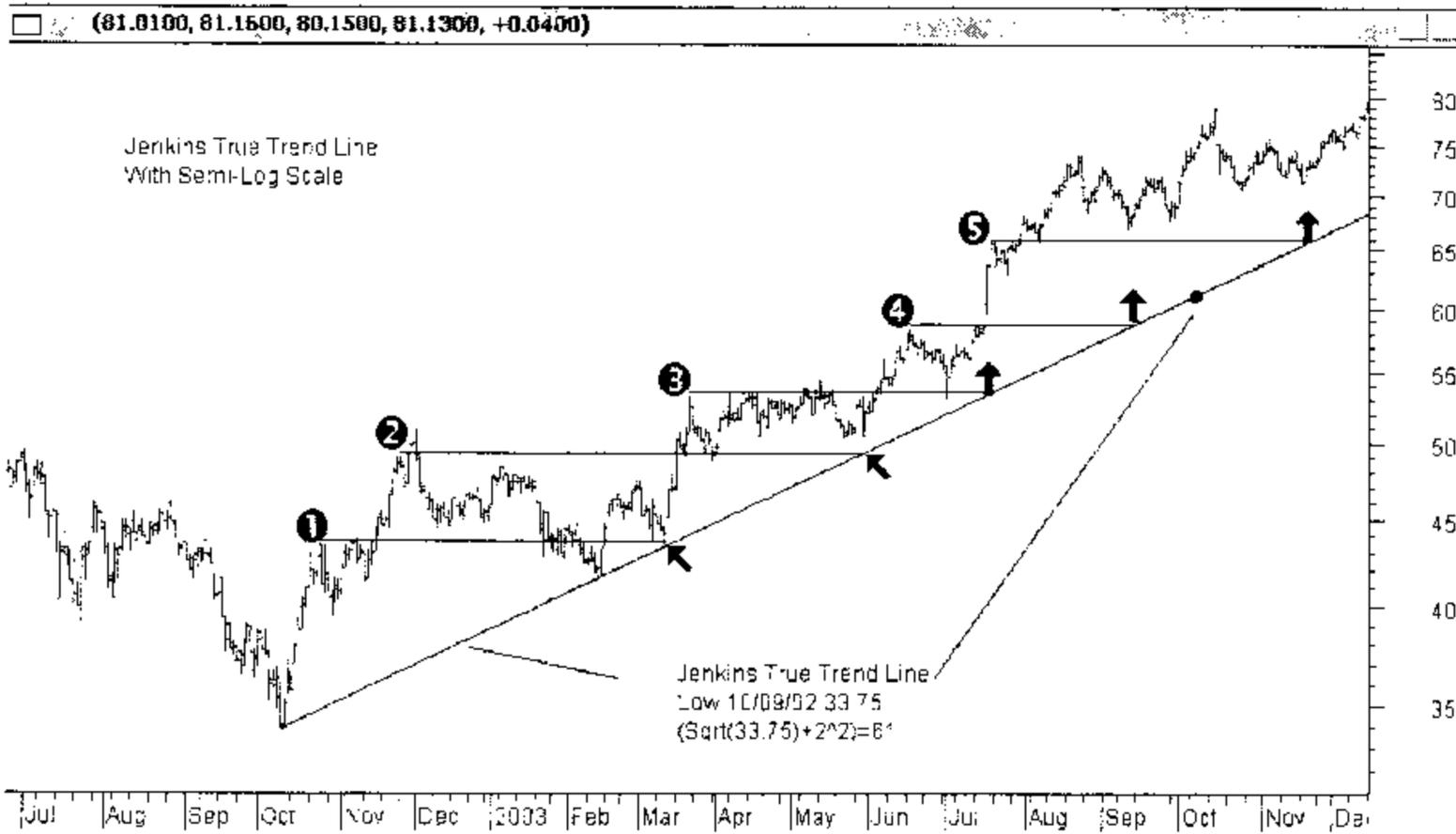
The Secret Science of the Stock Market
Copyright © 2004 by Michael S. Jenkins
All rights reserved.

Other Books and Courses by Michael S. Jenkins:

The Geometry of Stock Market Profits, A Guide To Trading
For A Living

Chart Reading For Professional Traders

Complete Stock Market Trading And Forecasting Course

The Stock Cycles Forecast Newsletter

http://www.StockCyclesForecast.com

Dedication
To my wife Elizabeth and my children Jennifer, Nicholas,
and Lukas

Acknowledgements

I wish to thank the following chart services and software products
for the use of their charts in the various illustrations:

PREFACE

As I finish writing this book in October 2004, I am reminded of the events in my life that shaped the ideas presented here and why and how it is that it took some 33 years of professional trading and investing to discover simple scientific principles that lie at the heart of all stock and commodity market patterns. It has been said before that the best way to hide something is to put it right out in plain sight. I was fortunately blessed with an exceptional ability to recognize patterns and at an early age I noticed that the stock market fluctuations were not just random events as everyone believed, but on the contrary were quite geometric, and these shapes seemed to be predictable. The difficulty encountered was the fact that these shapes changed at varying intervals and the timing of those changes seemed to be the key to investment success or failure. My early work with circular arcs proved that highs and lows in the market could be predicted with good probabilities, but calculating the price target *and* the time target coming together at the same moment was truly a difficult challenge. I think this book goes another step in solving that dilemma.

When I wrote my first two books "The Geometry of Stock Market Profits, a Guide to Professional Trading For a Living", and "Chart Reading For Professional Traders", I received almost unanimous praise for attempting to teach a subject matter that was universally scorned by the big Wall Street firms whose 'buy at any price' mentality was threatened by the idea of a cyclical market that encouraged people to become traders and sell when that was a requirement for success. Forecasting had always been derided with curt slogans like 'nobody can predict the market'. The plain truth, however, is that a great many people for over a hundred years have very successfully predicted the market and made money doing so. Many people wrote to me saying that the reading of my first two books greatly changed their lives and they finally could see the patterns I described. A few even wrote to scold me for having put such powerful techniques in the 'public domain' fearing it would wreck their livelihoods. In reality, all people are driven by the same cyclic forces that drive the markets and cyclical gains and losses along with mental confusion will prevent the day when the market goes dead because everyone knows how to do it.

This new book emphasizes mathematical techniques that may appear challenging to some, but I urge you not to be intimidated with scary words like

'logarithms' or 'square roots' since we will only need to know enough about them to push a key or two on a hand held calculator. As you read this book I strongly urge you to read each chapter in sequence and forego the temptation to assume you know more about that chapter than I do, even if true, since I have laid out this book in a rational fashion with certain key concepts developed in a very precise order. If you skip around to get to the 'secrets' you will be blinded by the subtleties hidden in the preliminary 'simple stuff' and it could take several readings before you understand what is going on.

If you use all the techniques in this book all of the time, you will probably be quite confused and unsuccessful in your trading. These multiple techniques are put forth in order to give you extra tools to use when the obvious simple ones don't seem to work. Each has its own place, and all are essential methods, but you will find some work better than others, and effects may vary in different contexts.

In the final analysis, the true million-dollar trading secret is *patience*. Forecasting down to the day and hour is worthwhile only if you can wait for the legitimate buy signal coming out of that forecast and not jump the gun by making all kinds of assumptions. An even bigger mistake is doing all the work and making a perfect forecast only to scalp a small profit and then start jumping in and out and giving all the profit back. If you take the time and effort to predict the market precisely, you should incorporate a strategy to get the most out of that trade. This might include using a trailing stop order and letting your profit run and forecasting a target price combined with a stop order. Day traders may well scalp ten or more times a day but don't get lost in the short term fluctuations if you have calculated a major market event. The techniques in this book can be used on any time scale - hourly, daily, weekly or monthly. You should pick a time scale compatible with your investing style and not overtrade just because these cycles can be calculated to the minute.

My hope is that the readers of this book will come to realize that human beings are cyclical in their behavior and investing strategy should match those cycles. Discipline is the key and sometimes a strong understanding of precise patterns can provide the incentive to wait and watch and only then act, so that you can be compensated well for your valuable time.

October 26, 2004

Table Of Contents

INTRODUCTION

This is a book about **time and price**. "Timing is everything" is the saying but that presumes that you buy or sell at extremely favorable prices, and these only come infrequently and exist for only brief moments. To be a success in the markets you must buy low and sell high and that is always a relative concept. There is only one absolute high and one final low and trying to catch them every day is a certain way to ruin. That's why 99% of all traders are trend followers who assume the existing trend will continue and keep buying or selling until they start to lose money doing so and then they reverse strategy. If we can better determine just when the trend will reverse and get in early, our rates of return will dramatically increase. This book will show you numerous ways to greatly increase those odds of trading at the right time and price.

This book is technical in nature and is based on the assumption that to determine the trend you need only price data. Charts will show the true trend if interpreted correctly and persistence in trend can be determined by applying certain principles to longer-term charts for longer-term persistence in trend. As has been stated many times "the trend is your friend" and you want to trade with the trend. Confusion arises when we mix time periods as a trend on a 5-minute chart or an hourly chart may be quite different from the trend on a weekly or monthly chart. If the long term weekly chart pattern is up we can still buy and sit with a flat position wasting time for two to three weeks or more before we make any money. Since the rate of return on our capital is the most important thing, we must pay close attention to timing moves that will get us invested in moving markets in strong trends. This book will do that and at the same time will probably eliminate 90% of your bad trading habits if the advice is followed. A mistake not made is almost as good as a profitable trade.

The theory of stock price forecasting is based on the assumption that stock prices are not random. This can be seen in any chart pattern through intuition by observing repetitive patterns, and parabolic arcs. Time period cycles also recur with uncanny regularity. The cause of this is unknown but some have speculated that it is either innate biological time clocks in humans, or it is planetary in nature, since the movements of the big planets are highly correlated with stock movements. Recent studies point out electromagnetic radiation from the stars as the timing mechanism and the revolution of the earth each day modified by the planets causing interference patterns, is much analogous to a radio receiver being tuned to a channel. At the precise channel tuning point the electrical force is maximum and in the stock market that is when we see big market reversals on

DOW JONES 30 INDUSTRIALS
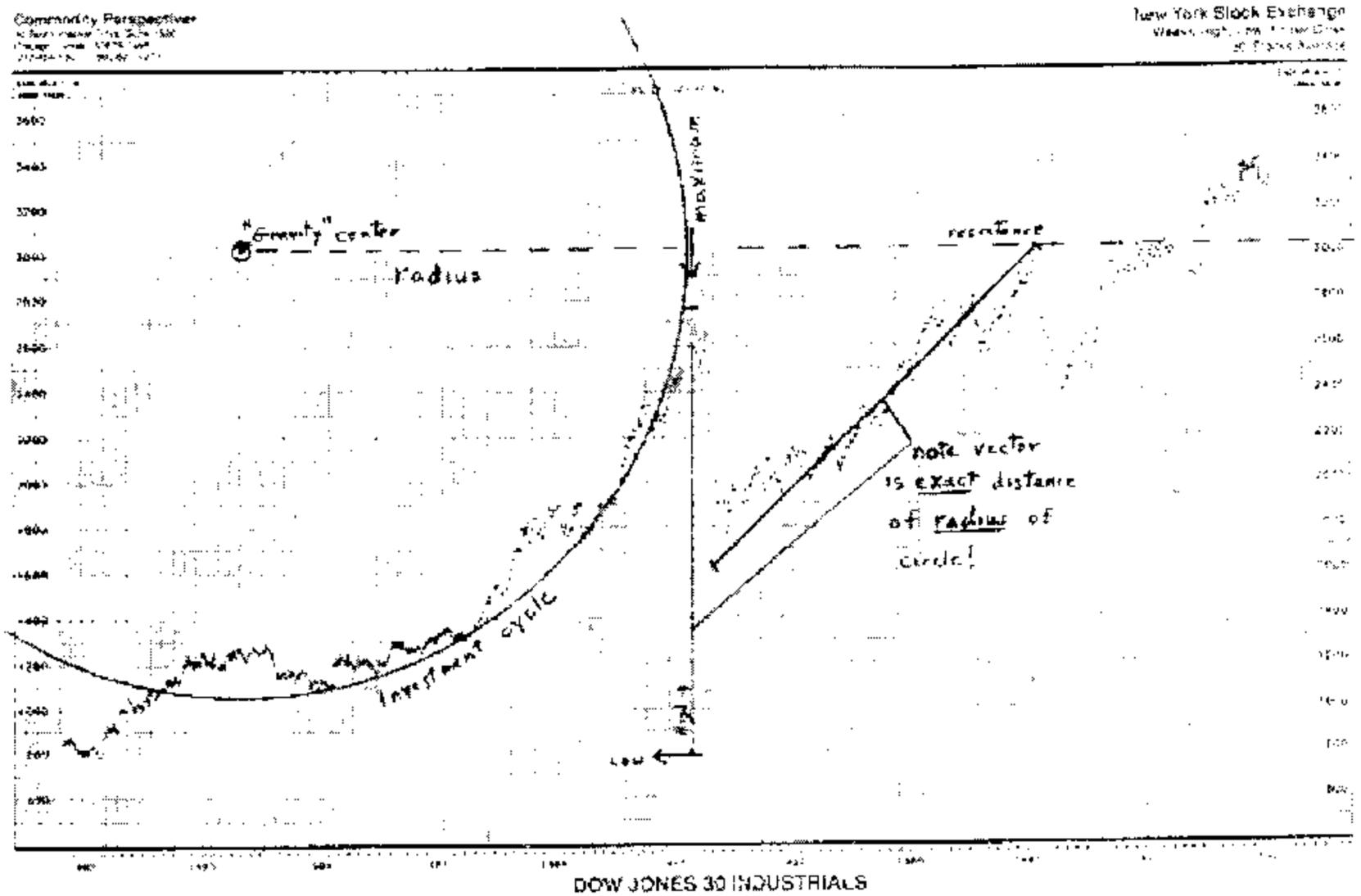
heavy volume. This theory may never be completely proven, but just like gravity which is still unknown, we can nevertheless make reasonable assumptions and calculations that will be of benefit in investing. These energies from whatever source show up in the patterns on charts and these rhythmic patterns can be manipulated with math and geometry to give us terminal points for great stock market trades. The simplest example is a parabolic arc pattern (see above), which is quite precise in its mathematical shape and stock prices that follow such patterns have extremely reliable outcomes. Parabolics occur in many markets and indicate extremes of emotion that literally force people into the markets at exactly the wrong times. The great thing about arcs is that they can be mathematically derived early on and the mathematical curves thus created can forecast the terminal points months ahead of time with high accuracy.

Before we discuss parabolic arcs, however, we should first look at the most basic vector seen in every chart and that is what we call the "measured move". This is just a line measured along the slope of the chart pattern which shows the average distance moved by a stock or commodity in a vector direction. On the next page we see a chart of 3M Company with a series of measured moves noted. The first one was measured against an initial up move and then that vector was copied and overlaid on the chart at other points so you will note that all these moves are
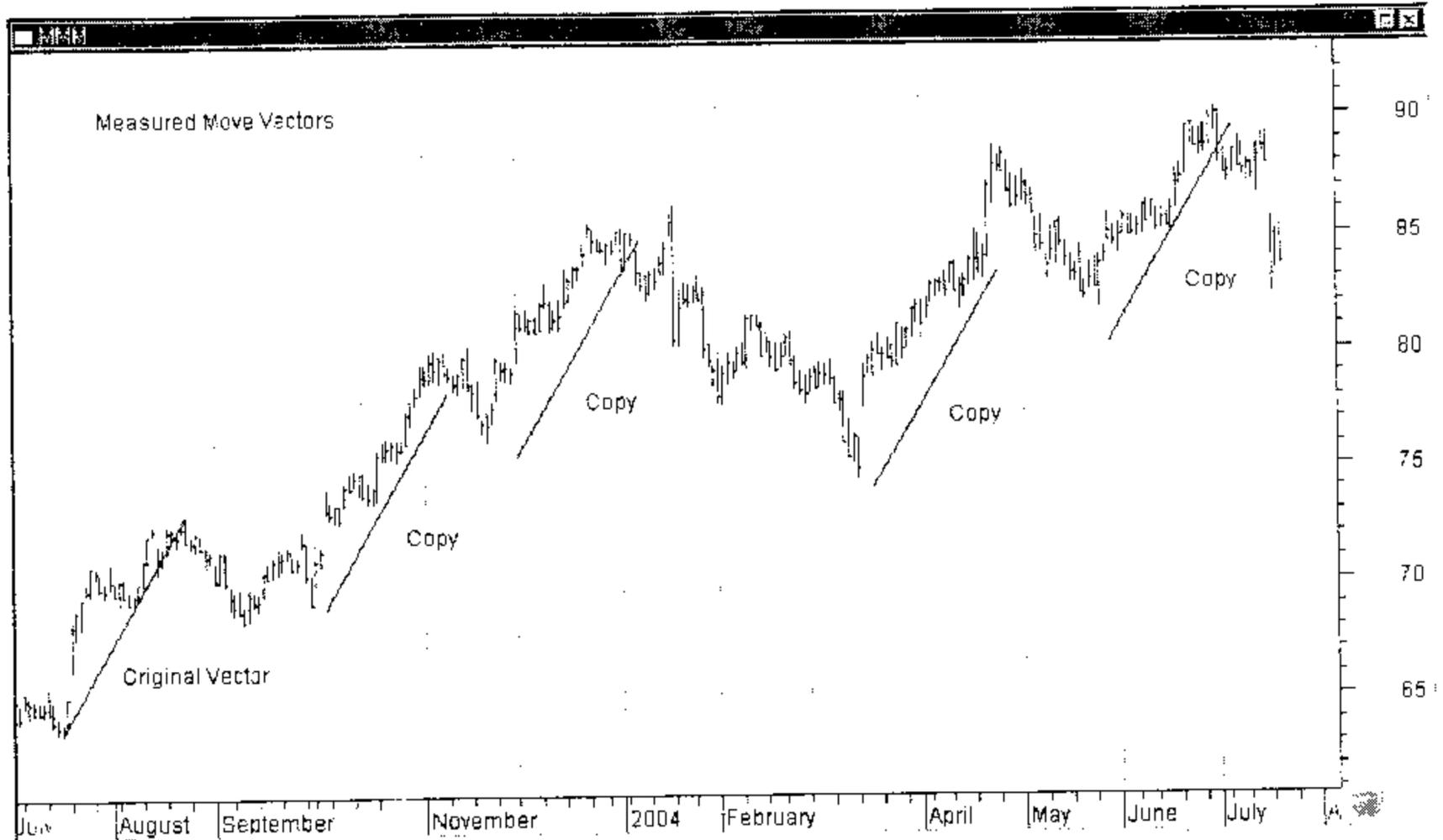
approximately the same distance. If stock prices were random we would not observe such vectors and these vectors that persist in time direction is what enables us to trade and forecast the market. **The very first thing** we do when we look at a chart is to find these time and price, measured move vectors. These vectors occur on any time scale like 5-minute charts, hourly charts, daily, weekly, monthly and yearly. You merely choose a time scale suitable to your investment goals and develop a strategy to trade along that vector. The basic principle is to get a chart that goes back 20 to 30 years and note **the extremes** in movement. The extremes are both in **price** movement, and **time** movement from major highs and lows. These extremes are usually common cycle lengths operating in that stock or commodity and they will repeat at cyclic intervals. Difficulties arise when one trades an hourly chart and gets all the extremes for the past three months and that works very well until you run into an October 1987 crash extreme that mirrored the 1929 pattern. All extremes must be noted and when a deviation occurs we use stop orders to protect our trading positions from long term unforeseen extremes.

Another pattern we "see" is time. That sounds like a misnomer but looking at long-term charts we can see various spikes at recurring intervals that are clear time cycles returning. I always mention to those new to these ideas that when the Dow Jones Averages first hit 1,000 in February 1966 the market topped (below chart) and went down and didn't hit 1,000 again until approximately **1,000 days** later! The price of 1,000 incorporated a 1,000-day time cycle within it. Actually the

Dow Jones 2/9/66 to 12/02/68

1,000

1000 Days
And a Price
Near 1000
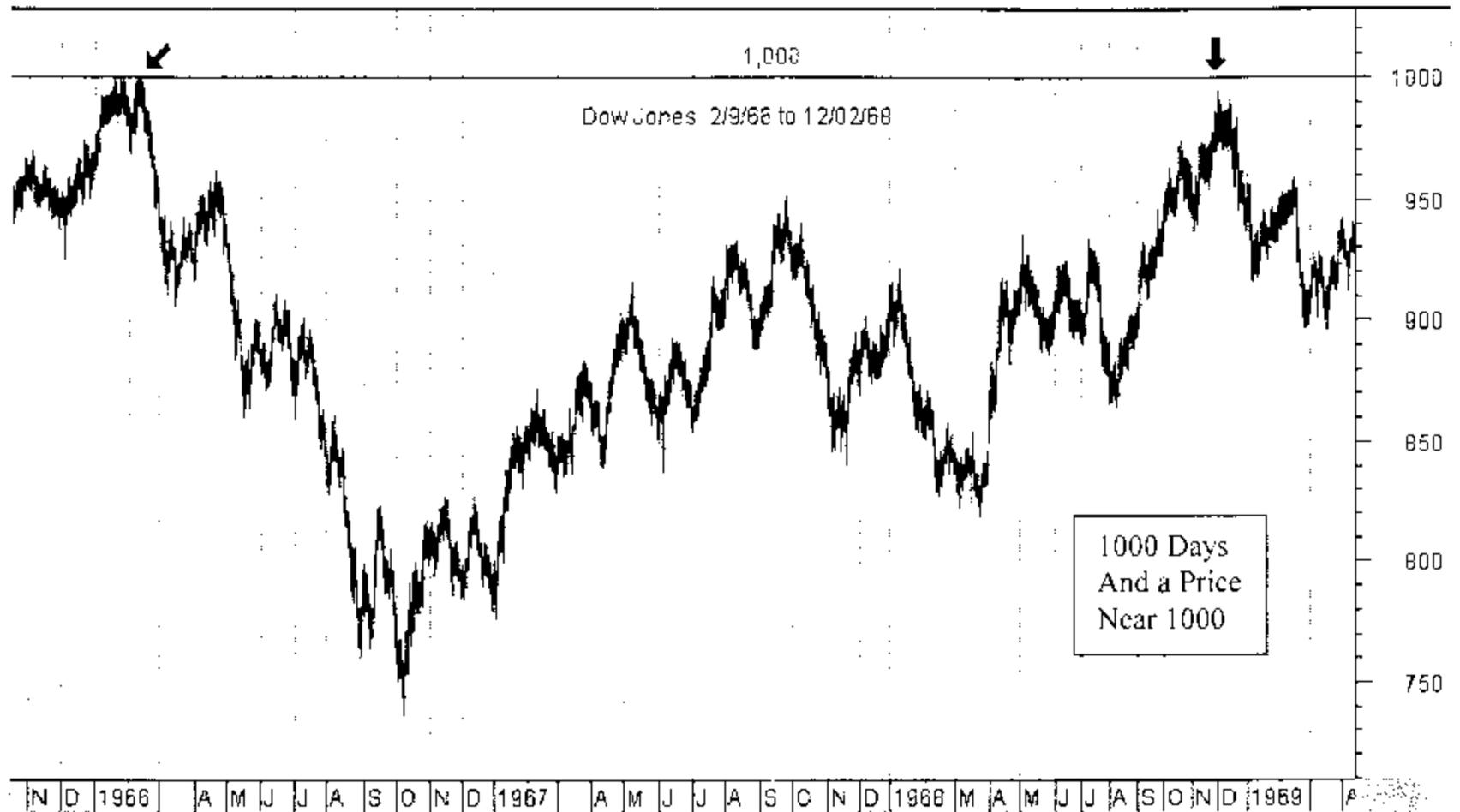
slippage was 1-2% but the chart clearly shows the pattern and in reality the 1-2% slippage is largely accounted for by the difference between calendar days and the actual degrees the Sun has traveled. The Sun moves 360 degrees in a year but it takes 365.2433 calendar days to do it, so one day is not actually one degree but is 360/365.24=. 9857. 1,000 degrees would take 1,000/.9857=1015 calendar days. The difference is small except over very long-term cycles but it's good to know since a twenty-year cycle could be off by 100 days or over a full calendar quarter.

A fascinating outtake here concerns biblical prophecy and to explain it I will repeat a paragraph from my first book *The Geometry of Stock Market Profits*.

"The key prophetic cycle is 360 days, and 360 years equal to the 360 degrees of a circle. Although we use 365.2422 days to the astronomic year, this is not so in prophecy, which is 360 days to the year. For example, Abraham Lincoln was assassinated on April 14, 1865. John Kennedy was assassinated on November 22, 1963. The time period between these two dates is 98.608 years by our counting, but the actual days are 365.2422 x 98.608 = 36,016, or if we divide by the prophetic year of 360 days we get 100.04, only two weeks off from a perfect 100 year cycle!" If the adjustment was good enough for GOD perhaps we should consider it also.

Chapter 1

LINES

The first thing we do with charts after we look for measured move vectors, is to draw lines on the chart patterns. Lines can tell us many things. Most are usually "trend" lines, which connect highs and lows, and give some sense of direction, but other lines can indicate time periods and various angles which are moving averages of time and price periods. Vectors are lines that comprise two forces, and in the speculative markets, vectors average a time factor and a price factor together. Throughout this book you must be ever cognizant of the underlying principle of charts and that is this: *as we move through time and space, the unconscious-subconscious mind of man translates that time movement into price levels.* Here the analogy of the planets as causative agents helps to grasp the point better. As a planet moves through space, the human subconscious mind adjusts the prices of stocks and commodities into vectors that are in direct proportion to that spatial movement. If a planet moves 3 degrees then the price of a stock might advance $3, or 30 cents, or 3 cents. Now many of you may not want to buy into the planetary causative theme, but the analogy works well to demonstrate the points in this book so please bear with me. Regardless of the actual cause, what is absolutely true is that the price structure of a stock's chart is mathematically precise in every detail, and once you know how that structure is defined you can make extremely accurate predictions about future price levels and the dates, when the stock will sell at those levels. People who don't succeed at this invariably don't have the patience to *wait* for those precise timing points but rush in on an emotional urge which is usually the precisely wrong time to trade.

Horizontal time period lines or fixed "static"cycles tell us when to expect change but say nothing about the price level. On this next chart of KLA-Tencor we see a low of $25 spinning out fixed length 25 calendar day cycles. Each of these dates gave us an opportunity for a decent trade. Keeping track of known time counts in a calendar spreadsheet will alert us to trading opportunities. A great way to beat the market is to wait for a known time cycle to come out and then trade with the buy or sell signal that appears at that time. The KLA-TENCOR chart shows the typical principle that stock prices have within themselves a numerological equivalent of a time period cycle. This may be a composite cycle not so readily apparent or it can be a simple and direct frequency like the KLAC pattern. Here we see the principle that a $25 low price had incorporated into that

25 calendar day cycles from a low of $25

10/10/02 low $25
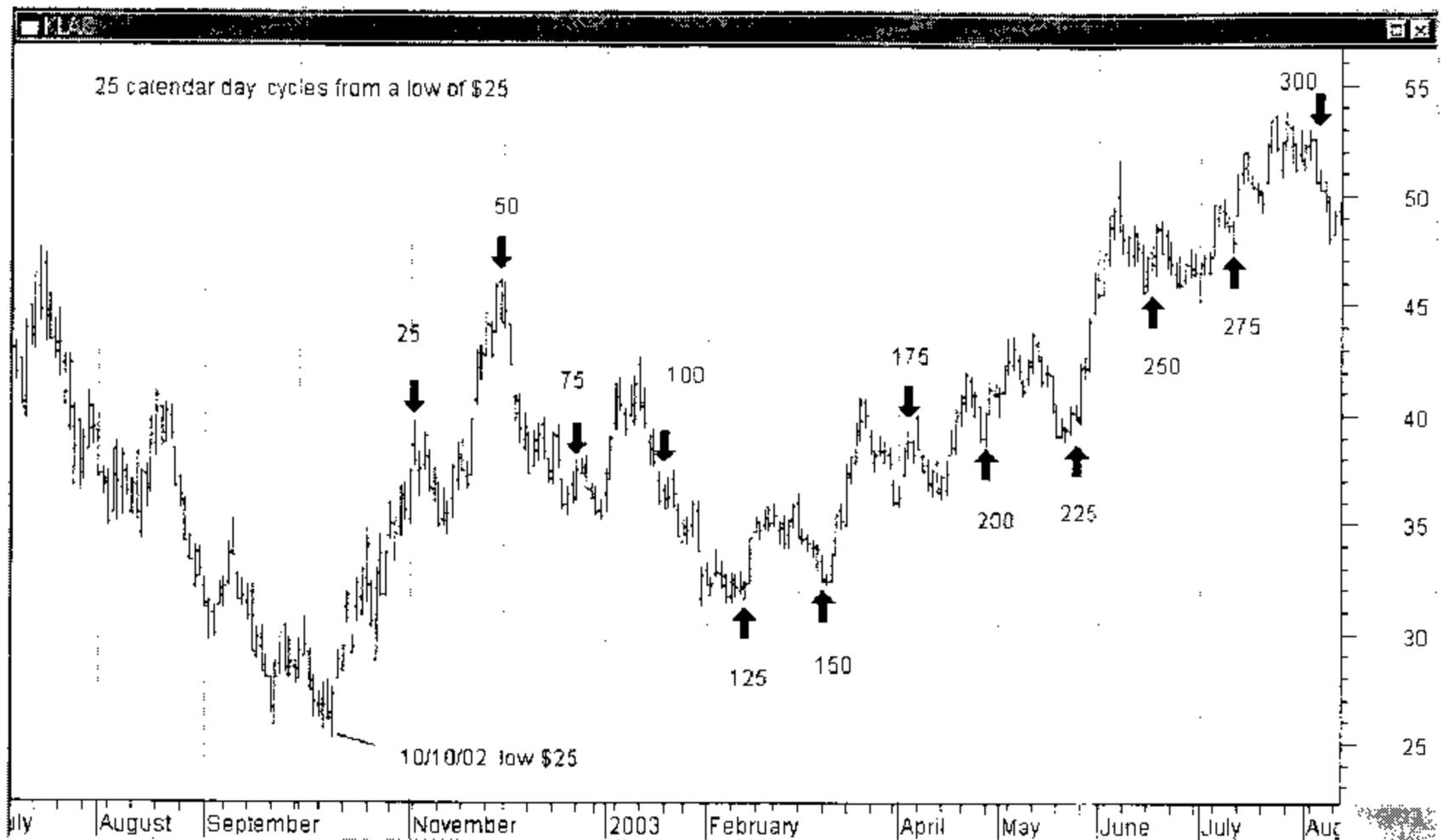
price a time harmonic of 25 calendar days. Each 25-calendar days in the future the stock made a reversal that was usually quite tradable.

When I first came to Wall Street and started professional trading, the head of a trading firm told me he could flip a coin and make two traders take opposite sides of a trade to start trading but in the end the better trader would always come out ahead. That was because he would reverse direction as soon as he knew he was trading against the trend, and the inexperienced trader would usually sit on a losing trade until he lost a lot, and would rarely reverse positions even if stopped out. He was basically saying that you stay with your winners and let them run but you stop yourself out of your losers quickly. Even with a 50/50 chance of being right on the initial direction, a good trader would always find the trend and go with it. He would take small loses and big wins. I have seen a few traders who are highly successful, only bat 40% right and 60% wrong, but they stop out for very small losses the 60% wrongs and let run for big gains the 40% winners. Waiting for a good known cycle to repeat will give us an edge as to the beginning of a longer-term trend that we can ride for a sizeable profit. It's usually a good idea to let your profits run with a stop loss when using a buy signal from a timing cycle. After all, if you calculated the time cycle correctly and waited for it, you might as well get the added benefit from it. Flipping out the trade for a 50-cent profit like every day trader does, makes no sense if you have taken the time to precisely calculate the entry point. The exit point can be similarly calculated.

If we rotate a line we get an **angle**. Simple trendlines are just angles that connect a series of lows or highs and give a visual picture as to what the trend is. The vast majority of traders just draw connecting lines to highs and lows and never realize that there are very precise ways of defining a trendline that has properties that can be used to forecast future outcomes. Although the use of standard 45 degree, or 30 or 60 degree triangles to draw lines works well, I prefer to *adjust* my angles to the actual price seen on the chart. Just because we plot time on the
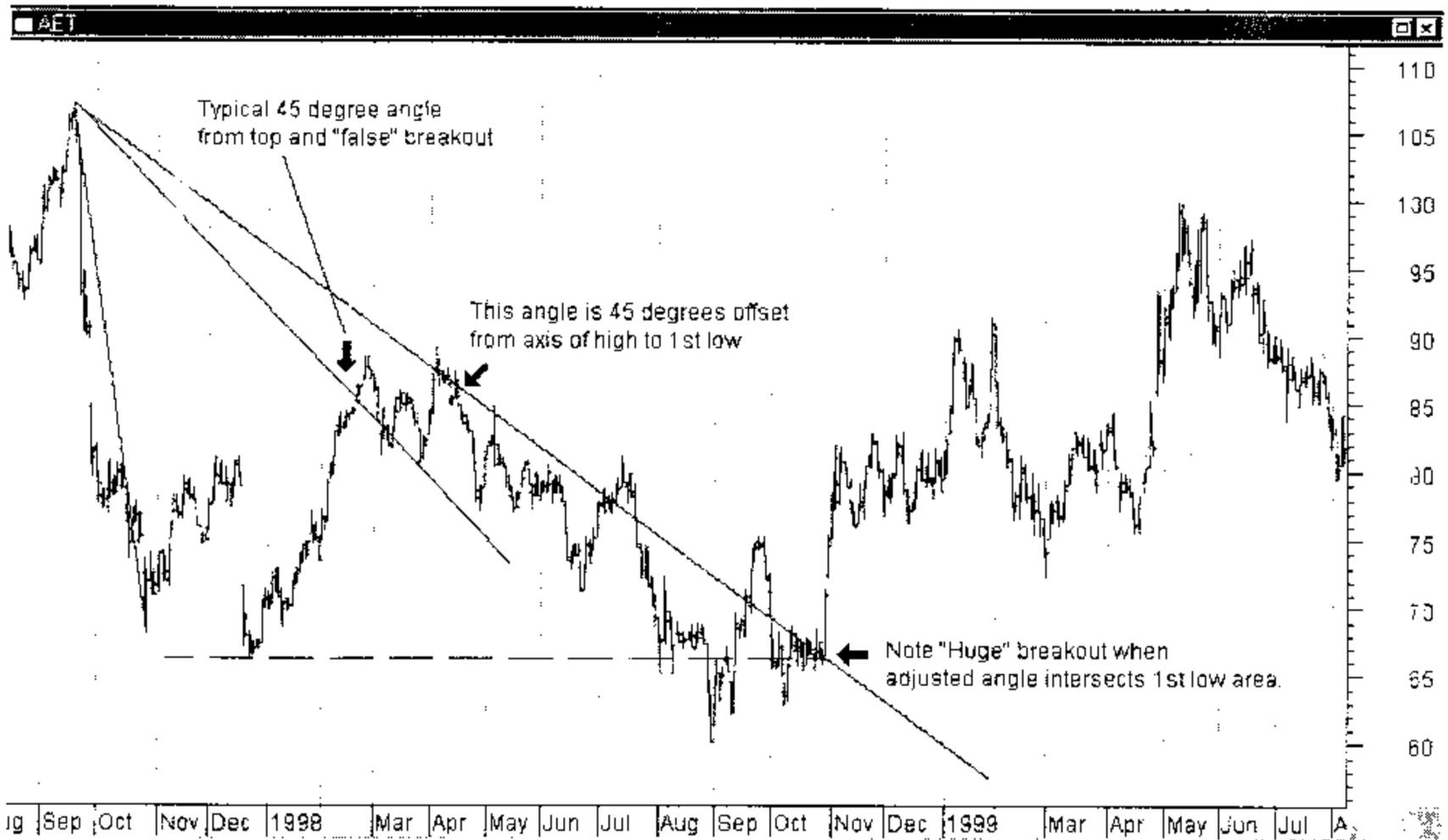
horizontal axis and price on the vertical doesn't mean other dimensions of time and price can't exist. If we are talking about movement through space and that movement being translated into price action then we could see a spot on a chart that is actually moving towards us or away from us and never notice it. It is because of this three dimensional concept that I began to adjust my angles to the *plane* of the stock's movement. Instead of drawing a simple 45-degree angle up from a low, I drew a line from the low to the first impulse top. That vector line connecting the low to high is a true axis of the price movement and *angles offset* from that axis would be harmonic frequencies. The chart above shows how a standard 45 degree angle from a top leads to an erroneous conclusion about a trend reversal, but a 45 degree angle adjusted to the plane of the correction shows a much more accurate interpretation.

Speed Resistance Lines
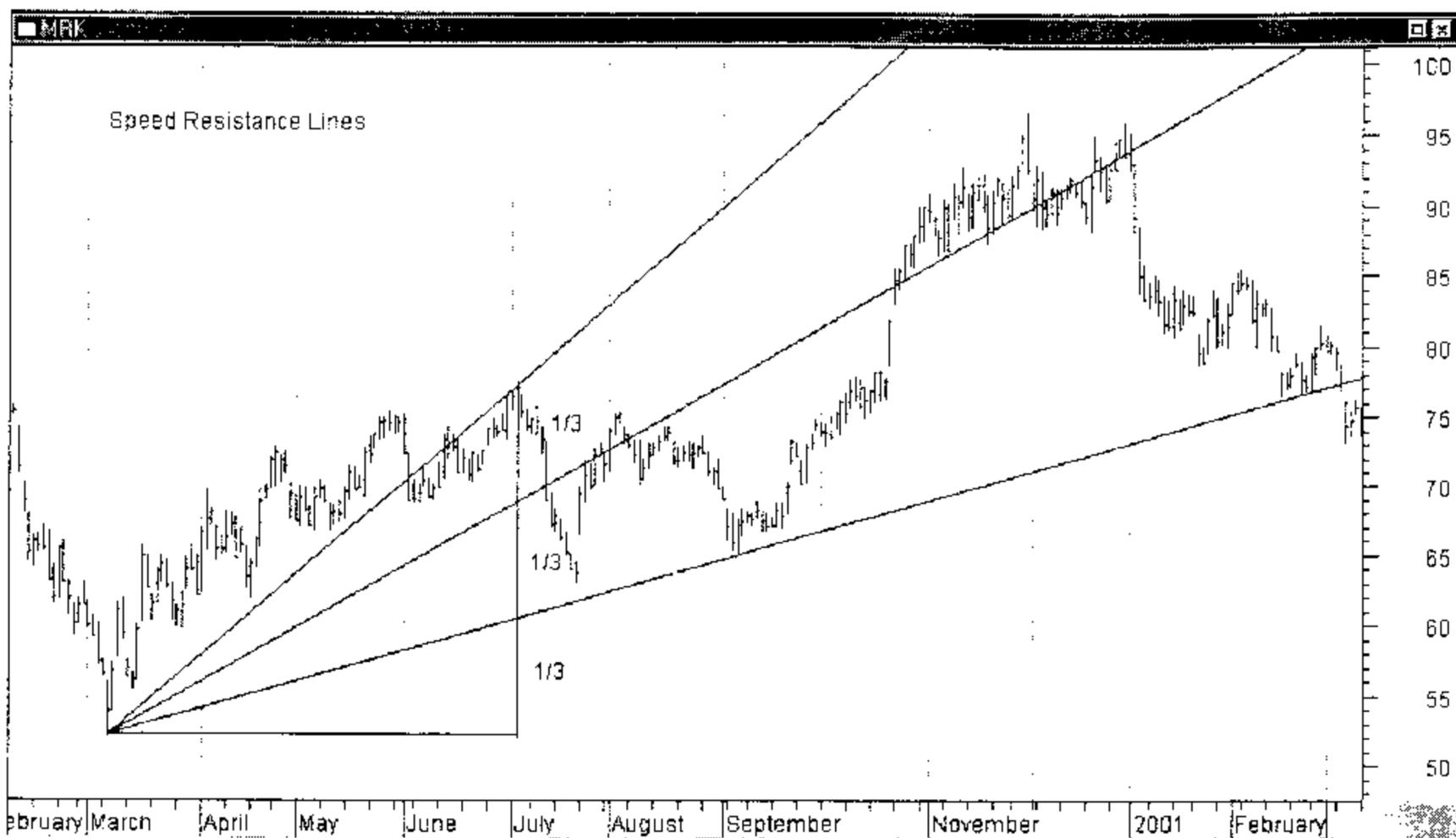
One of the first techniques that appeared before I was old enough to trade was the "Speed Resistance Lines" method which took the distance from a low to a high and divided that distance into thirds. Lines then connected the low with those 1/3rd points underneath the high price and extended those trendlines into the future (see above chart). These one-third angles had good trendline properties as can be seen in the chart. This is really a form of "Geometric" angles that W. D. Gann popularized nearly 80 years ago and which I use. They are "geometric" because they are based on divisions of a geometric shape most usually a square. Angles connecting the corners of a square are always 45-degree angles and then you further subdivide the square to the midpoint of each midpoint. This is basically taking a vertical line and dividing it into 1/8, 1/4, 1/2, and 3/4 and some put in the 1/3rd and 2/3rds of the speed resistance lines also.
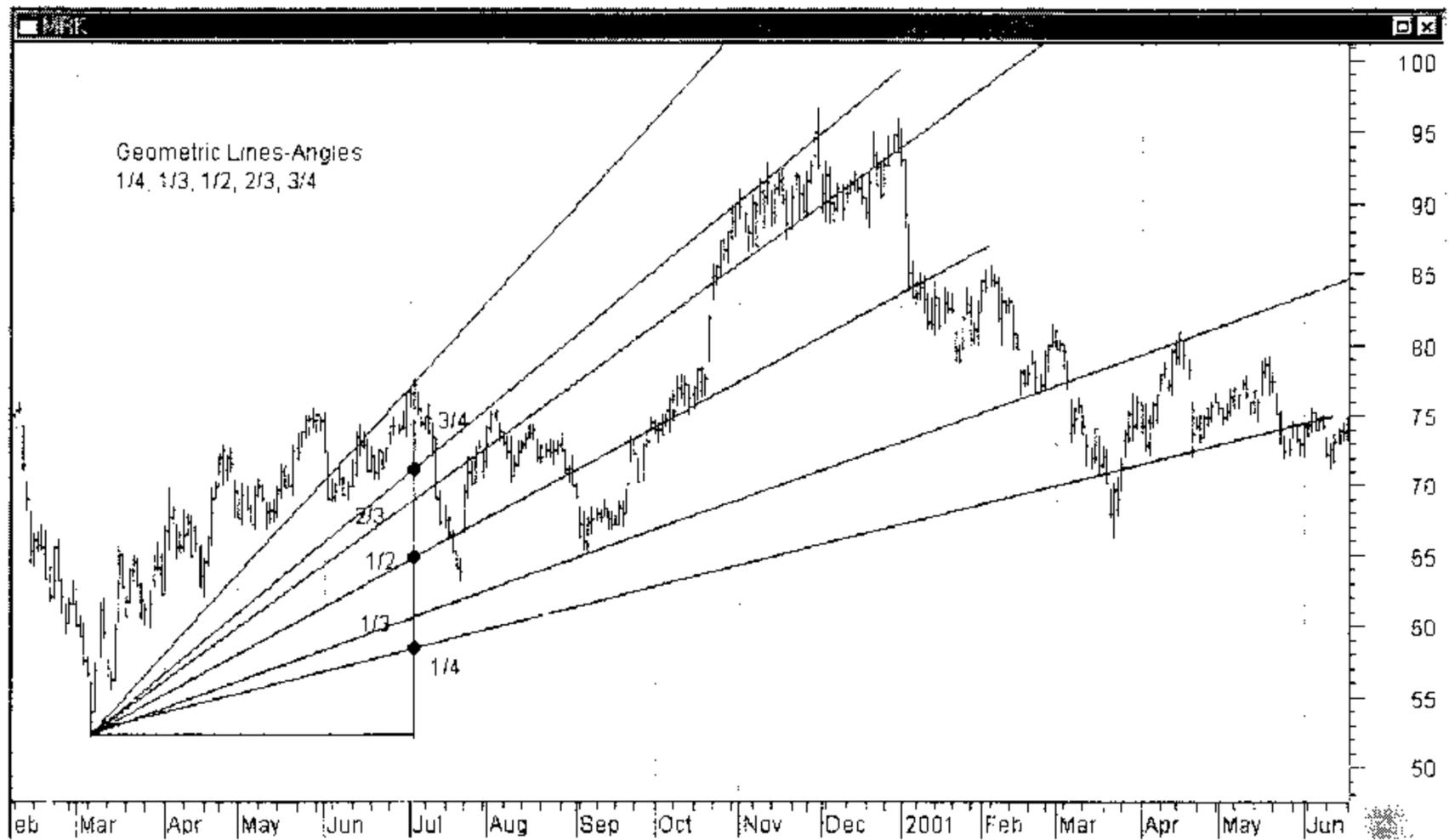
The above chart shows the geometric quarter angles as well as the thirds and you can see how they catch all the future trading movement. As long as you are basing these angles on the vertical distance between a low and a high on the chart, the angles will be geometric ratios of the price structure. Just arbitrarily drawing 30 degree, 45 degree or 60 degree angles without regard to a low *and* a high may or may not work. But when you take a high *and* a low you are effectively adjusting the angles to the plane of the price axis the stock is actually following. Note that this is similar to drawing an initial line connecting a low and a high as the primary vector and then laying your 30, 45, or 60-degree angles *offset* from that point. Depending on the "steepness" of that primary vector these angles will be vastly different from the standard method with a vertical and horizontal axis. A good tip is to always adjust your angles to the true vector angle of the initial impulse from a low to the first high (or vice versa if starting a bear trend down from a top).

The idea of adjusting your angles to the plane of the price movement as well as using geometric angles incorporates within it the thought that price reaction points can also be adjusted to the plane of the movement. Simple 50% retracements may mathematically be more or less than 50% if the plane is tilted. Back in the 1950's and 1960's Dr. Alan Andrews popularized a method of doing this, which was added to most subsequent software packages and listed as "Andrews Pitchforks". Andrews became quite wealthy using this technique so it's worth demonstrating.

The key idea is that the midpoint in price of a swing measured along that vector can be used to forecast future trends. You need three points to do this. A prior high, then a low, and then the next high. The future axis line or "Median Line" as Andrews called it, was created from the first top drawn through the midpoint of the next low to high swing. This would give you a downward correction slope. If you needed an upward target, you would start with a low and bisect the midpoint of the next high to low swing.

The chart below shows the three points 1, 2, and 3, needed to draw the uptrend lines. The center Median Line (1) is most important but parallel angles of (2) and (3) complete the pattern, which looks like a 'pitchfork', hence the name. If the prices go outside the primary angles you just create a parallel new angle an equal distance from the point of digression. That trendline is the lowest one shown in the chart and you can see how it caught future drops and that particular slope was the dominant one on this chart.
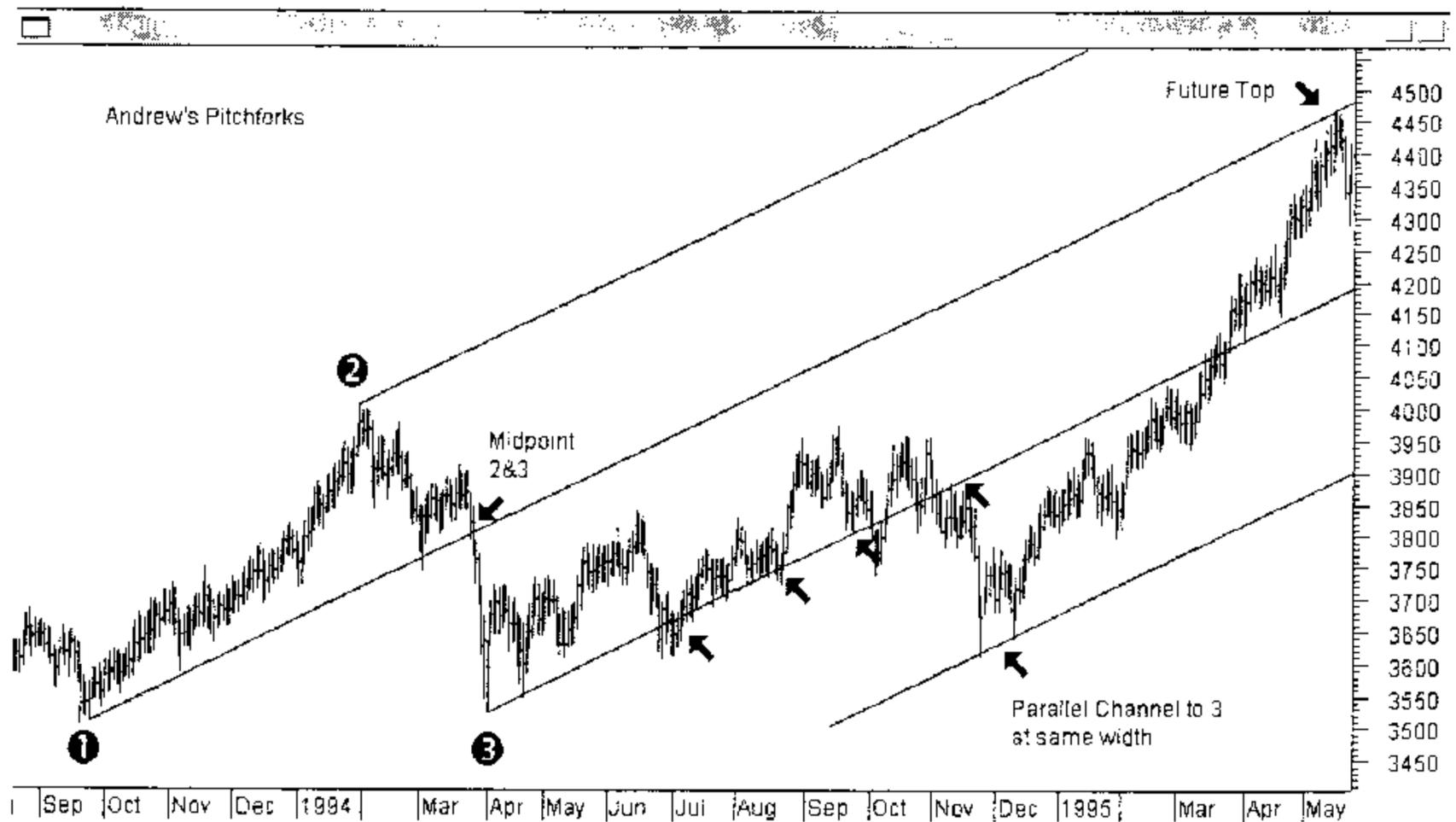
The chart below shows the Andrews technique with a downtrend using points 1, 2, & 3 to define the pitchfork. The arrows show the future hits on the trendline generated, but also note the very important "mirror image" inflection midpoint from the Median Line. Points A and B are equidistant from this midpoint and future price patterns after those points show identical measured moves. Note how after B, the leg was equal but opposite from A going backwards. You can also look back now at the prior chart and see the mirror image at the Midpoint 2&3. These
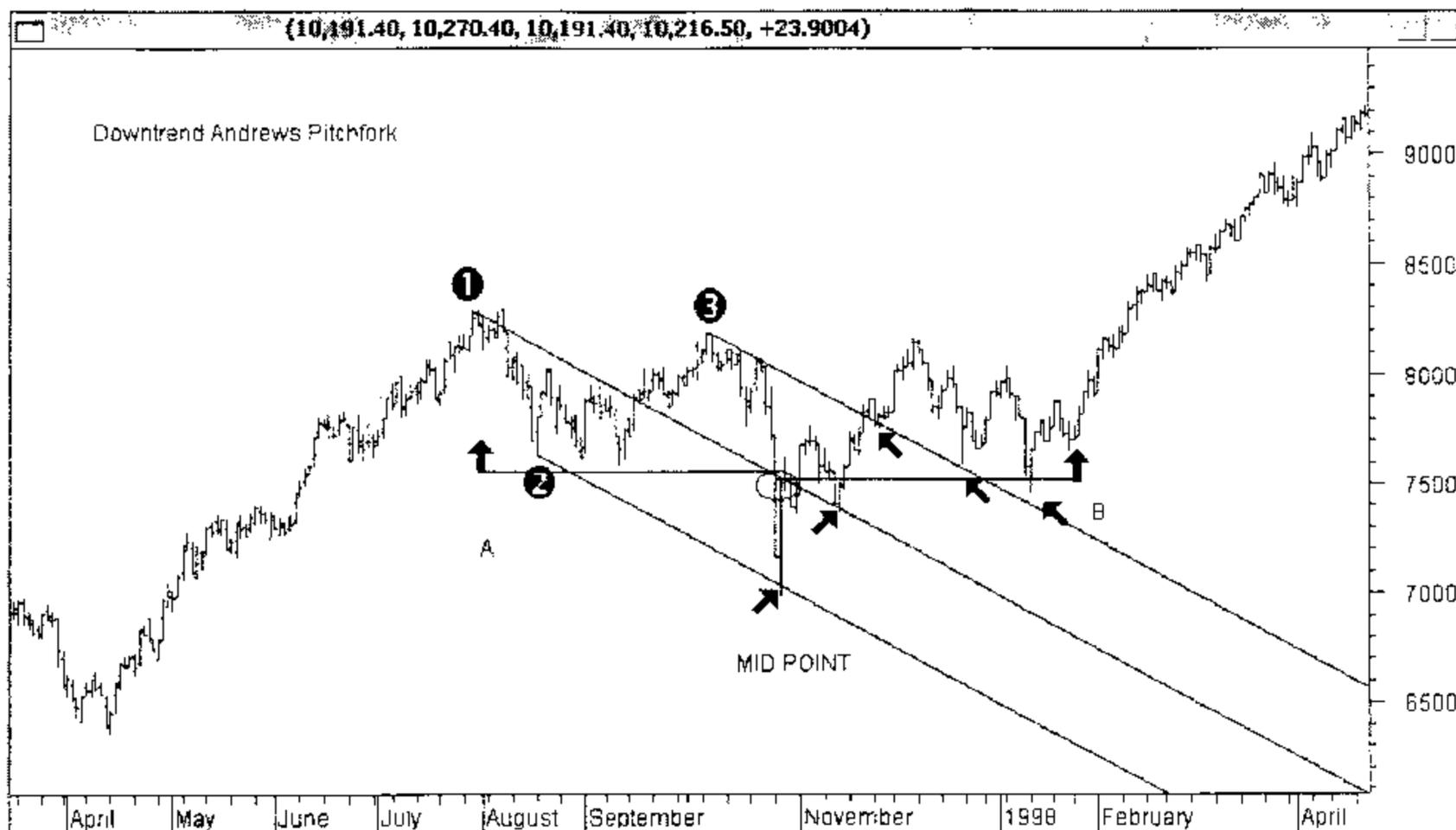
midpoints based on vector plane divisions can yield all kinds of information and I urge you to come back to this after you finish the book and apply all the techniques in later chapters to these Median Lines to see some very powerful forecasts. This kind of information is priceless and Andrews and his associates made tens of millions of dollars on it.

Remember that this technique is based on principles that adjust the plane of the price chart so that angles drawn from that adjusted plane are much more accurate in pointing to the actual trend, as well as defining support and resistance areas that may be completely different from typical mathematical retracements. For years I have used this technique in trading S&P futures on a 5 minute or 15 minute chart and have further refined it to include various measured move counts placed along these parallel lines. If you have read my other books on arcs and circles you will find that these work very well on these parallel channels. In the final analysis we need to use techniques that are based on sound principles and the Median Line technique of Alan Andrews is one of those.

Chapter 2

LOGARITHMS

If geometric angles are straight lines that bisect shapes, what about accelerating rates of increase and emotional manias? Parabolics are the extremes, and logarithmic angles can often be more accurate and essential for keeping time over very long distances. Logarithms are of course exponents of base numbers that are raised to those powers. In the common log scale of 10, we say 10^2 is 100 so the log of 100 is 2, or the power 10 is raised to, to get 100. Logarithms are usually very small numbers compared to what we expect as answers to our problems and they have the advantage of eliminating a lot of "noise" or extreme variability found in large numbers. A 10,000 number on the Dow Jones has a log of only 4 in base 10 notation, so the variability of the spread around that 4 is quite small i.e. going from 10,000 to 11,000 is only a log 10 change of 4 to 4.0414. We can make precise adjustments to these log bases and then expand them to get accurate stock market predictions. If you have a hand held calculator the "log" button is the base 10 key that will give you these "4" numbers if you put in 10,000 as the working number. You can also see it by using the x^y key (raising the base "x" number to the power "y"). If you put 10 as the X base number and raise to the 4 Y power you will get 10,000.

Perhaps a more useful log function on your calculator is the "LN" key, which stands for the "natural logarithm" E, or 2.71828 as the base instead of a base 10. This number is one of the keys to the universe along with 3.1416 (PI), 1.618 (PHI), 1.414 (sqrt 2), and 1.732 (sqrt 3). It is the basis of the Great Pyramid along with Stonehenge and the ancient British measuring system of the inch and foot. By the way, the British inch and foot in reality are far more meaningful than the metric system, as the inch is directly related to the radius and diameter of the Earth (how the ancients knew of this is probably a more important question-God? Aliens?). The natural log function is used in many ways but it can draw very good trend lines over long time periods. This is especially good for accelerating trends like we saw in the 1990's. For example if you take the bottom of 7/16/96 at 605.88 S&P cash, the natural log of that number is 6.40668. The next big low was 4/11/97 and the price was 733.54 the natural log of which is 6.597882. There were 269 calendar days between these two dates and the difference between the logs was 6.597882-6.40668=0.191202, or .191202 / 269 days =.0007108 average log points per day. Lets now move forward to the big low of October 8, 1998, which was 923.32. That

was 545 days after the last low so we multiple the 545 by the average log points of .0007108 and get.387386 as an average log increase which we add to our last log point of 6.597882 and we get 6.985268. When we hit the anti-log key on our calculator for this number (e^x) we get 1080.59 and we can see it is well above the low of 923. Take a look at this next chart from that time which shows the points 1
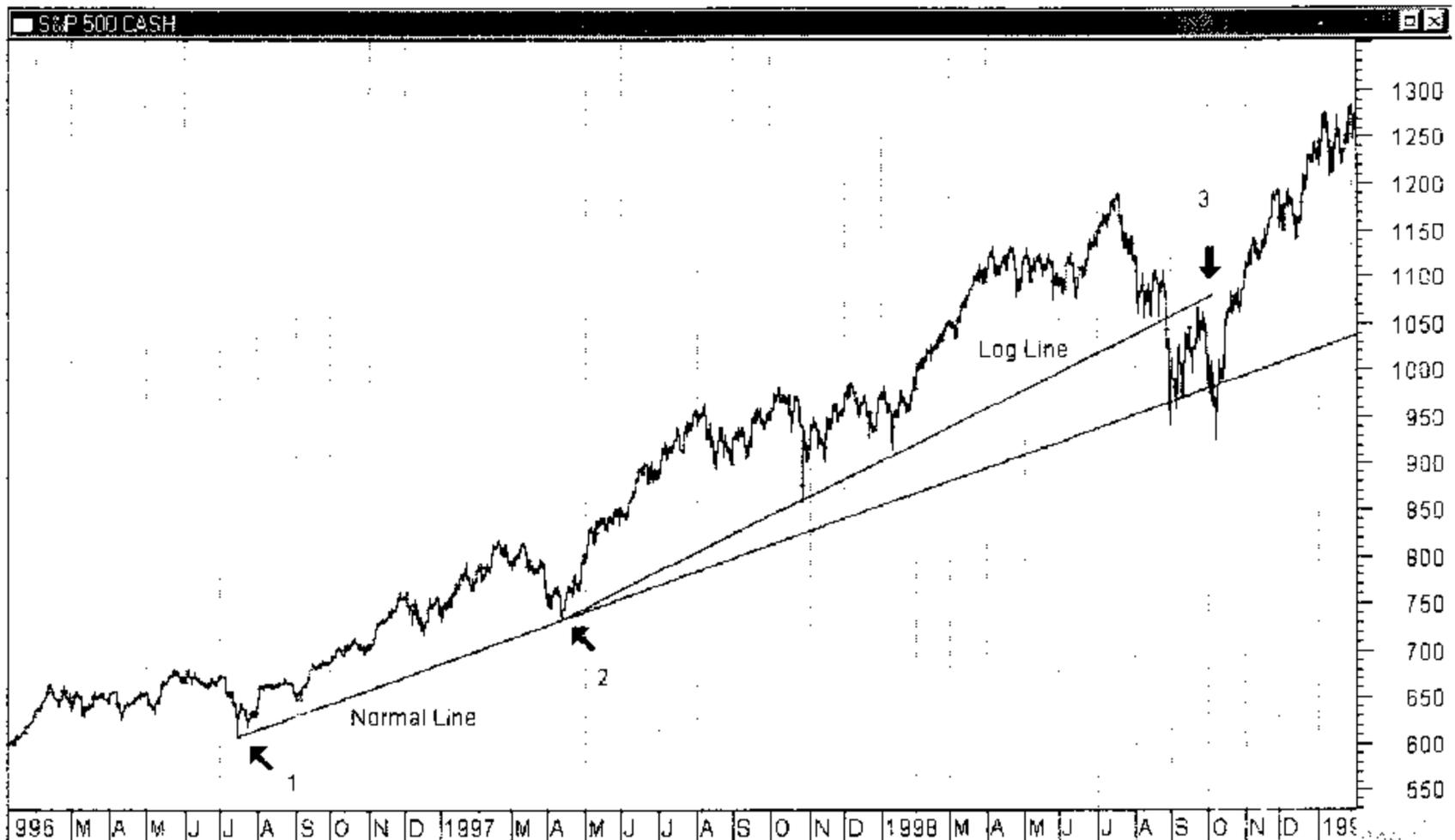
and 2 creating the first line and see how that line extends in a straight line. Note how at point 2 to point 3 the line starts going parabolic (or more precisely logarithmic). Also note how the increasing rate line caught the intermediate bottoms between point 2 and 3. How many times have you drawn trendlines connecting bottoms and seen this accelerating pattern or ever steepening trendlines? Logarithms are the key.

Continuing the day count out to 3/24/00, the all time high date with a price of 1553, we find the line is near 1578 so we can get a feel for how these accelerating trendlines force the market up. Obviously to be most accurate we would plot these lines with a computer daily or use a spread sheet.

Lets look at another facet of natural logs, the *time* factor. We'll use the 1929 all time high for an example since that's a major point in history. The Dow Jones top on September 3rd 1929 was 386. If we take the natural log 2.7182818 and raise it to a power we can use that as time. Gann liked the number 7 and $2.7182818^7 = 1096$ which is almost exactly 3 years and on September 3, 1932 the market ended its first big rally off the '32 low.

1096 days from 9/03/29
E^7
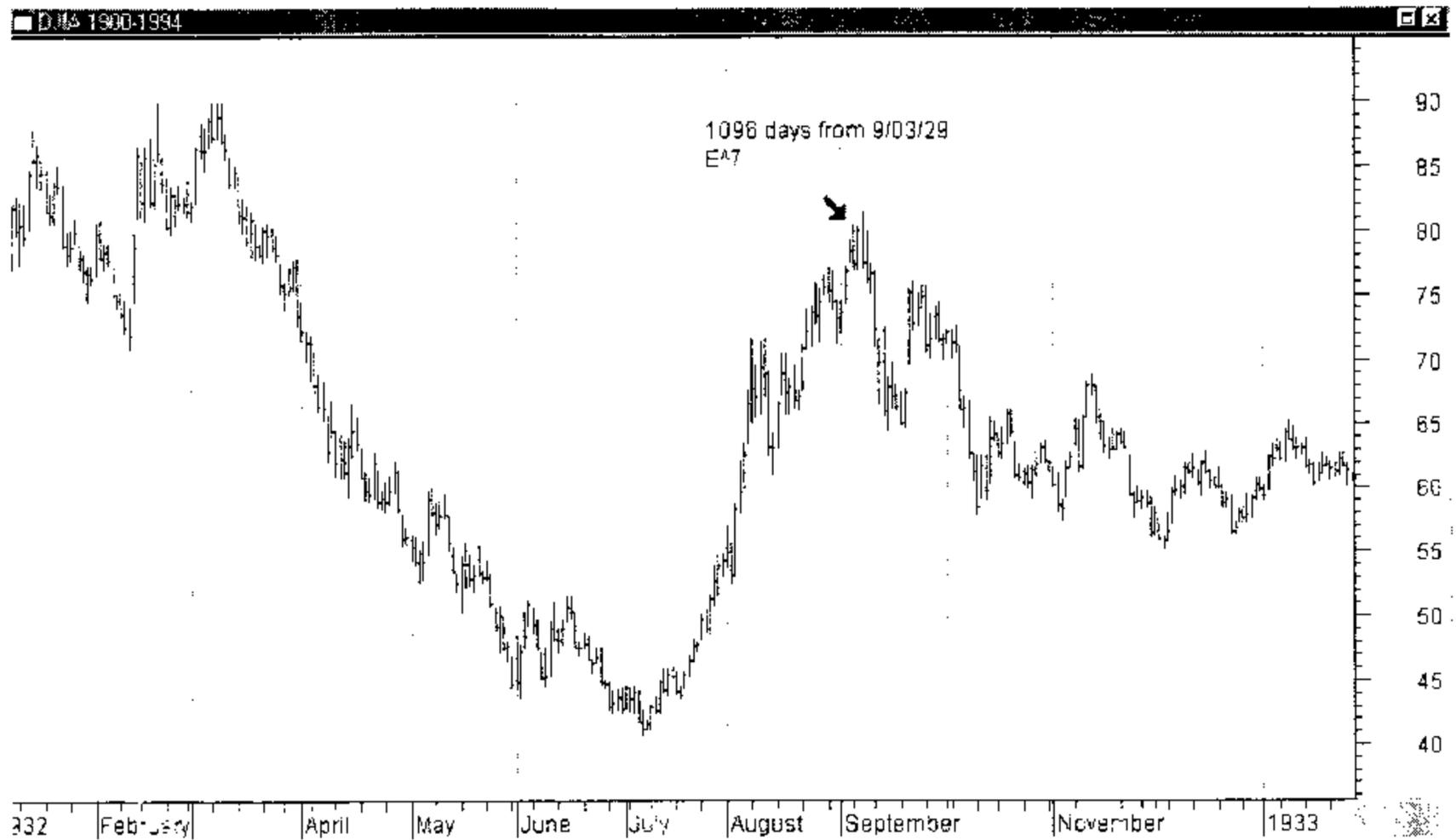
If we now take 2.7182817 and raise it to the 10th power we get 22,026 days and that is 12/23/89 within a week of the all time high in Japan and its 1929 style crash. The Dow Jones at that time was selling at *2810* and the natural log of the '29 high of 386 is 5.95584 and if we expand that by 1.333 (one third) we get 7.9391, the anti log of which is *2805*. Try another, one and a half times that 386 log is 1.5 x 5.9558=8.9337 and the anti log of that is 7,583. That many days after September 3rd 1929 was June 8, 1950. The chart on the next page tells the whole story.

How about the more recent extreme low of 102.20 S&P, on August 9, 1982? Let's add one full natural log to the log of 102.2 which would be 4.6269317 + 2.7182818=7.3452135, then take the anti log and you get 1548.76 that hit on the all time high date of 3/24/00! Another "curiosity" of these logs is the case of the similarities between 1929 and 1987. The log of the 1929, 386 high is 5.9558 and the 1987 top of 2746 is 7.9179, the difference between the two is 1.9621. The number of days between the two dates is 21,175 and the log of that is 9.9606. The difference between the price logs of 1.9621 and the dates log of 9.9606 is almost exactly 8. The Octave, the Octagon Chart, the black ball "8".

Another point about logs is how to use them for technical retracements. Most people know that from the all time S&P high of 1553 in March 2000 to the October '02 low of 769 the 50% retracement would be 1161 which was indeed hit on the high day of March 5, 2004. A logarithmic retracement, however, is different and is equivalent to the "Geometric Mean" or multiplying the high and low prices together, and then taking the square root. 1553 x 769=1194257, and that square root is 1092.82. This number has been seen a lot going up to 1161 and down from it. If you need a retracement like 25% or one third, you take the individual logs of each high and low and subtract to get the difference in logs. You then take your fraction of the difference in logs and add it to one of the logs and then find the anti log.

Logarithms represent accelerating rates of change and as my prior books demonstrated how circular arcs clearly define stock trends, we know that charts are often in acceleration phases that lead to great volatility and reversals. If we can trade near these end points we will see much greater gains. Defining that end point is often done with logs. Of course a circular arc graphically demonstrates when an arc is failing, but oftentimes we can't easily trend fit arcs over the data we have. Most software packages compensate for this, however, by allowing you to make log, or better termed 'semi-log' charts. Take a look at this next chart of Amgen with three trendlines A, B, and C, manually drawn in using the technique mentioned above of using the change in price logs and the change in dates to plot the three points. Section C has accelerated from the rate at B as has B from A. After end point C the chart broke under that trendline and the stock's trend turned down.

Now look at this *exact same chart* again only this time in addition I have rescaled the Y (price) axis to semi-log scale. Now we have the acceleration factor built into the price scale and our previously curving arc is now a near straight line which indicates a *constant rate of growth*. The stock still breaks down once this trendline is broken but now we have a simple straight line to deal with.

Various rates of change will result in differing slopes of these log lines and traders should stick with stocks following the steepest trendlines since these are

(58.3300, 58.4500, 57.6200, 57.6300, -0.1300)

Same Chart with scale
converted to 'Semi-log' Y-Axis

Note how segments A, B, C have
straightened out

moving the fastest. Sometimes the use of these log lines makes analysis easier as in the decade of the 1990's where we were in a very long term accelerating trend interspersed with brief periods of sharp corrections. A 'straight' log line during this period would have shown you where those sharp corrections would end without changing the long-term growth rate, - hence the real market trend.

This chart on the page below of the Dow Jones for this long decade shows confusing trendlines that are exceeded and broken and regained a number of times.

Dow Jones with 'Normal' scale and confusing trendlines
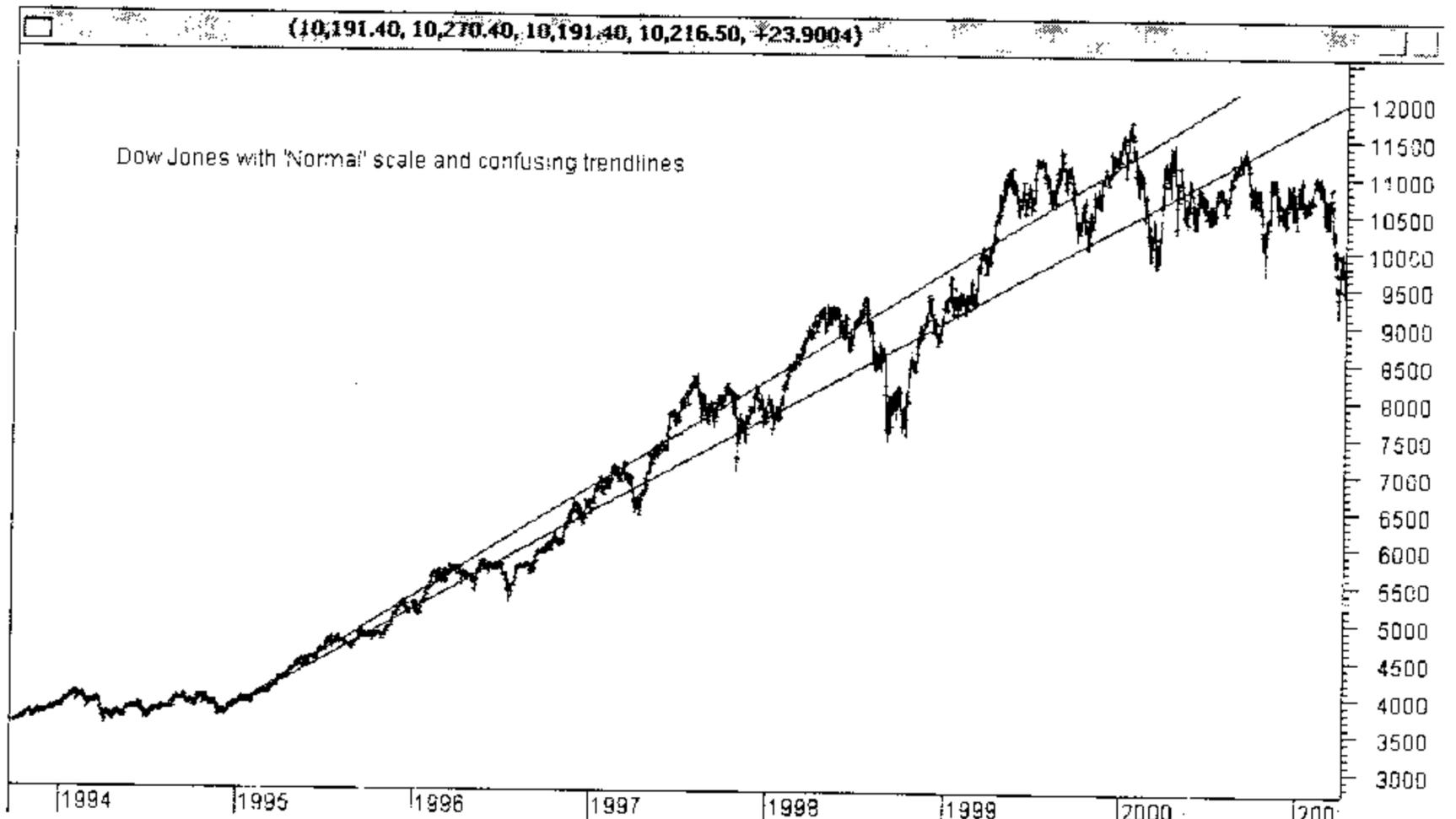
This next chart shows that same Dow Jones but rescaled to semi-log. Now the apparent confusing trendlines make perfect sense and long term stock investors have a logical place to put stops - under those lines which when broken indicate a real change in trend of growth.

Dow Jones with Semi-log scale
and exact same trendlines that
are now quite clear as to the trend
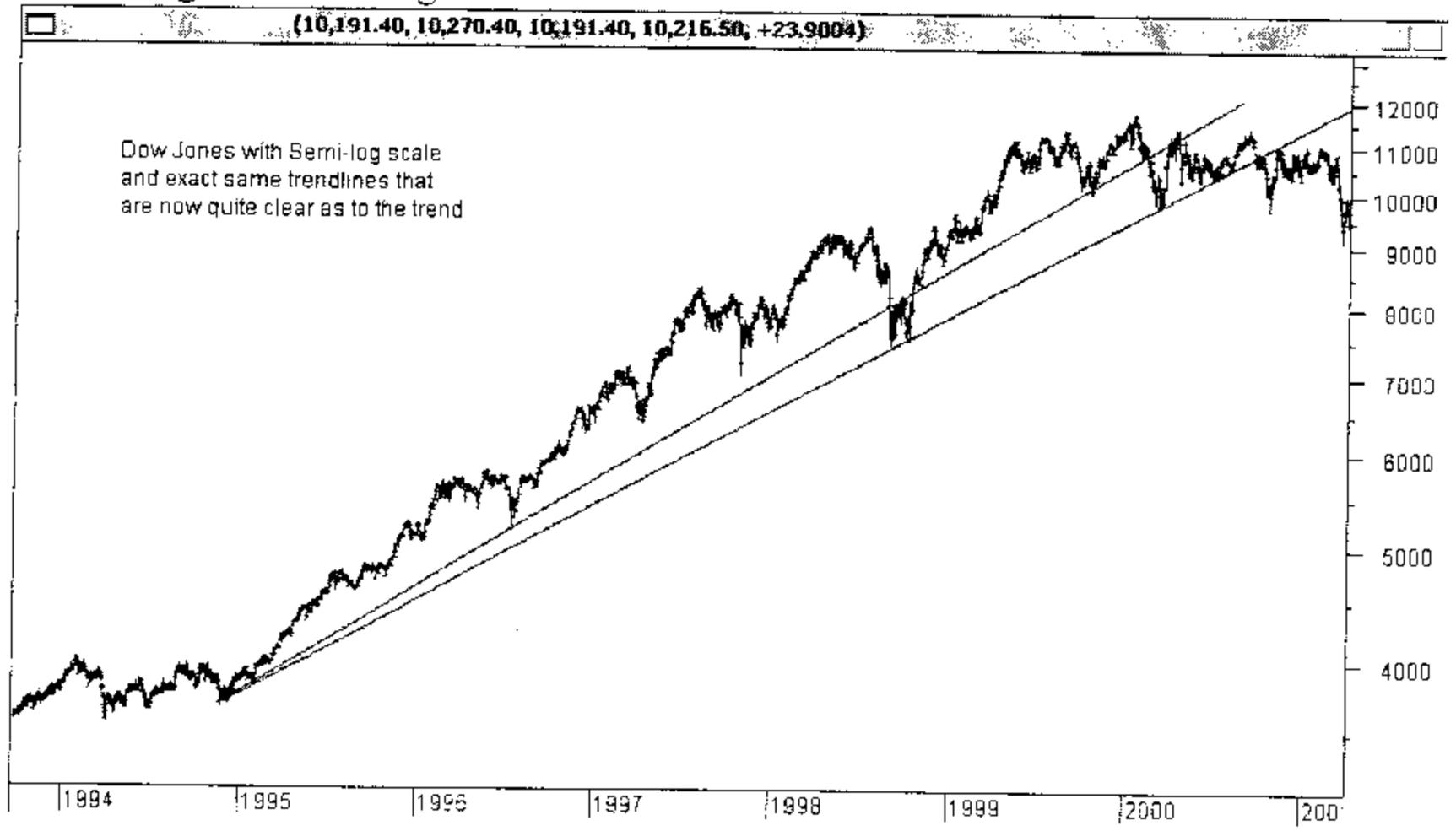
Throughout this book I will constantly emphasize that "time and price are the same thing'. If so (and it is) then a technique that works on one (price) will also work on the other (time). Semi-log charts are no exception. The previous chart showed how straight lines on a semi-log scale chart showed true patterns of price that changed trend when broken. If so we should also see time harmonics where those trendlines intersect important price levels. This next chart is the same one again but this time I have put in horizontal angles that come from major highs and lows on the price pattern, and if you look to see where those lines intersect you will see big changes in the price pattern at those times. As we go through the book, I will develop many techniques like this to pinpoint the exact time and price targets for reversals, but first we'll have to explore a few more simple concepts before we can put it all together. The next chapter will lay out the basics of the math.

(10,191.40, 10,270.40, 10,191.40, 10,216.50, +23.9004)

Dow Jones with Semi-Log
scale and horizontal support and
resistance lines creating cyclic turns

Chapter 3

JENKINS TRUE TREND LINES

Logarithms are what were behind my thinking when I discovered what have become known as "Jenkins True Trend Lines" so called because I allowed the Gann Analyst software designers (www.GannAnalyst.info) to incorporate this idea into their tools and they named it after me. The basic principle evolved from the observation that all price targets are square root increments and if you have read my other books or my course you are quite familiar with them. Later in this book I will go into detail about the Gann Square of Nine chart, which is a number wheel that is used to forecast prices. This type of "wheel" has great utility in forecasting time and price targets.

| 307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325
306	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	326
305	240	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	258	327
304	239	182	133	134	135	136	137	138	139	140	141	142	143	144	145	198	259	328
303	238	181	132	91	92	93	94	95	96	97	98	99	100	101	146	199	260	329
302	237	180	131	90	57	58	59	60	61	62	63	64	65	102	147	200	261	330
301	236	179	130	89	56	31	32	33	34	35	36	37	66	103	148	201	262	331
300	235	178	129	88	55	30	13	14	15	16	17	38	67	104	149	202	263	332
299	234	177	128	87	54	29	12	3	4	5	18	39	68	105	150	203	264	333
298	233	176	127	86	53	28	11	2	1	6	19	40	69	106	151	204	265	334
297	232	175	126	85	52	27	10	9	8	7	20	41	70	107	152	205	266	335
296	231	174	125	84	51	26	25	24	23	22	21	42	71	108	153	206	267	336
295	230	173	124	83	50	49	48	47	46	45	44	43	72	109	154	207	268	337
294	229	172	123	82	81	80	79	78	77	76	75	74	73	110	155	208	269	338
293	228	171	122	121	120	119	118	117	116	115	114	113	112	111	156	209	270	339
292	227	170	169	168	167	166	165	164	163	162	161	160	159	158	157	210	271	340
291	226	225	224	223	222	221	220	219	218	217	216	215	214	213	212	211	272	341
290	289	288	287	286	285	284	283	282	281	280	279	278	277	276	275	274	273	342
361	360	359	358	357	356	355	354	353	352	351	350	349	348	347	346	345	344	343

On this circular wheel you can go all the way around the wheel one full cycle by taking the origin number and taking its square root and incrementing that by 2 and then re-squaring. For example the number 34 is one cycle below the number 61 because (sqrt(34)+2)^2=61, approximately. Going down the left hand side of this wheel in a straight line are all the odd numbers squared (9, 25, 49, 81...). This makes the structure of the wheel easy to see since we know all the odd integers (1, 3, 5, 7, 9...) are all separated by the number 2, so this is also a kind of square root calculator. Square roots are prominent in most of science, and inverse square laws like Gravity lie at the heart of the universe. If planets or other cosmic forces are behind price movements then the price structure must have a square root component. This being the case I theorized that "true" trend lines would tie in a low with the theoretical number next year that the stock should sell at and that would be the next higher number on the Gann Wheel, or the square root of the origin number plus 2 re-squared and that number would be EXACTLY one year into the future from the origin. This way I tied in a natural one-year cycle (360 degrees Sun) with the natural number square root targets from the origin. I then drew a line connecting those two points and discovered the most beautiful means of forecasting with harmonic trendlines.

The chart below shows that calculation. I also noted that this was indeed the solution to the trendline problem since when these particular Jenkins True Trend Lines were put on a chart, almost all the gaps in prices fell exactly on these lines

Dot is 79.32 on date 1 yr from start

Gap

Gap

Note GAPS

Gaps at trendlines indicate "true" angles

Take price of low and take square root +2 and re-square to get theoretical price EXACTLY ONE YEAR LATER here sqrt(47.70 + 2)=79.32
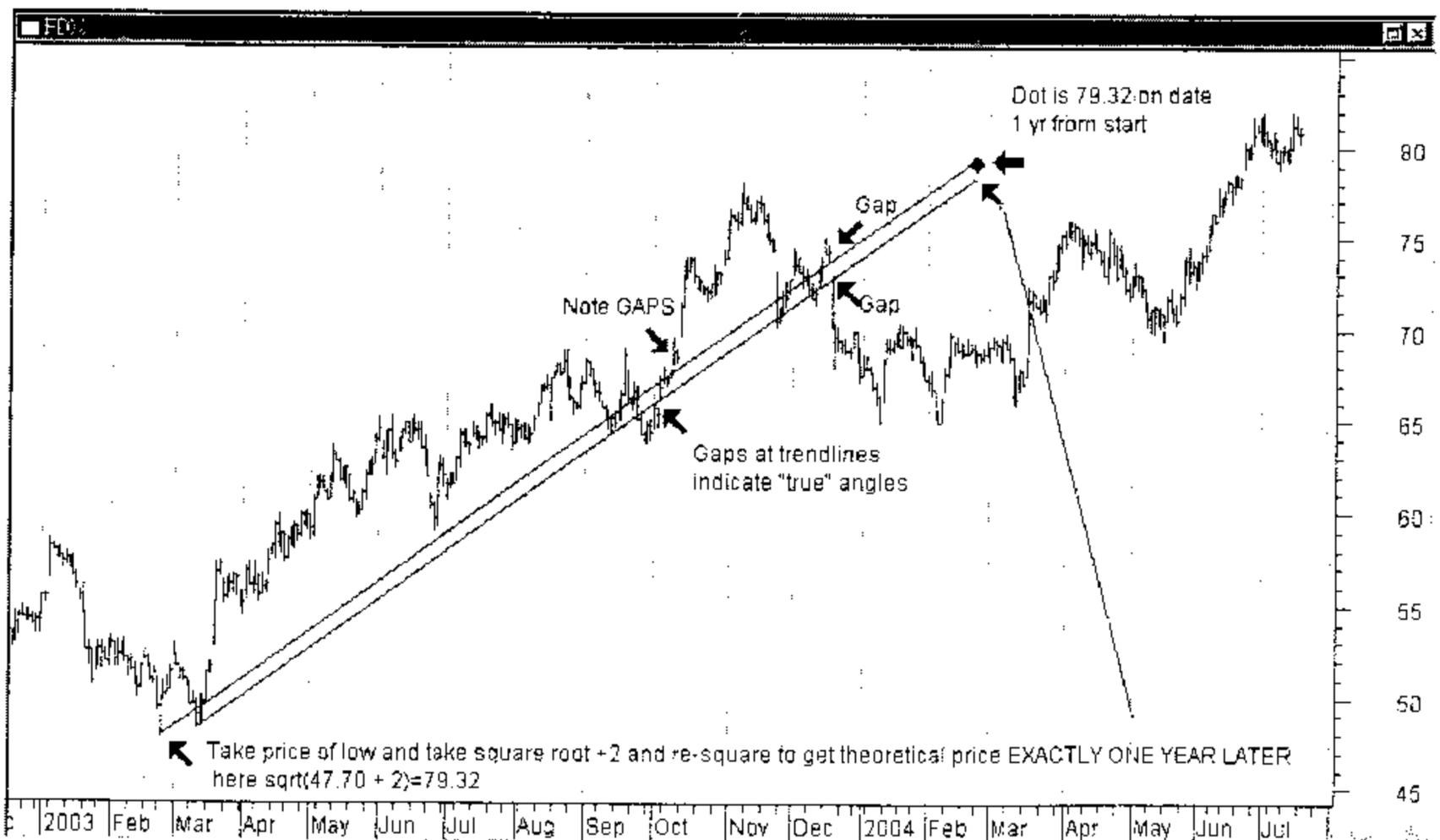
indicating a "square out" as the price hit the line. That *does not* happen with a normal trendline the vast majority of times.
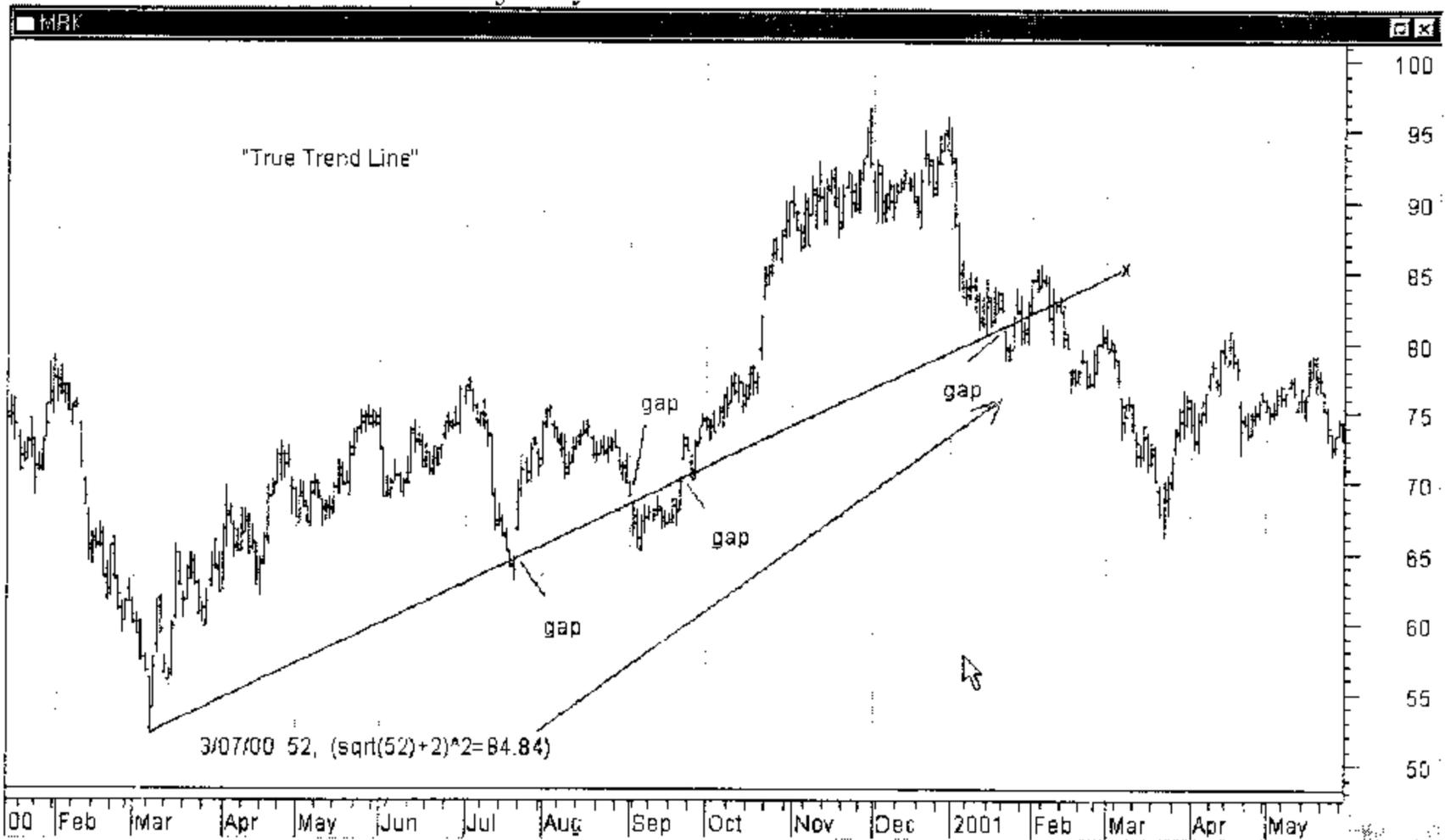

Here's another look at a Jenkins True Trend Line and note how the trendline went through all the "gaps" in the chart - indeed the trendline *created* the gaps!

I mentioned how a "square out" takes place on a JTTL (Jenkins True Trend Line) so to make sure you understand that comment I have to back track a bit and explain what I mean by a "square out".

Since the price structure is both price and time rolled into one chart and at the highs and lows the price must incorporate the time cycle, then, when a timing line coming from a bottom meets up with the stocks' price, the time and price components are equal, or at least in some proportion. At that point of equality and *only then* can a reversal in trend take place. This is why trendlines work because as the price hits the trendline it comes to a harmonic time and price point from the origin and the price must either bounce off the trendline and accelerate the existing trend, or it will break the trendline and reverse the trend. A True Trend Line will always give rise to a potential reversal square out since it is a straight line moving average of the theoretical price the stock should sell at on each and every day in order to get to the target price one year hence. The "square out" is the equality of time and price coming together at a specific point in time. Only when that happens can a change in trend take place. *Therefore, the most important basic building block of all is the Jenkins True Trend Line (or JTTL).*

Since the JTTL incorporates logarithmic harmonics of time and price it stands to reason that as these trendlines intersect various price harmonics of highs and lows we should see cycle turns and reversal patterns. This is exactly what happens. The following charts show examples of true trendline intersection points and you should note what happens to both time and price at those intersection points.
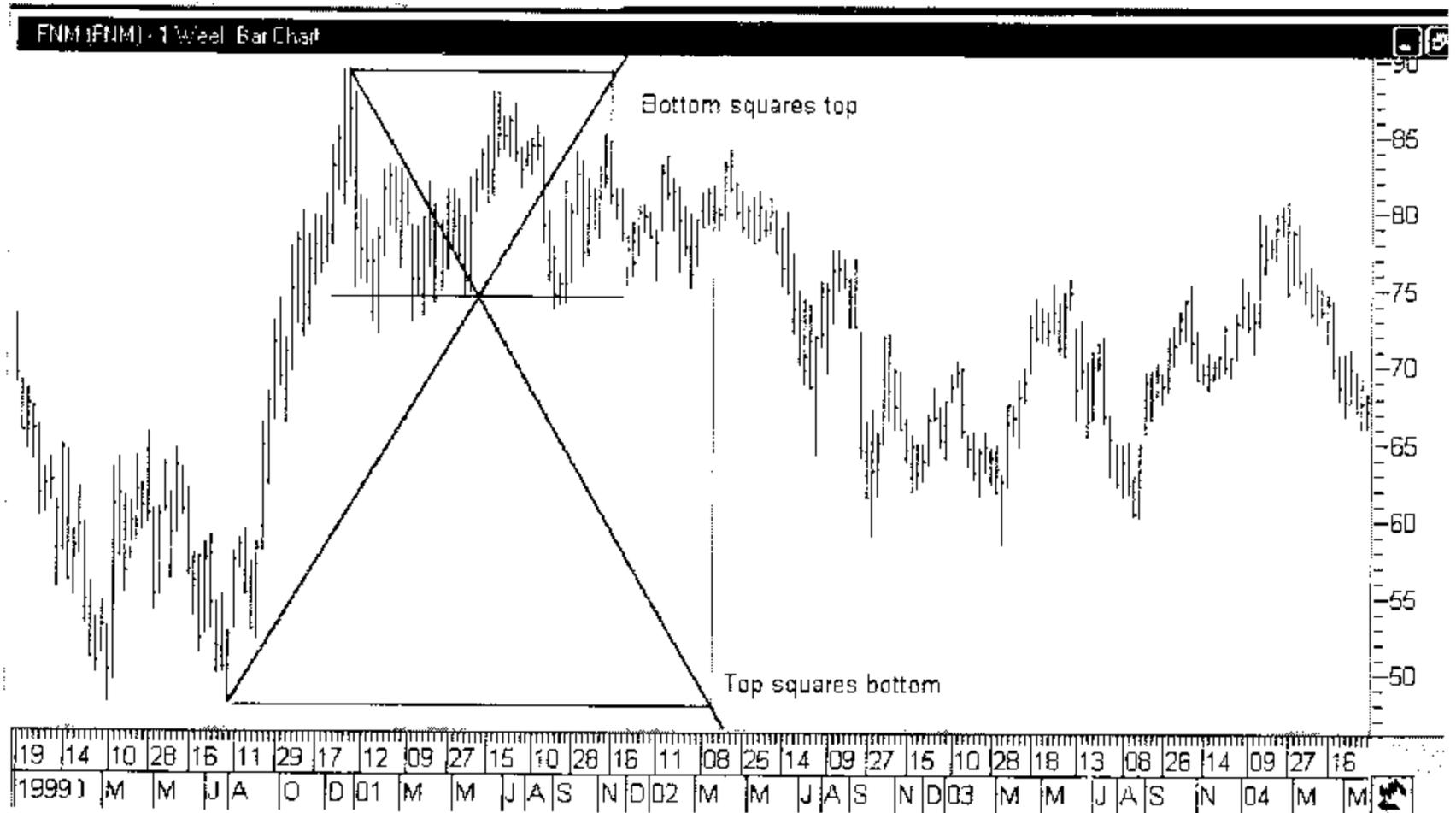

Crossing angles consisting of JTTL's are the simplest way to find reversals in trend.

The chart above shows a trendline coming up from a low and interecting a high, but before it reaches that price, a trendline from that high comes down to meet it. At that point the current downtrend reverses and the price climbs back to the highs. The intersecting point is both a time cycle turn and a support area. Note that the subsequent drop back down stops exactly at the intersection of those angles indicated by the support area horizontal line. The ensuing rally lasts until the trendline from the low finally intersects the horizontal from the first top. The trend then turns down. The final high is reached when the angle from the top intersects the horizontal from the bottom and the long term trend turns bearish.

These crosses can be from a high to a low, from a low intersecting another high, or just when the line intersects price divisions of the low or high such as 25%, 50%, 75% etc. We want to buy or sell near these crossing points since the odds greatly favor changes in trend and reversals. If we are bullish, a minor

correction can be bought once the bounce starts out of a plunge into these intersections. Remember, trading is a game of strategy and just buying or selling everyday is only a 50/50 bet. If you wait for a time cycle or a "square out" then the
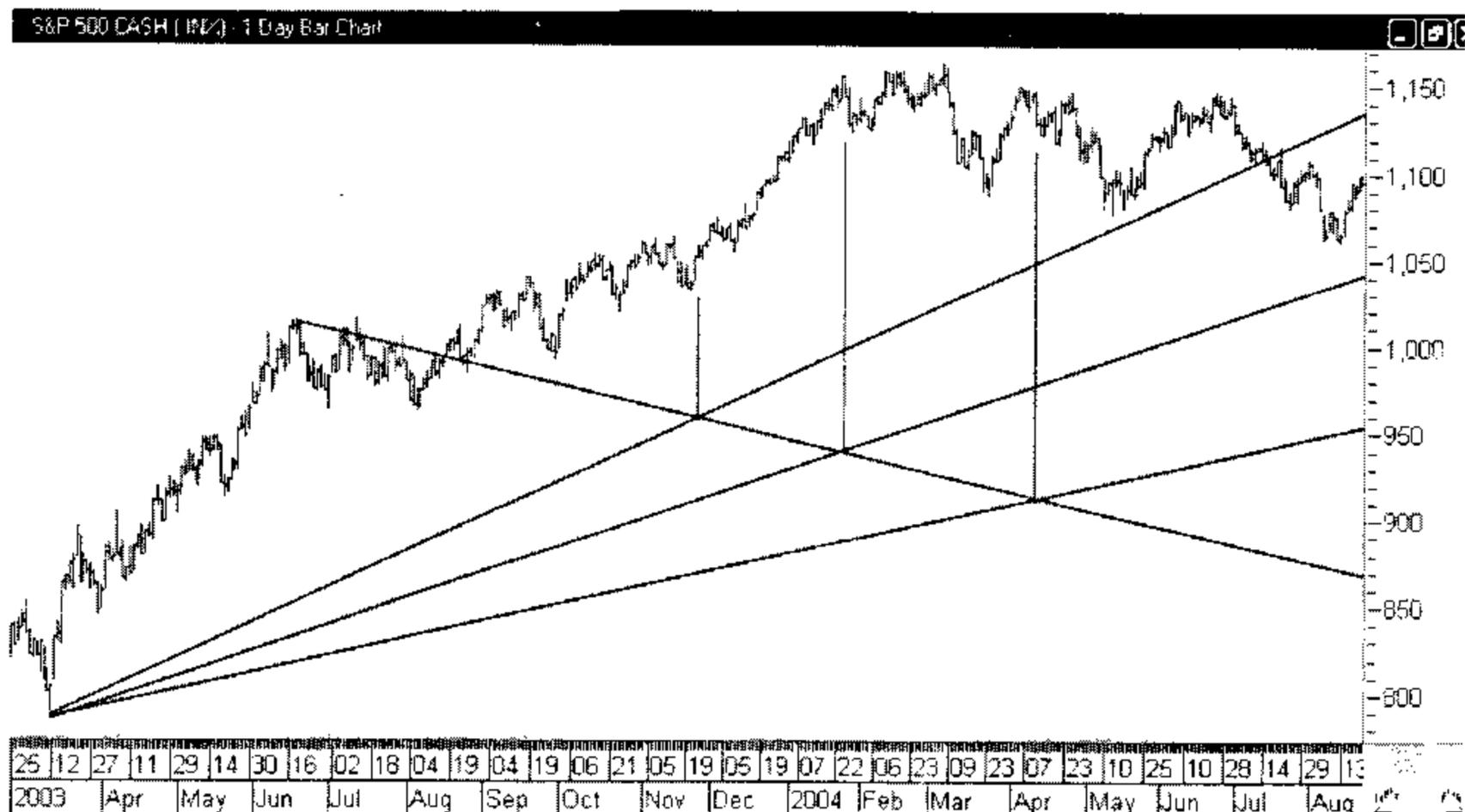
odds can be 80% in your favor that a new trend is starting and you are in at the best price before the crowd picks up on it. That is when, if you use a common sense stop, you can really increase the odds in your favor of making serious money on the trade.

This chart above of the S&P Index shows just how easily the Jenkins True Trend Lines can define turning points that result in great trades with very little work on your part. Angles from the low and the first top intersect and at those intersections big market reversals occur. The three angles from the low are just fan angles of the square root of the low plus 2, 3 and 4 and placed one-year out. With this kind of computer drawn JTTL it's very simple to analyze any market with just a couple of clicks of the mouse to look for intersections on daily and long term weekly or monthly charts. (This chart is drawn with Gann Analyst Software and Jenkins Tool Kit).

Going back now to the Gann Square of Nine Wheel, we note that a full circle is the square root of a number plus 2 re-squared to come full circle. That being the case, to go half way around the circle would be the square root +1 re-squared, and to go 1/4 around or 90 degrees would be the square root plus .50. Most basic stock divisions center on the musical octave of 8 so we divide everything into eighths.

To go 1/8th around the wheel (45 degrees of 360) is the square root plus .25 re-squared. My *Chart Reading* book covered this technique in detail but it's a basic principle and bears repeating. All stock price movement will essentially come down to a starting point number incremented by its square root plus a fraction especially .25, .50, .75, 1, 1.25, 1.50, 1.75 and 2. The major quarters and halves are most important i.e. .50 and 1 followed by the extremes of 2, 4, 6, 8 etc., for really big moves.


If you look at this next chart (above) you will see horizontal lines drawn at root plus .25 increments from the starting low and you will note how prices stopped or consolidated near the resistance lines, but once through, prices went quickly to the next level and the best trades were buying at those penetration levels. Major reversals usually occur near 1 and 2 increments added to the root but I have also noted that the .75 increment is extremely important for many stocks so don't overlook that one. The other increments are usually support and resistance levels, and buying or covering shorts as the price nears those prices on a loss of momentum would be the strategy. Note on this chart how the fourth line up (root +1) and the 8th line up (root + 2) were big consolidations and the final top respectively. Major turns can also be obtained by using Fibonacci square root increments (.382, .618, 1.382, 1.618).

Here's another example of 'Jenkins Lines' (Gann Analyst software), which show the various .25 root increments and how very closely the stock prices reacted to these support and resistance lines.
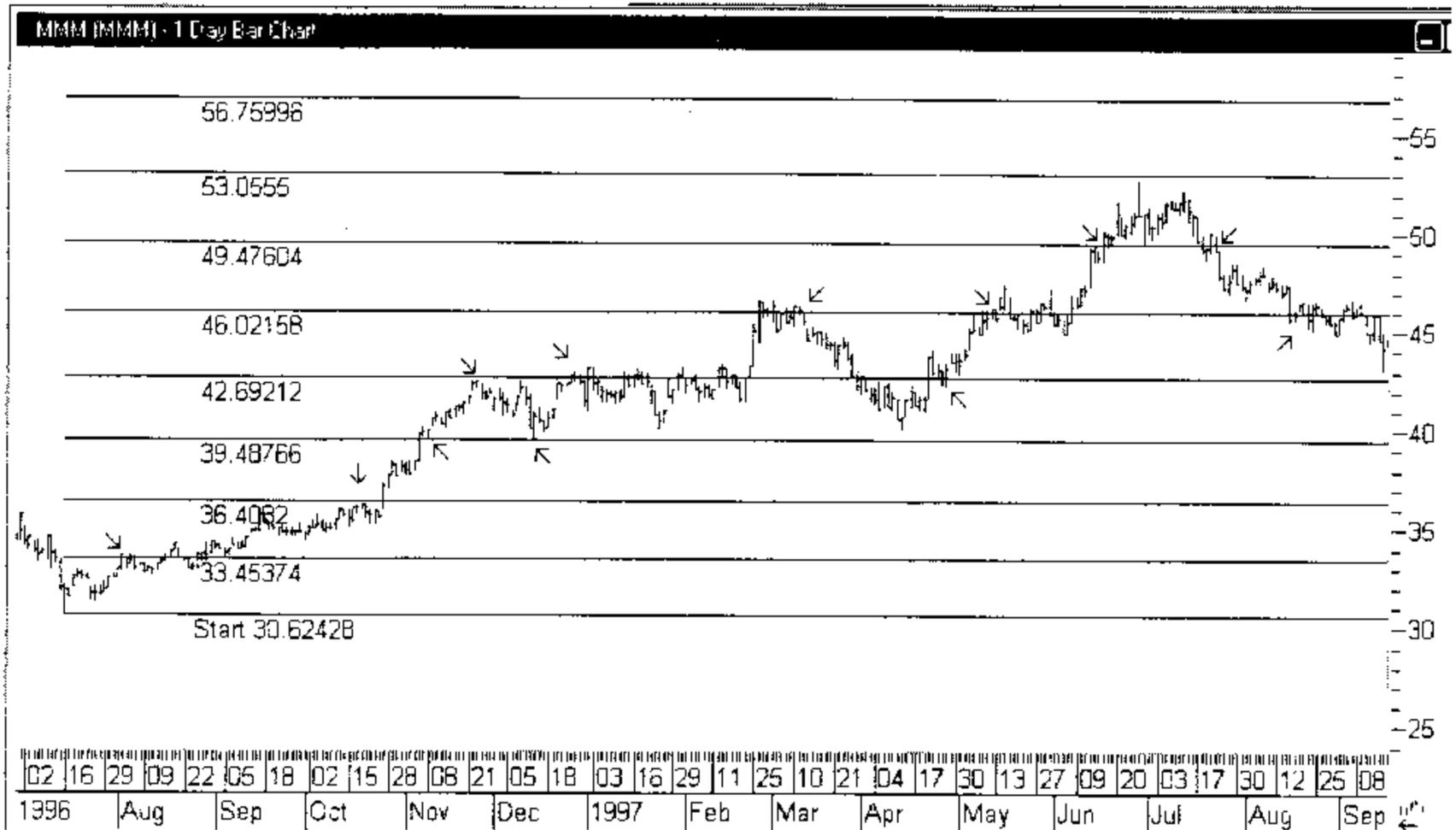

Now *we combine our Jenkins True Trend Lines to **intersect** the square root increment* price levels and we will be able to get very precise reversal points clearly defined as to specific prices and time periods. If we use weekly or monthly charts we can set up these trades months in advance and have a great many trades everyday that are just waiting to be made if we have the patience to do the work.

Square root increments of low along True Trend Line

sq root low +2=55.36

True Trend Line

low:29.60
10/18/00
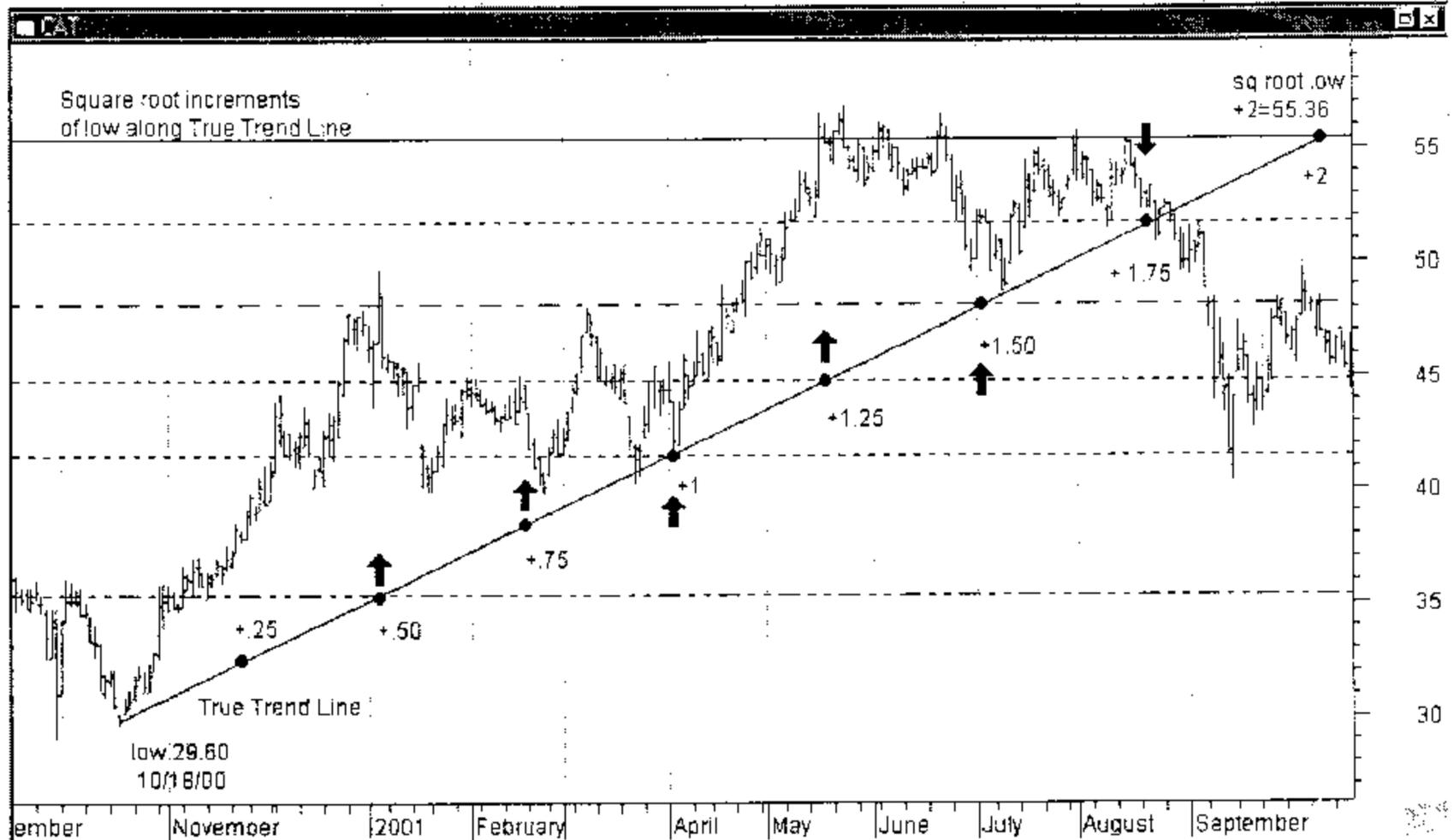
On this next Caterpillar chart (above) I have left off some of the horizontal lines as to not clutter the chart too much but I have put a black dot at the price point that is incremented by the indicated root amount (.25, .50, .75, 1 etc.). That dot is where the JTTL intersects that specific price level and if you note the price action at this point *in time* you will see almost all reversed the market and resulted in great timing trades with several days trending in a new direction just after that point was hit.

You can also use a measured move in combination with a Jenkins True Trend Line. Below is a chart of Federal Express that shows how an initial impulse vector length laid out along a Jenkins True Trend Line will create cyclic turns at the end of each vector distance. Remember that since proportionate ratios of a price level give potential support and resistance levels, if these ratios are combined with a trendline that itself is in proportion to the price's internal time cycle then you will usually get a square out when each of those measured moves end.

Vector distances laid out
along the Jenkins True Trend Line

Vector distance of
first impulse

Jenkins True trend Line

Duplicated vector distance
equal to "dot" distances
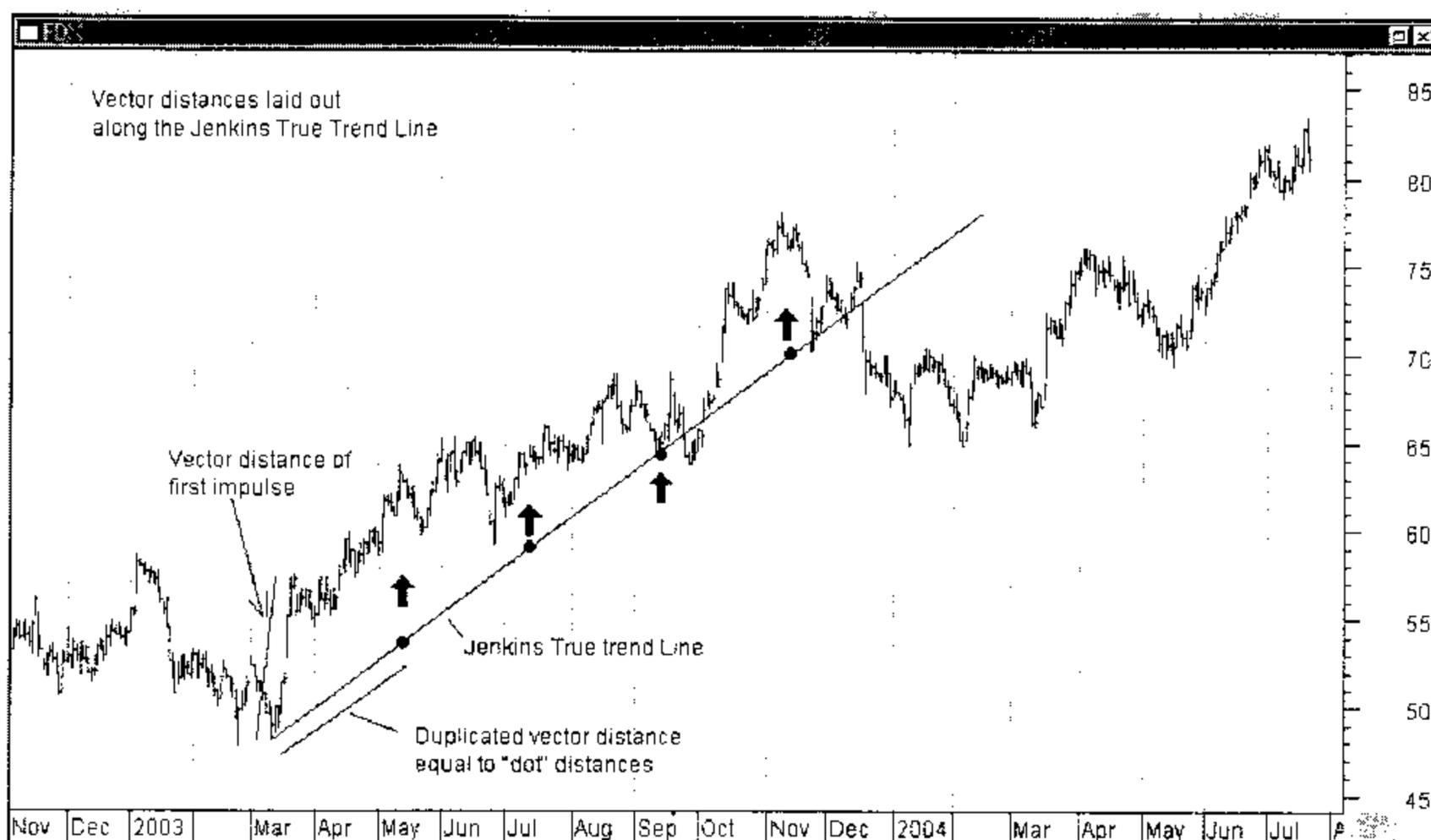
We can calculate these points as in the Caterpillar chart previously, but we can also observe the *natural* stopping point on the chart itself and use that distance. Here the first impulse wave up had to top at an important number specific to this stock if we believe the time and price theory, so if we use that naturally observed distance it should work and the chart shows that it does indeed work. This is an easy way to find turns on any stock without making a lot of calculations. The next chapter demonstrates how all range segments will easily reverse the market in combination with these special angles.

Chapter 4

SQUARING THE RANGE

We'll backtrack a bit now to cover a basic subject that has numerous implications, and by itself can be developed into an excellent trading system. We saw how angle intersections gave rise to turning points in a stock pattern because it created harmonic proportions, and cycles are very strong at those points. If you ever looked at a string instrument or just pulled a very long wire out and plucked it, you would note that the string often divided into two waves with a crossover point in the middle. A jump rope is sometimes a good example if it is long enough. At the point in the middle a "dead" spot develops and that point doesn't move but on either side you see wild swings. That dead spot is called a "node" and that's where frequencies and cycle harmonics cross. In a circle of 360 degrees the fundamental harmonic is 1/24th or 15 degrees. At these intervals of 15, 30, 45, 60, 75, 90...360, we see very strong cyclic movement. Musical scales are related to these frequencies and our whole sense of time is laid out in hours, 24 to the day, and that's because the Earth is laid out in longitude lines of 15 degrees of one hour each. New York is 75 degrees of longitude West of London so the time difference is 5 hours (75/15 degrees/hr). If we divide any stock price by 24 we will get a fundamental frequency and if we apply time cycle analysis to it - like calendar day

Using this major top at $37 47, all lines are 1/24ths or 15 degrees
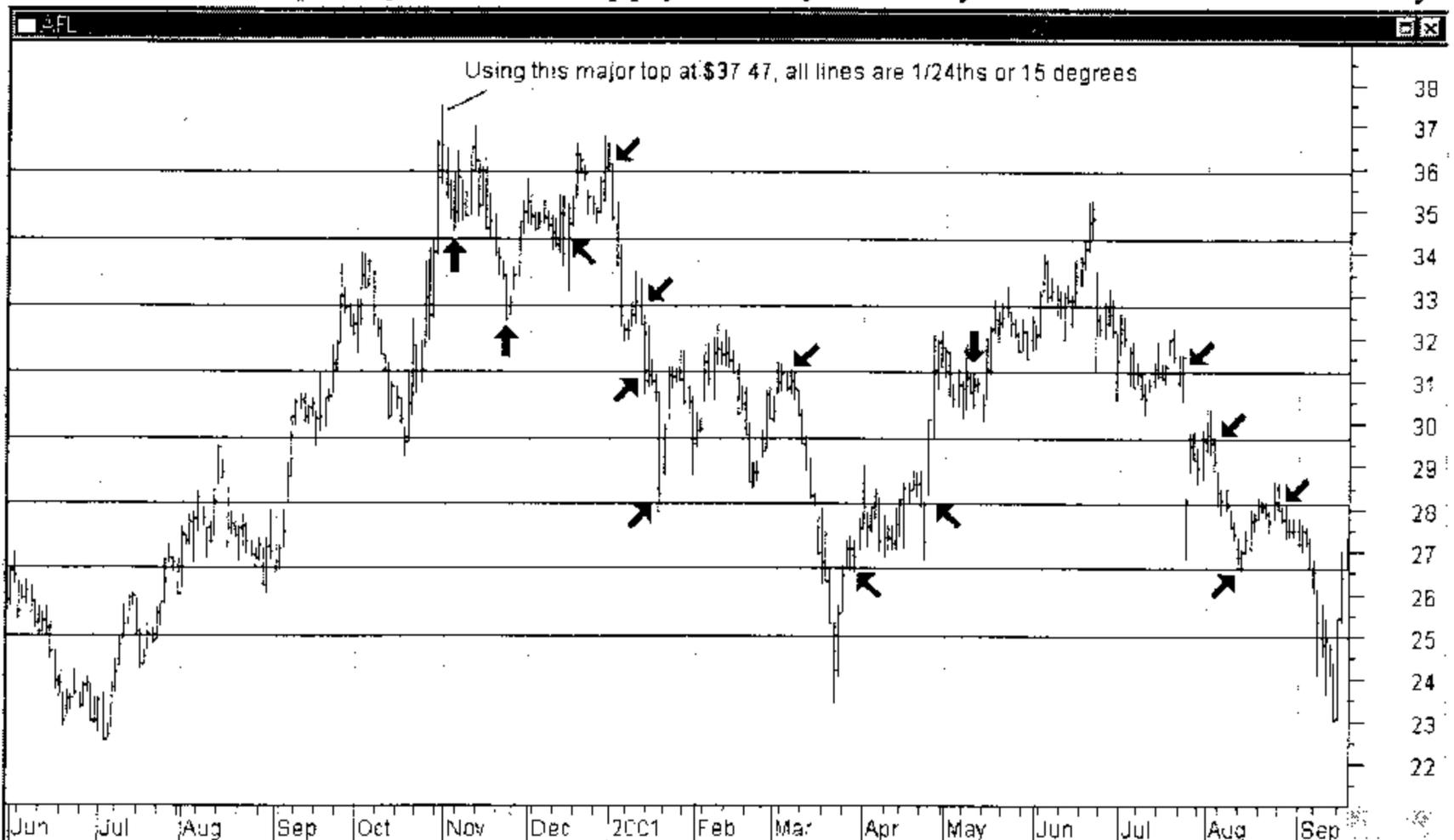
counts, we get better results if we use the 15, 30, 45 series.

In this chart of American Family Life shown above, I have drawn horizontal lines at the 1/24th distance down from the high price and day. Each line is a fundamental 1/24th level and you can see how the prices go to those spots as support and resistance areas.

In the second chart of AFL (below) I have added cycle lines to make "squares" out of the price changes so the TIME periods will be equal to the fundamental price harmonic.
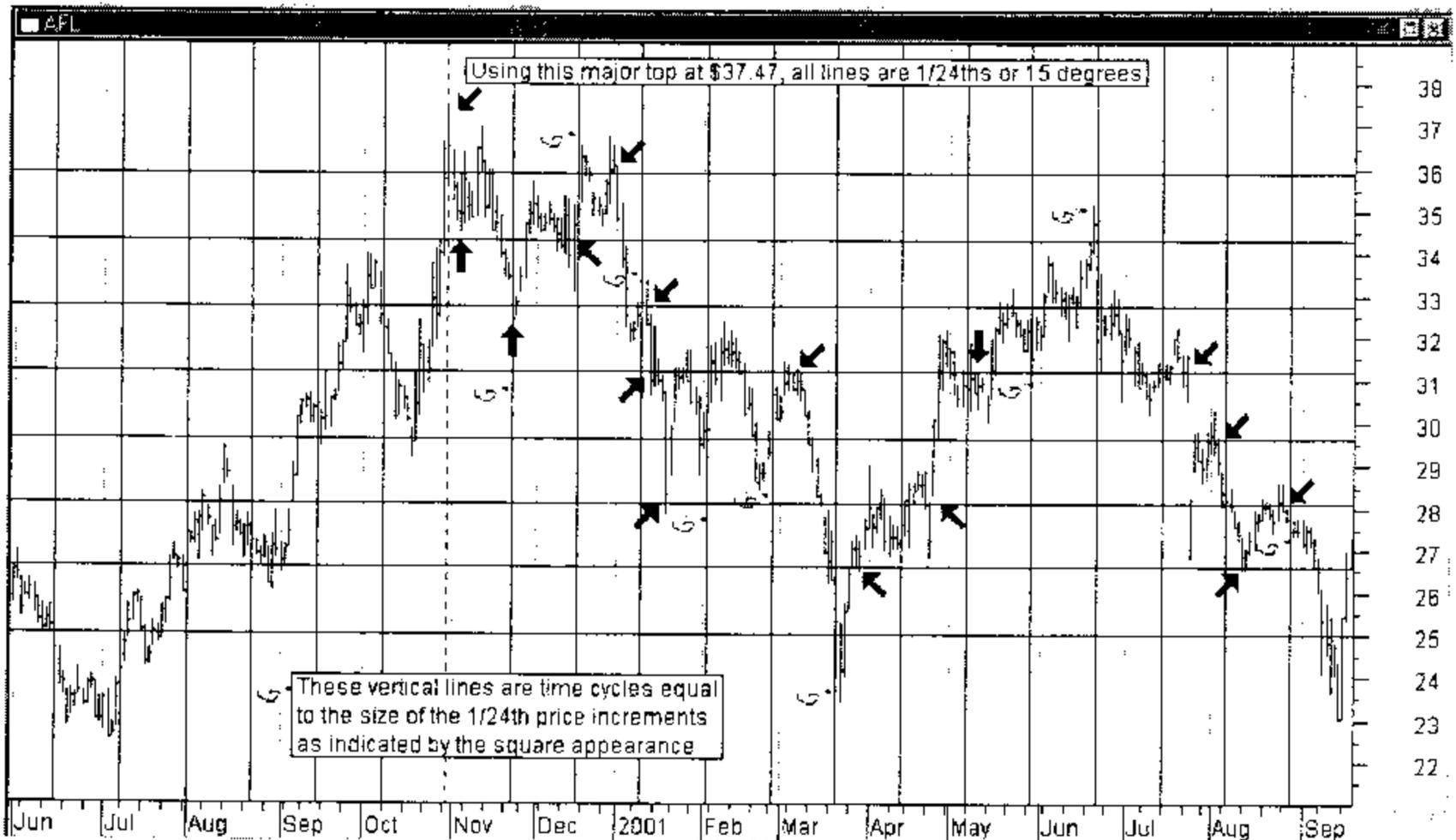

Note how the big dramatic changes in the prices occur just at these time cycle points. Remember that each and every day a stock or commodities' price is a reflection of the subconscious mind of men translating space and time motion into price. *Each price is really a frequency* and you can think of a long-term chart pattern not just as a trendline but as a wave string with harmonic nodes every few time periods. It is at these nodal time periods that we want to trade since that's where the stock gets active and usually changes direction getting us in at the extreme price point.

It is because of these proportional nodal points that when we divide a stock price correctly into segments, we will see change at those points.

The next several techniques will demonstrate how to divide time and price to find equilibrium levels where big changes can occur.

I've mentioned many times in prior books how a stock with a $50 high would spin out cycles of 50 time units - minutes, hours, days, weeks, and months. You could keep track of all these time counts by writing down the dates in a file but the simple solution is through the use of "timing angles". Angles that rise or fall at one price unit per one time unit will "square" the extreme price at the designated time (the term "square" arises out of the fact that a 45 degree diagonal (1unit x 1unit) from a high to a low creates a square around that high to low price increment). An angle coming down from a high of 50 will hit "zero" 50 days later (or hours, weeks, etc.) depending on the time unit used. These timing angles are very easy ways to keep track of time over long periods and in the modern computer age we often miss this simple technique used so much on formerly hand drawn paper charts. With an angle coming down from an all time high of $80 on a monthly chart, a trendline going to zero is very easy to see on a paper graph but often overlooked if not used on the computer since it hits some 80 months or 6 2/3rds YEARS from the high. If you don't keep 7 years of data you could miss this, but an angle is easy to update on any scale to keep it going. *This next tip is to use the "zero" angle starting at all major highs and going down to zero and simultaneously starting at zero on the date of the high and going up to the high.* If you use these you will see how they act as support and resistance angles in the vast range in between the high and zero. Jenkins True Trend Lines work extremely well with zero lines but so do standard time counts like minutes, hours, calendar and trading days, weeks and months. This next chart shows angles down from a top going to the zero line. Note what happens to the stock price at that precise time period.
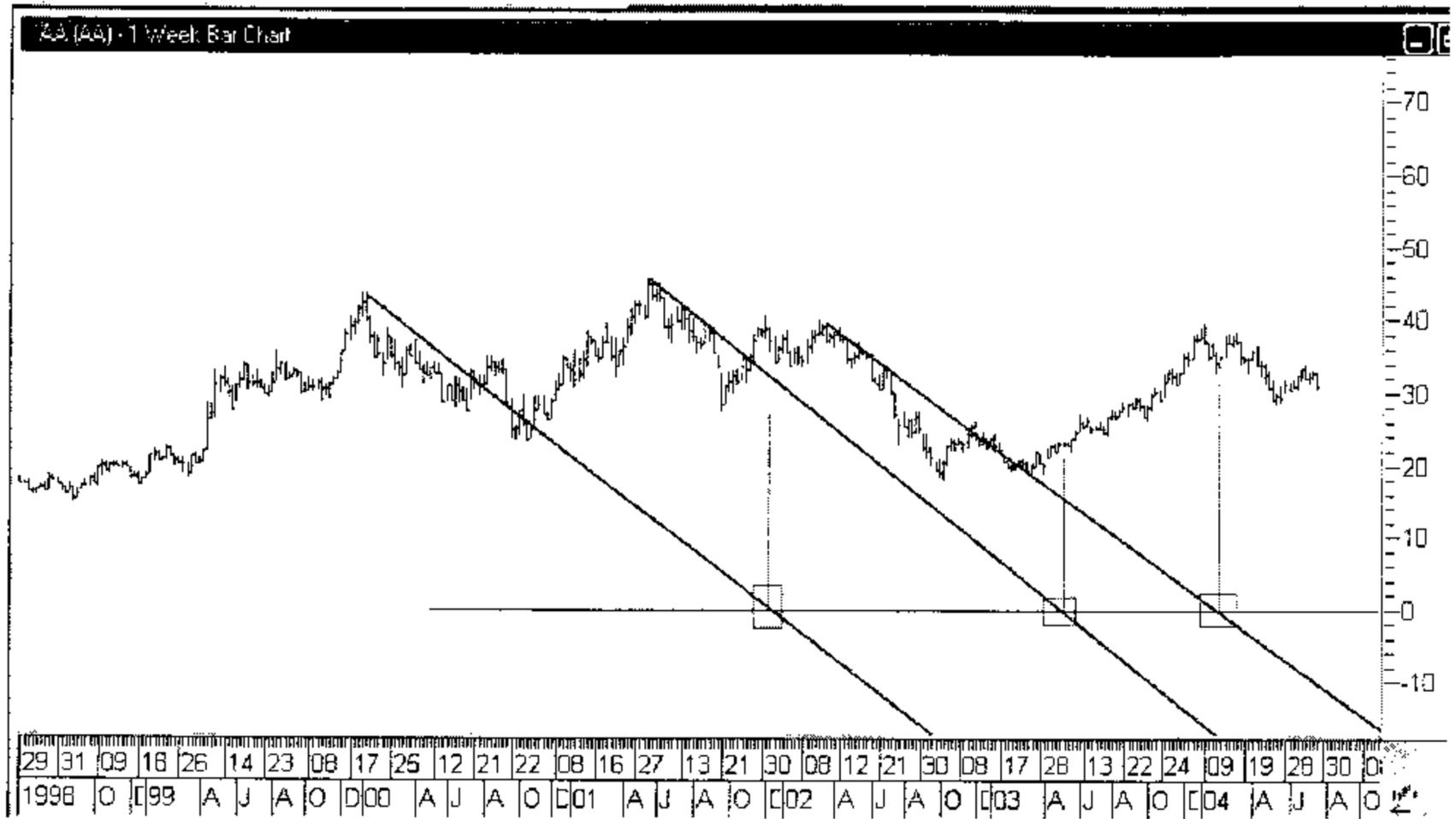
The second chart (below) of Alcoa shows the up angles from zero price added in and you can see on the second one how the prices followed up that angle until it squared out the previous top at which point the market reversed direction in a major way.

Note how the first angle up didn't affect the price action as much until the trendline squared the prior high, at which time period point, the price took a
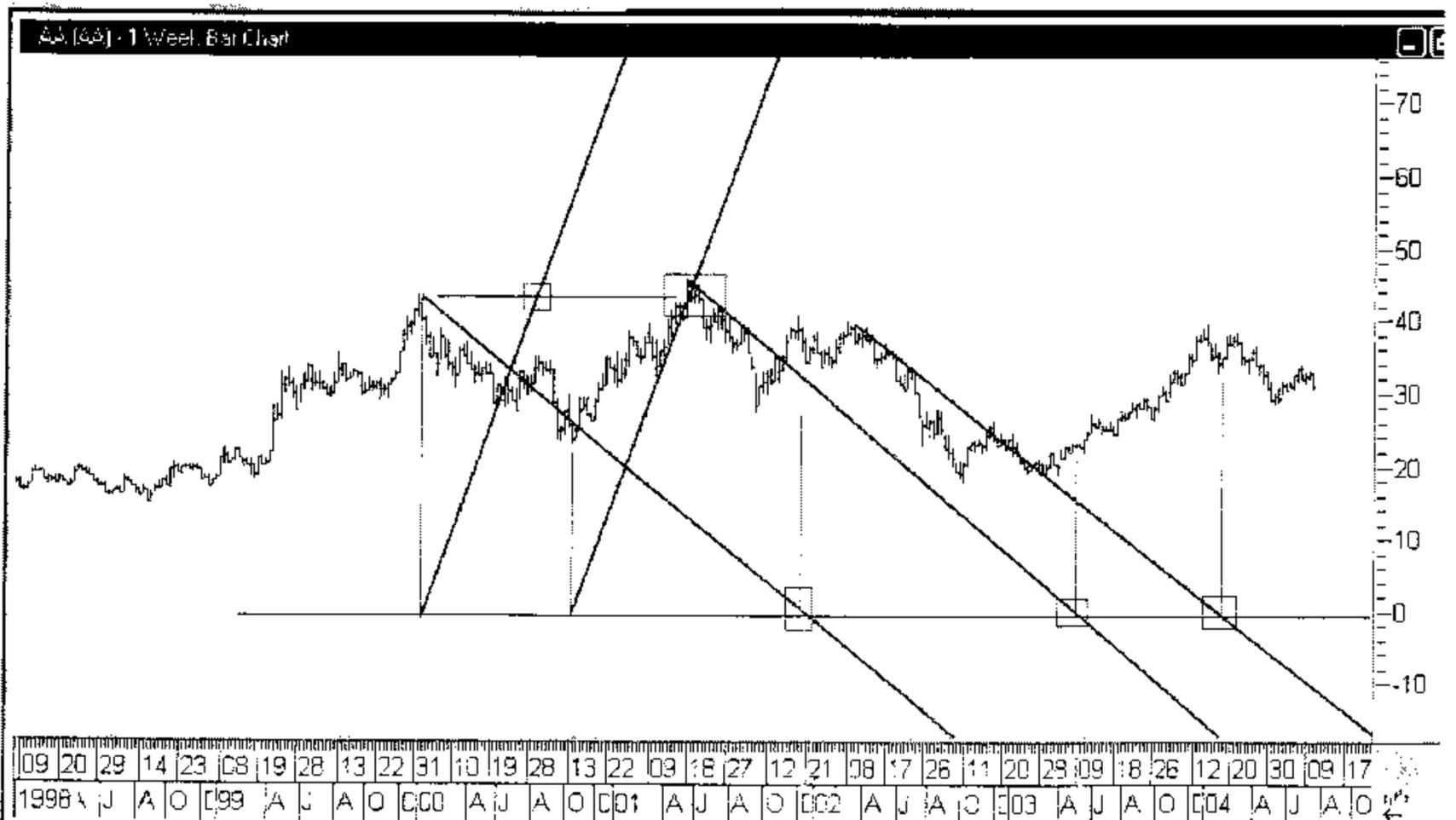
nosedive. These zero angles should be used all the time as a most basic timing discipline. This way major long-term cycles will never be overlooked. Remember a zero angle catches the entire square out of the extreme high down to zero so naturally the turns should be bigger at those points.

The start of this section concerned squaring the *range* and that's what happens when you have timing angles that don't go all the way to zero or all the way from zero to the record high. To square the range you just draw angles from swing levels in between highs and lows and continue them to the level of the prior high or low. Most of the intersection of angles methods are really a form of squaring the range.

You can also square the range without using angles by first computing the range in points and then using calendar days to equal that. For the past decade almost all major swings were simple squaring of the ranges in calendar days and these squares caught all the big extremes to the very day! A few examples are in order.

This first chart is the S&P 500 from the beginning of the July 1998 top to the September low. On the chart you see it was a drop of approximately 250.50 S&P points.
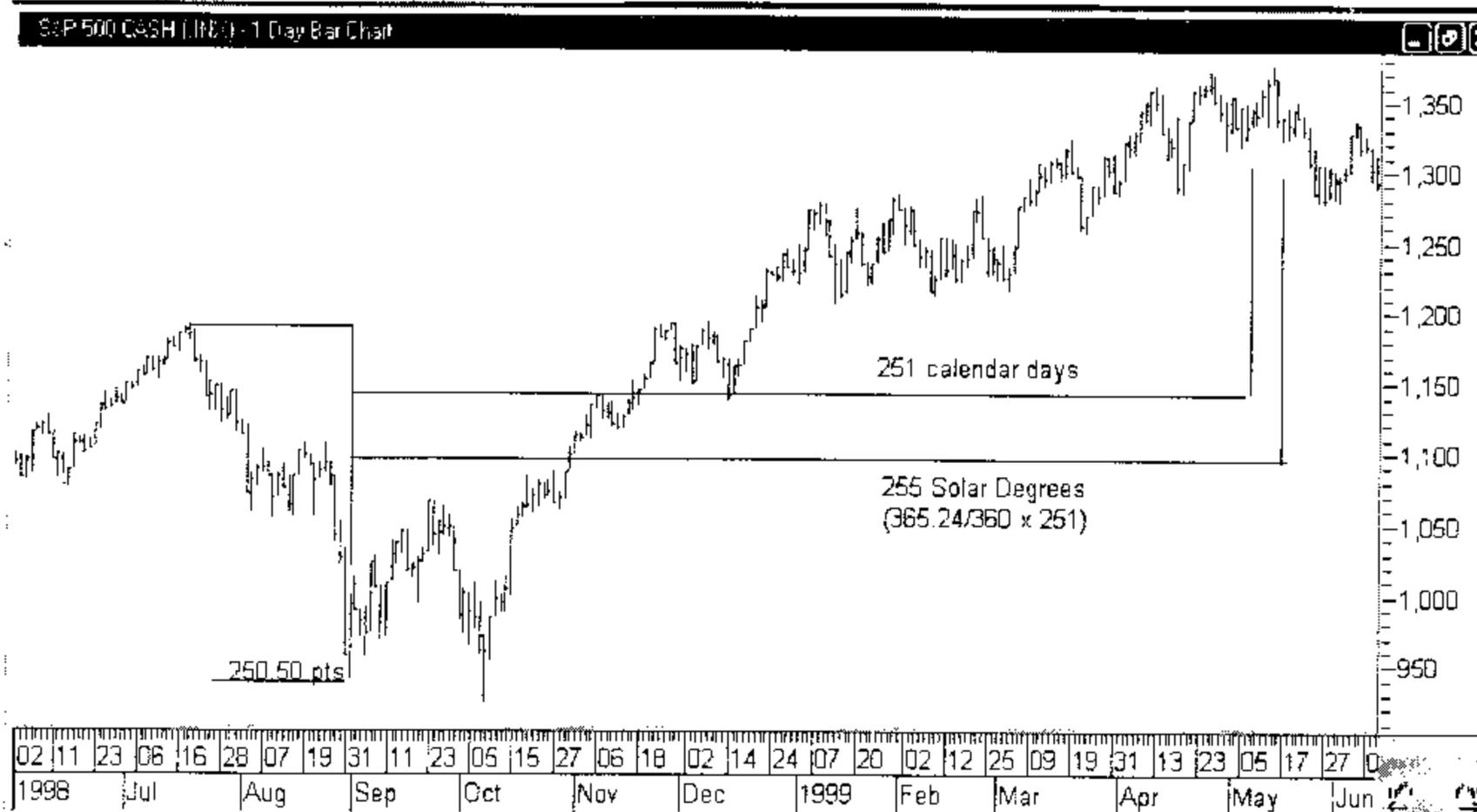

The top horizontal line is the Calendar day count for 251 days and you can see it came out right near the top just before the major correction. The second line on that chart is the solar degree adjustment mentioned in the introduction section on prophecy cycles and that resulted in 255 calendar days (or more accurately Solar

Degree Equivalent Days), which just about hit it. Clearly the average between the two counts did the trick. Please note that the ENTIRE bull advance was the difference of the bear drop in calendar days. Also keep in mind that the huge swings you often get on "crash" days can result in a range day of 50 or even 100 S&P points. That in theory could give you a top that forms over a 50 to 100 day time zone with no identifiable "spike" highs. This is the cause for many cycles to seemingly lose their influence for a few weeks until you let your guard down and then the market crashes as expected. Strategy should encompass trying a square out range using the final low day's high, low, and closing prices or perhaps an average of the high and low on that day. That should get you in the ballpark.
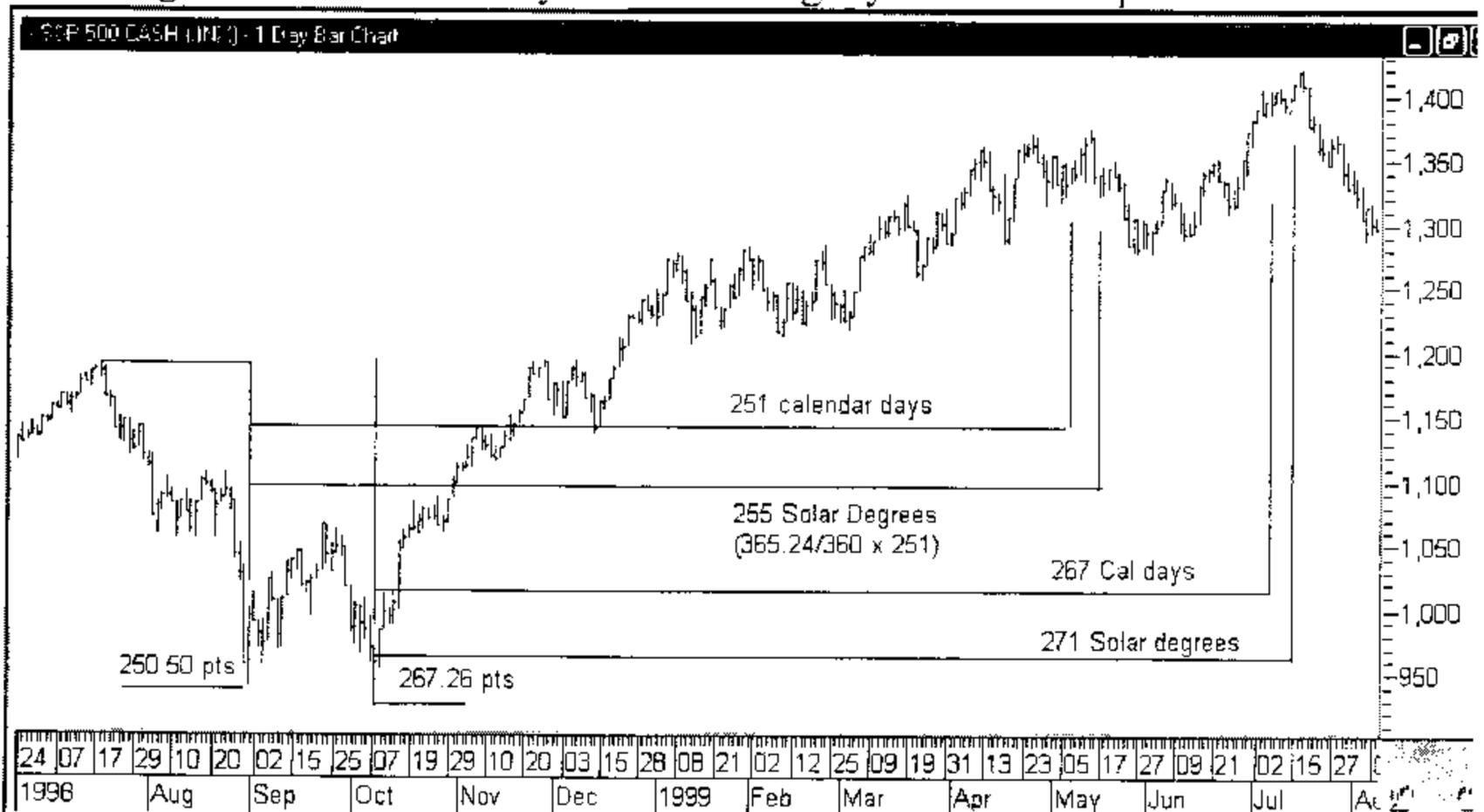
This second chart is the same S&P one but this time the range is extended to the final low on October 8th that year and that price range extended to 267 points. You can see on the chart with the new horizontal lines at the bottom how the market came all the way back to yet a new high right on the solar degree date and only then did a big liquidation take place.

The next chart below shows the range from the last low up to the final high on March 24th 2000 of some 228 points and 228 days later a nice tradable top was made.
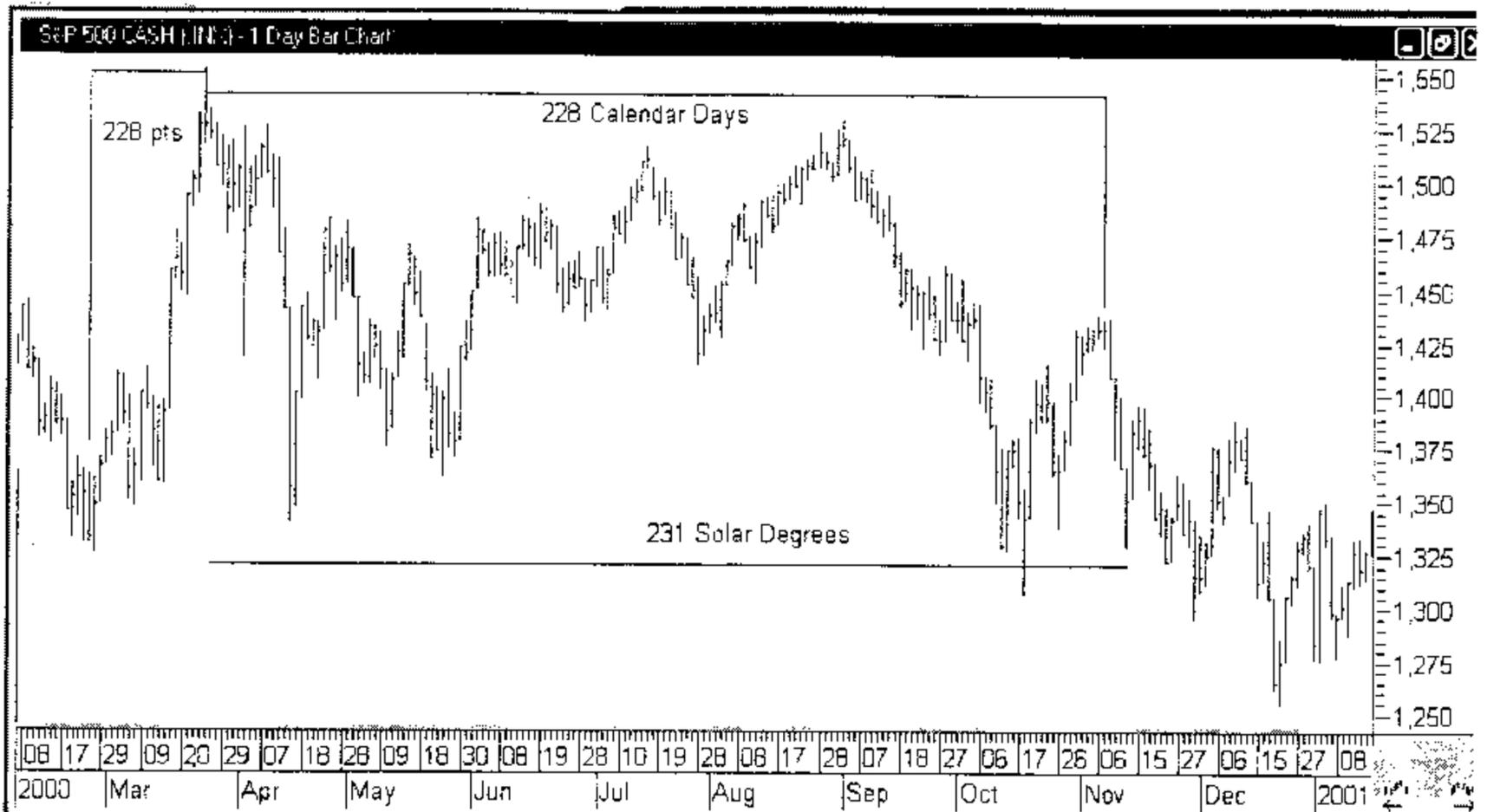
The final S&P example shows the 9/11 lows to the first and second tops. This was a double top formation so the range didn't change but the time count was duplicated and offset by the distance the double tops were apart. In the first case the day count predicted the major low. In the second it became the ensuing high.
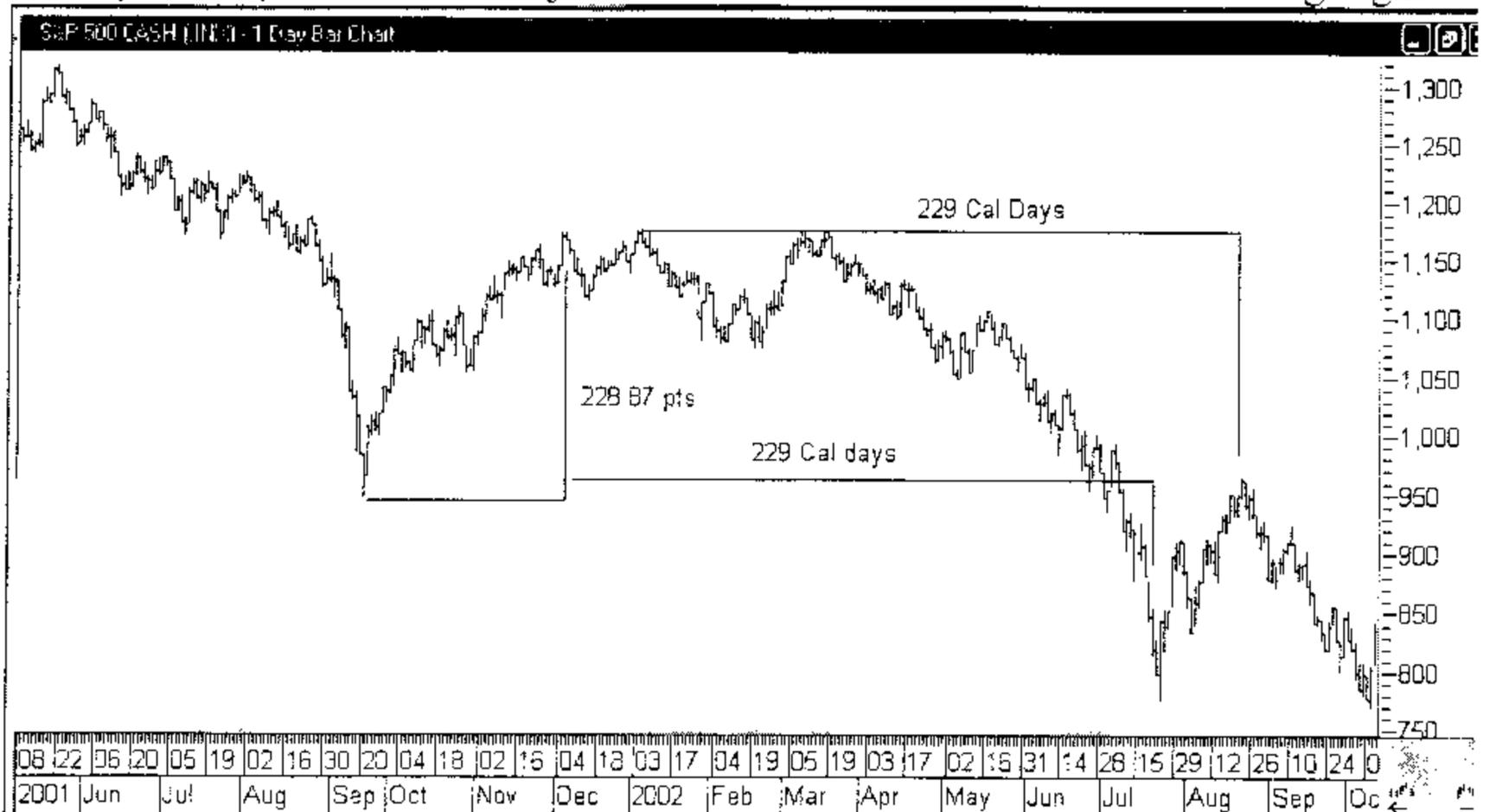
I might add at this time that square outs work just as good for stocks as in the S&P examples but since the price differences are small the turns come every few days and as a consequence can't be as dramatic. For stocks it's better to use weekly or monthly charts and then the differences amount to weeks and months of another trend direction.

Simple trendline square outs of ranges are the easiest to do and this next S&P chart shows a declining JTTL that continually squares different levels of prices and each time the lines intersect a good trade is made. This is the very basic example of squaring a range.
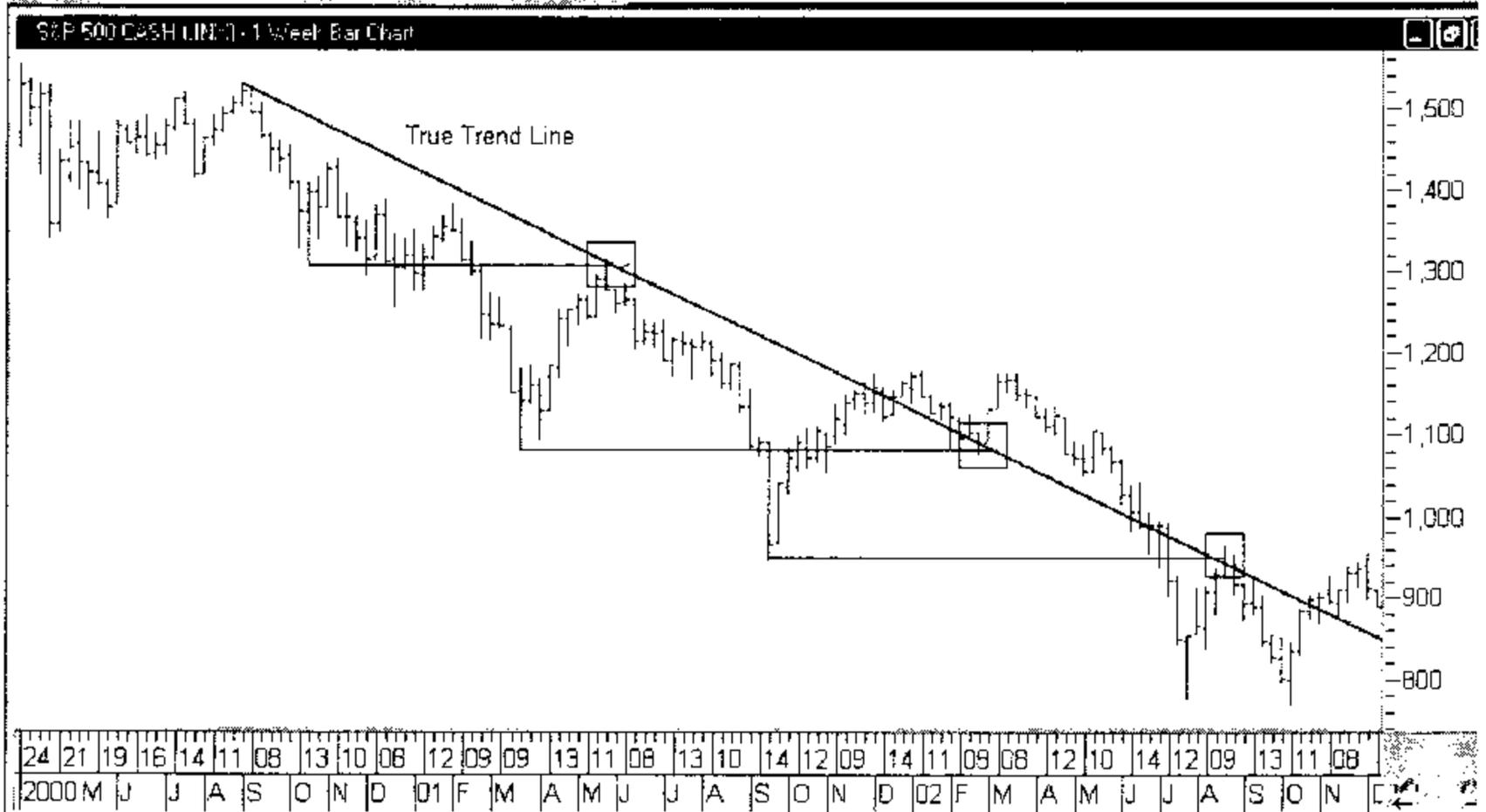
When the trendline hits the final bottom a new bull market is born. Then the rising trendline squares the prior tops (see next chart). The basic principle is that in a downtrend, the angle coming down from the one final high keeps squaring out new consecutive lows. If you are in an uptrend the angle coming up from the final low squares out consecutive highs.
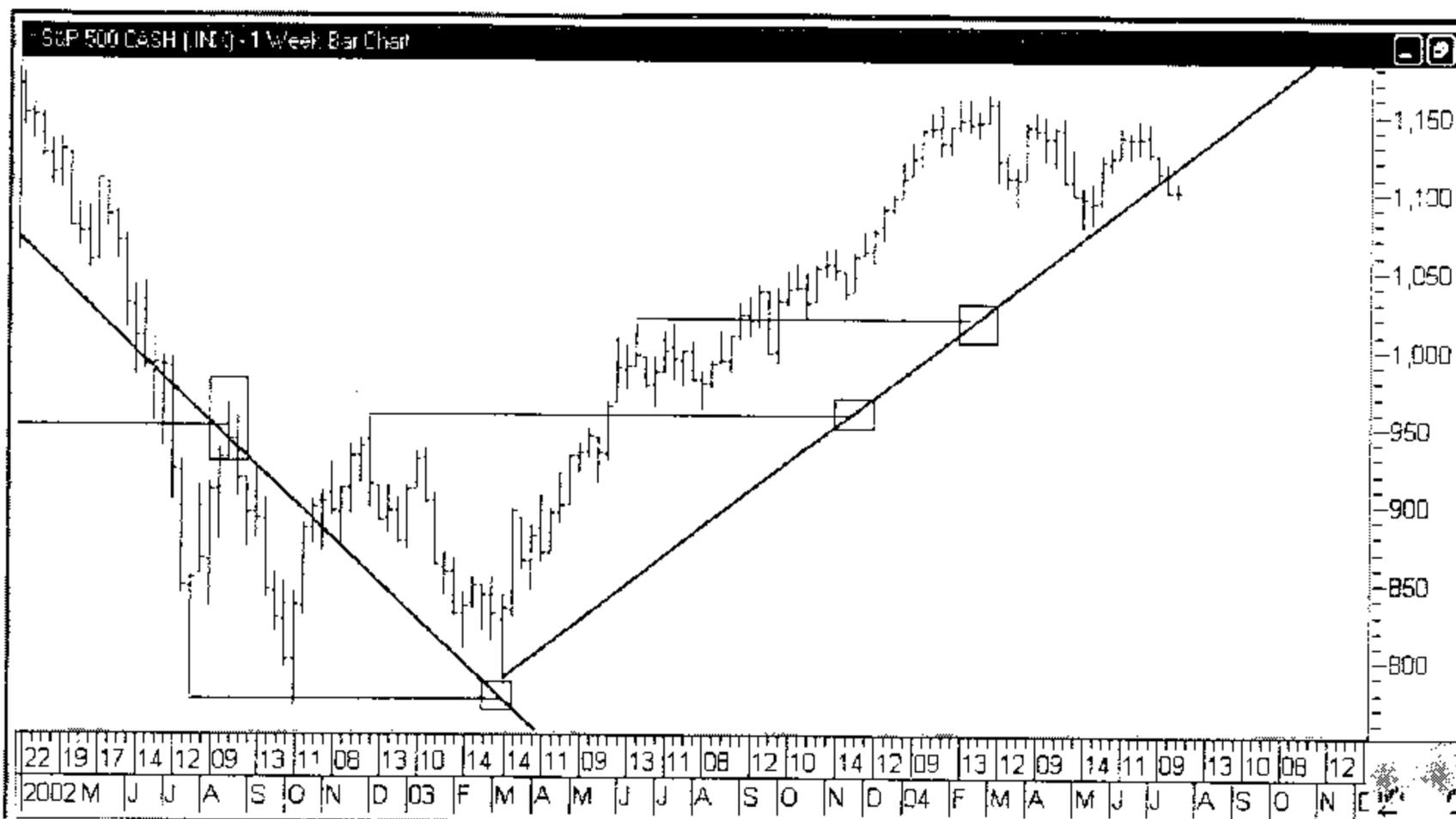
Even easier are crossing trendlines coming up from a low and going down from a high. These give common harmonics of the two different price levels of their respectable tops and bottoms so that the cross point has twice the normal power. The next chart shows an example of crossing angles.
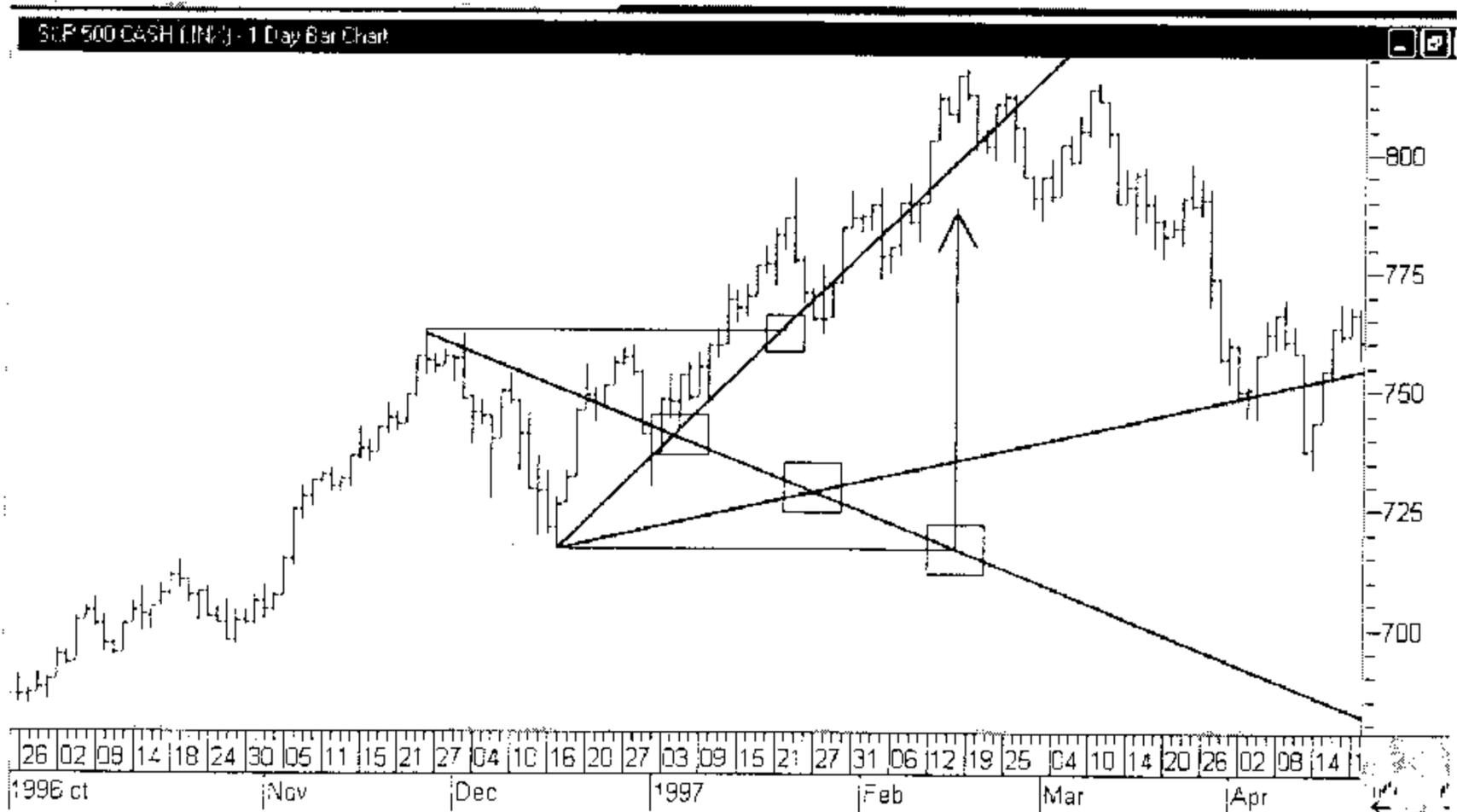
This crossing of angles brings up the subject of the "Fan" technique. There are "Gann Fans" or geometric angles of 1 x 1, 1 x 2, 1 x 4 etc. and there are natural fans created from my *adjusted angle* technique. Keep in mind that the Jenkins True Trend Line can be made into a fan by adjusting the price root increment or changing the time period. The initial setting is one full Square of Nine cycle or the square root +2, but you can use the square root +1 with a one year horizon, or keep the root increment at 2 and use 2 or 4 years as time. By varying time and price you will get harmonic angles that still are correlated to the basic structure of the Square of Nine. I will also note that some of you may be saying that this is not precisely accurate since a stock at 100 goes to 144 in a year (square root +2) on the Gann wheel which is 44 points / 365days (.1205) points per day slope, while a six months (square root +1) slope (100 to 121) would be 21 / 182.5 (.115) points per day. This is due to the logarithmic nature of the calculation and yes, *it is off* slightly but the ease of doing it this way offsets the complicated computer daily calculations needed to be exactly precise and in most cases the difference is only a few cents or half a day in time but if you are a perfectionist you can calculate the root differences daily.

In my *Chart Reading* book I gave a beautiful example (which I'm sure 99% of readers overlooked) of the foundation principle of all cycles and the solution to all price cycle problems (see chart below). I used the Cattle Futures chart and drew a set of fan angles with the *first angle adjusted to the initial impulse wave* of a new bull market. Offset from that angle were the other geometric 1 x 2, 1 x 1, and 2 x 1 angles that you usually use (by the way the actual geometric angle degrees are 4 x
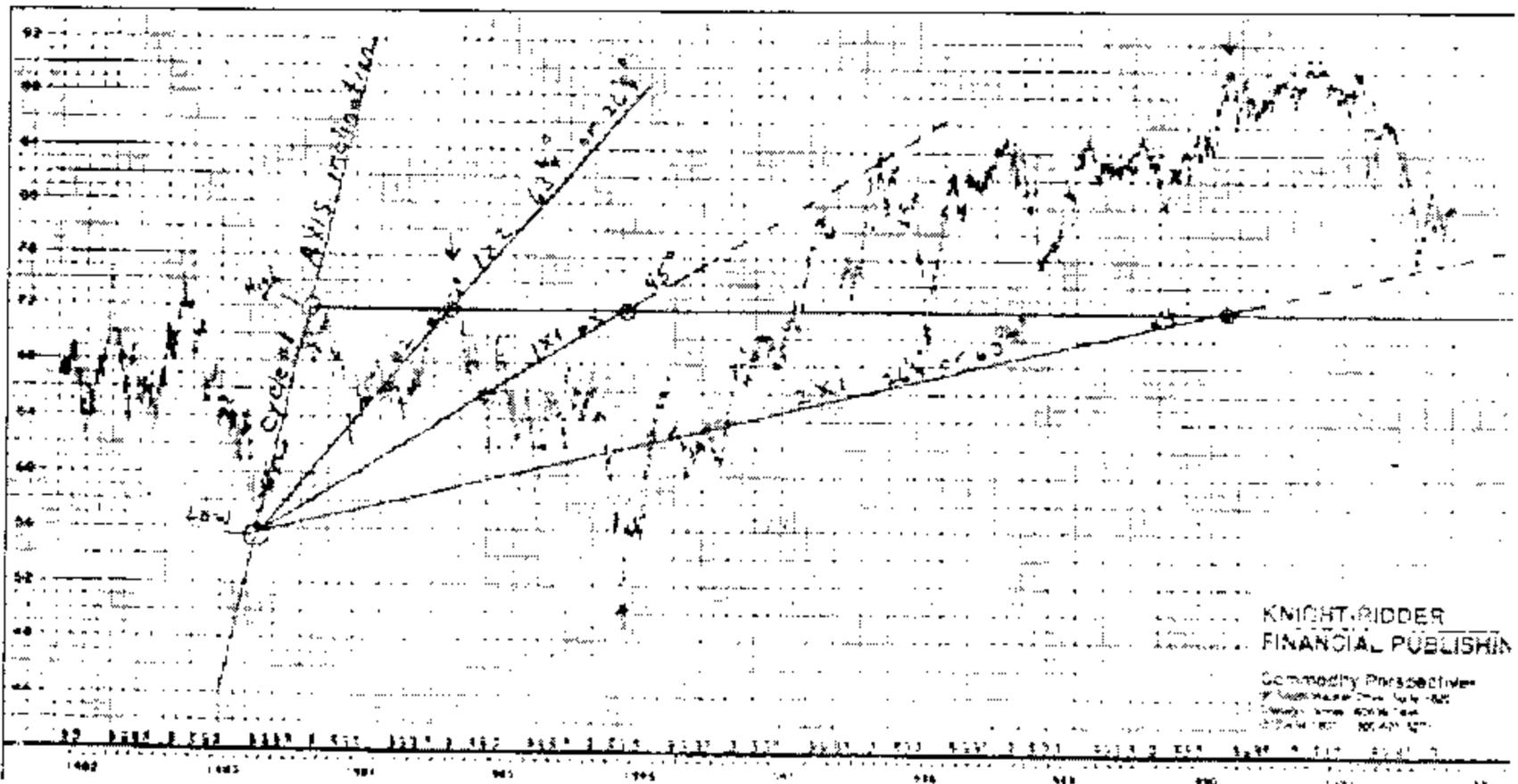
1= 15 degrees, 2 x 1 =26.25 degrees, 1 x 1 =45, 1 x 2 =63 3/4, 1 x 4 =75, and 1 x 8= 82 ½ degrees). I then drew a horizontal line across the chart starting from the first impulse wave top and *where that horizontal line intersected the next angles,* **all** significant turns in the Cattle chart's history was made completely clear. At a glance you can now see why cycle lengths vary and why people using plain static cycles like 10 weeks, 10 weeks, 10 weeks, don't have a lot of success. The key is that the width between intersections of the time period angles, *is completely dependent on the slope* of the very first impulse angle. Since future angles are offset from that slope, it stands to reason that as the slope is "less steep" the subsequent fan angles will require extremely long time periods to get to that top horizontal line. A very steep angle on the other hand will give shorter cycles. This is why very strong momentum stocks that go up large amounts are very volatile - the angles are close together giving rise to lots of cycle turns, while "dull" stocks with small momentums have to wait months to years for big moves. It's all due to the steepness of the initial impulse angle.

Intersecting Fan Angles with horizontal line from adjusted first wave axis. Note time periods at intersection points and price reversals.
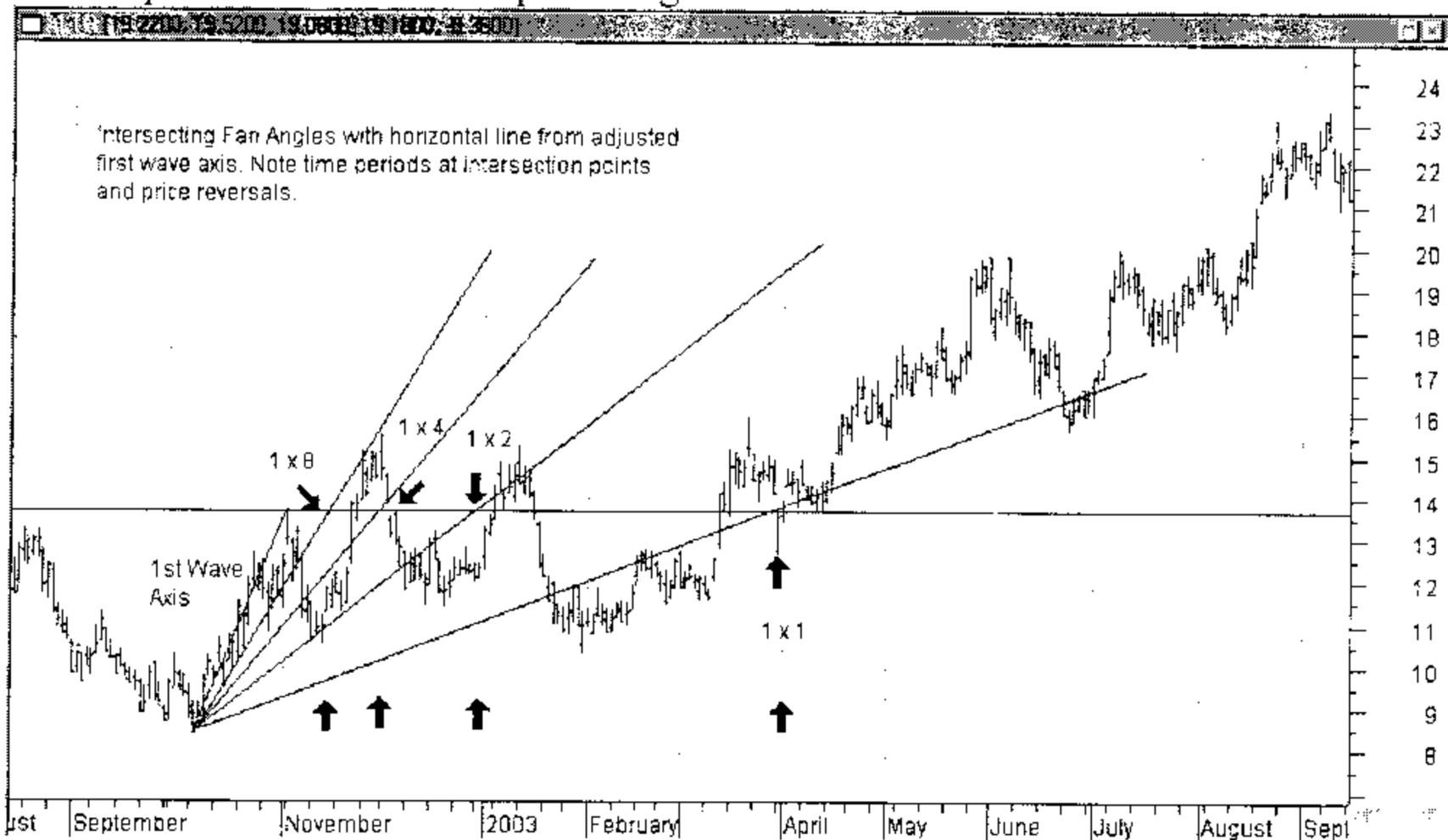
The chart above shows the technique on a shorter term daily chart. This is a very important concept - the principle that geometric fan angles intersecting the initial impulse high will give all the life cycle turns for a stock! In the next chapter we will see how other intersections of chart price proportions also reverse markets.

Chapter 5

CIRCLES

We will now proceed to slightly more advanced concepts and go from straight lines and crossing lines to geometry and the use of shapes found in charts. The first most natural advance from a line is a line rotated, and if rotated through 360 degrees it forms a circle. I must again emphasize what it is we are trying to do with this. The theory is that each and every day the price of a stock or commodity is a component of time and price, which is translated in some fashion by the subconscious minds of men into a price point for that day. The movement through space of this energy is what flips the polarity of the stock price every few time periods. The idea of a "Measured Move" as a vector encompasses the thought that each stock has a maximum space movement before it must reverse and these extremes are noted by looking at historical data to see those extremes. At the end of such a measured move vector, time and price are at equilibrium and a change is indicated. Now we make a slight shift in our orientation and we can see that the radius of a circle is that vector length and it is equal at every point on the circumference of that circle. From straight up 90 degrees to straight horizontal 0 degrees of slope, we see our maximums of price and time. A stock can go straight up for a maximum price advance and almost no time, or it can go sideways the entire radius amount with all time used up and no price gain. The angles in between are varying amounts of time and price advances. In any case at the end of the radius vector, on the circumference of the circle, we will "hit the brick wall" and a change is due.

If you picture the circle as a clock, the 12 o'clock position is maximum price advance and the 3 o'clock position is the flat "node" point. The period down from 12 to 3 o'clock is the "crash" acceleration part, and the rise from 6 to 3 is the parabolic stampede. The tremendous beauty of using circles is that for any initial advance or decline, we can convert that movement to *a universal measurement* that can forecast future moves in the stock. The initial slope of a first impulse wave off a bottom is considered a radius and a circle is drawn around that vector. We can then see the maximum price of any advance before resistance sets in and we also know the limits of a drop off once the correction starts.
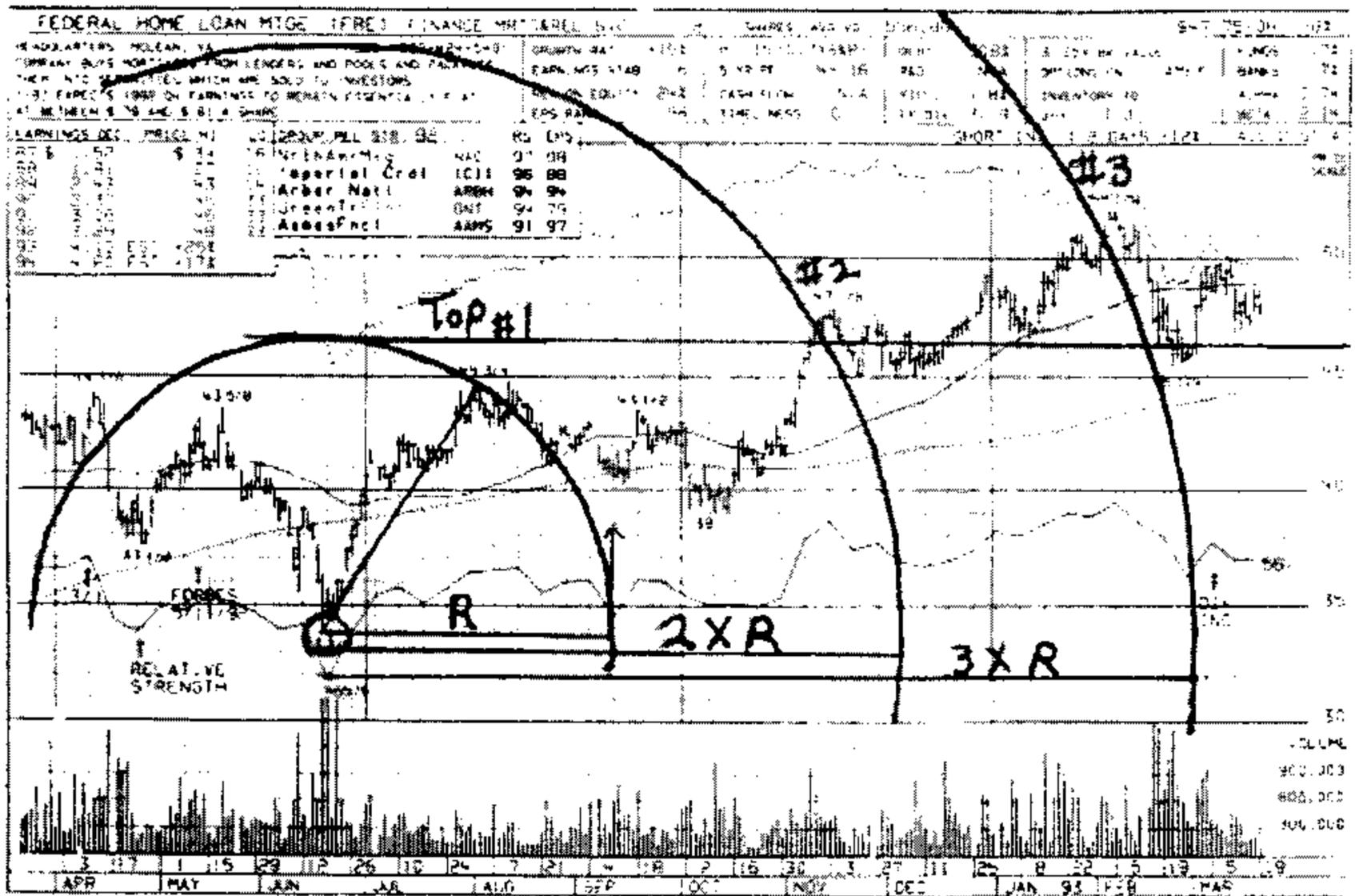
The chart above shows the initial vector advance being converted into a circle radius with the top of that first circle being heavy resistance and later forming a top at the #2 label. Also note that as that first arc goes down to the 3 o'clock position it forecasts a low, as do the next two.

This is my next tip - always convert an impulse to a universal radius vector - a circle.

The chart on the next page is worth study and demonstrates several important points. Note that the first wave is a vector but here it is a *diameter* not a radius of a circle. Note how the bottom of that circle precisely predicts the future low at a level never traded to before on this chart! Furthermore, note that by finding the radius (midpoint) of this first circle and then extending the circle to the right the 3 o'clock point on that circle predicts *the time* of the future low. See how when *time* **and** *price* targets come together *you get a new trend* to start. Should the stock trade up to a new high in the future the top of those circles will clearly define the resistance area. Also of interest is the fact that the center of those circles will provide support and resistance as well as at the intersecting points of the circles. Note the future low at the bottom of the circle (near $50 price), but note too, that the consolidation range of that low was defined by the bottom and the lower
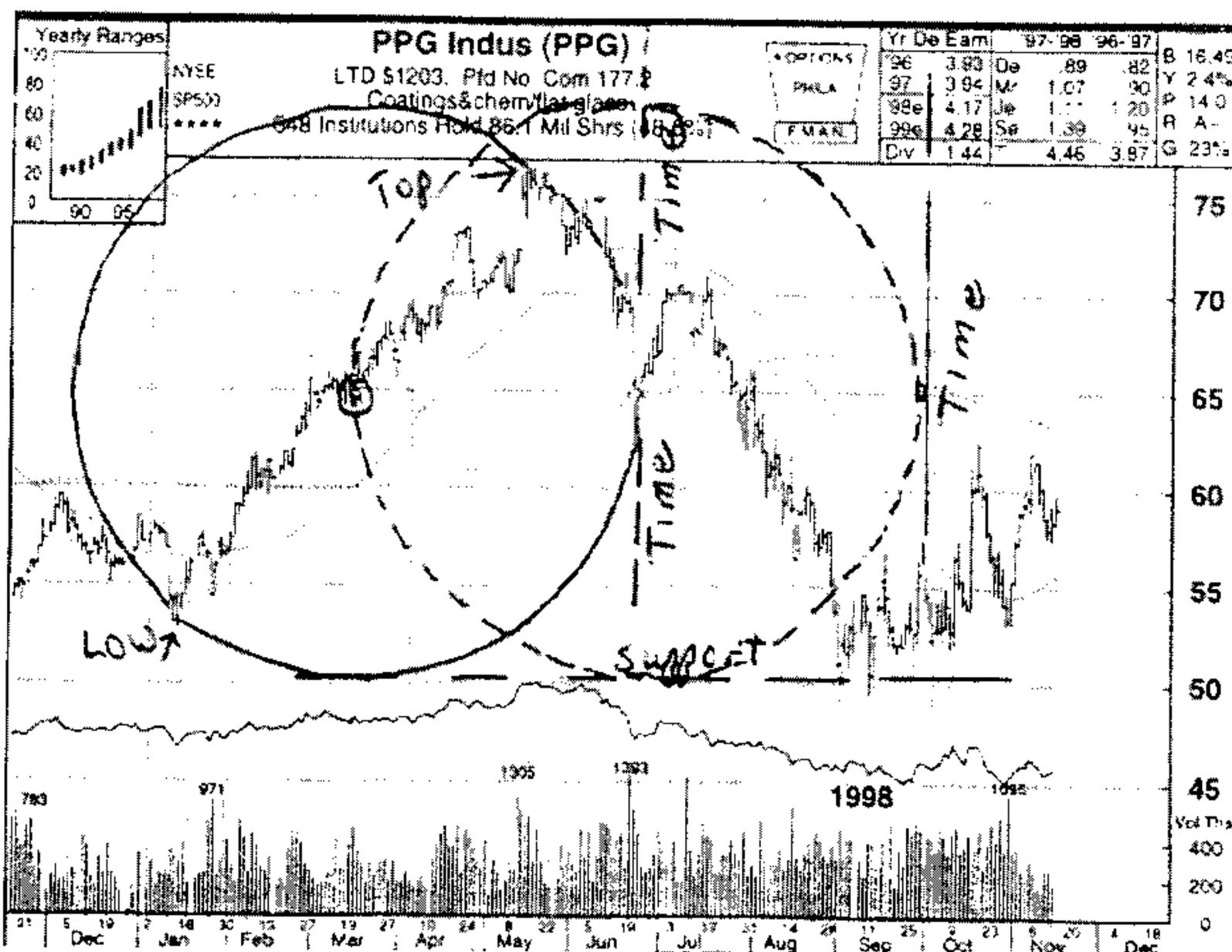
intersections of the two circles (near $52.50). Only after getting above that intersection point did the stock significantly advance.

These support and resistance areas are quite precise but much more valuable than that is the fact that we also now know when the future lows will occur in *time,* and where the future highs will occur in time. This is because when a vector slope measured distance, tops out, that vector is swung down in an arc and the arc will go maximum down at the 3 o'clock point and that will almost always be the *low.* Likewise a crash low gives rise to a vector radius swung up from 6 to 3 o'clock and then the 3 o'clock point becomes the future *high.* It's important to note that a rising stock doesn't have to go down, but at that point it must rest or consolidate before going higher another measured move distance. These circles and arcs work on all time frames and therein lies a key to great forecasting. If you can find an arc going maximum on a 5 minute to hourly chart then you know where the turn could be on the daily chart, and if that chart starts an arc, you can know where the weekly or monthly turns will be. The longer the arc is in effect the better will be its forecasting characteristics.

Long term arcs can provide information that can last decades. If you draw arcs around data going back decades you can see entire economic booms and busts. Remember the key point is that the points of the circle define both time and price resistance areas so the center point of any circle serves as a "gravity center" for the whole structure. For many arcs drawn up from lows, that gravity center will be the final top to the move. The chart below shows two very long term arcs and demonstrates how the advances failed as the arc "went vertical". Always do a "top down" analysis when forecasting economic events, using these very long term arcs and only then moving on to smaller time frames. Always use the four points of the
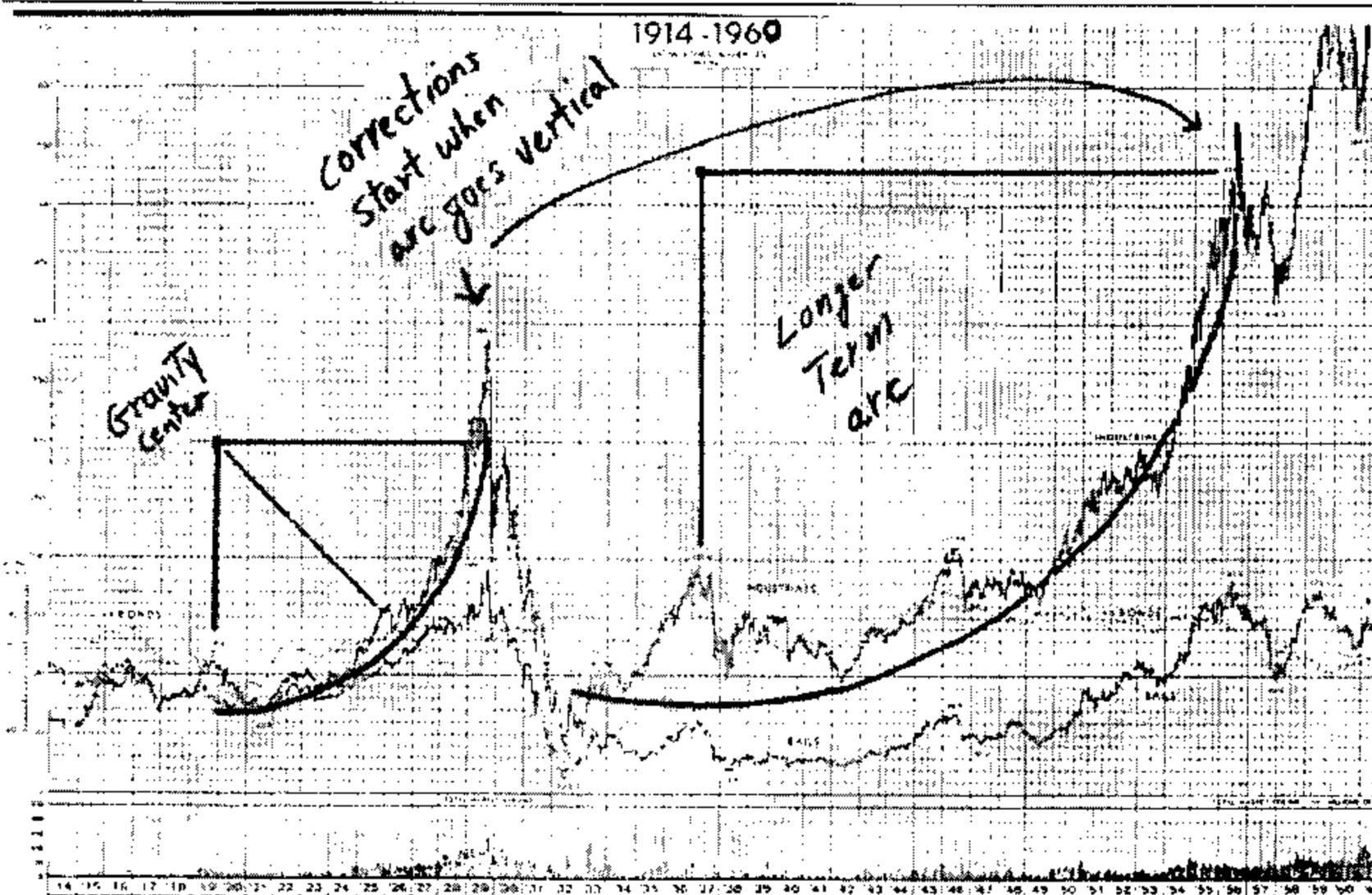
circle to find support and resistance in time and price.

Intersections of circle segments with angles and other circles work just like intersecting angles. A 45-degree angle can often intersect an arc rising or falling and at the intersection point a reversal will usually be made. This chart of the S&P on a 15-minute basis shows some impulse wave circles and horizontal lines were drawn at each increment.
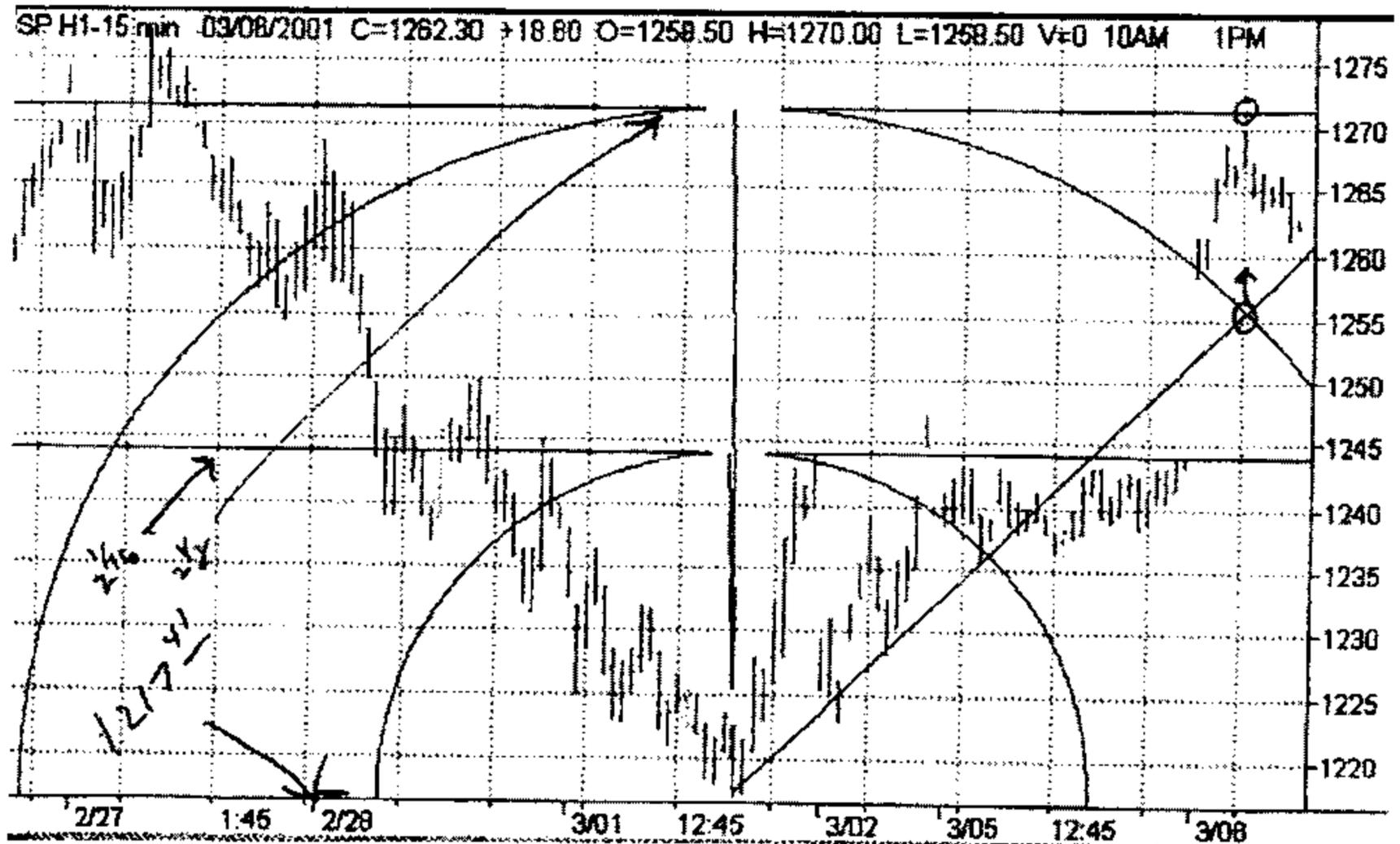
Don't worry about the numbers scribbled at the left on this chart - they were for another exhibit. What is important is the intersection of that 45-degree angle on the right with the two arcs. The first one created a high and a consolidation area and the second precisely timed the top, which also hit the target price of the top of the circle. If you are an S&P trader you know just how very valuable that timing point can be. The intersection of the outer circle segments with various geometric angles like 45 degrees or 30 or 60 degrees is another proof of our theory and it shows that all points on a chart are truly connected.

Indeed if your circle is big enough you can see all the movement in the market caused by angle intersections. In this big chart below, from 1966 to 1990 I drew what I saw as the fundamental truth to the market.
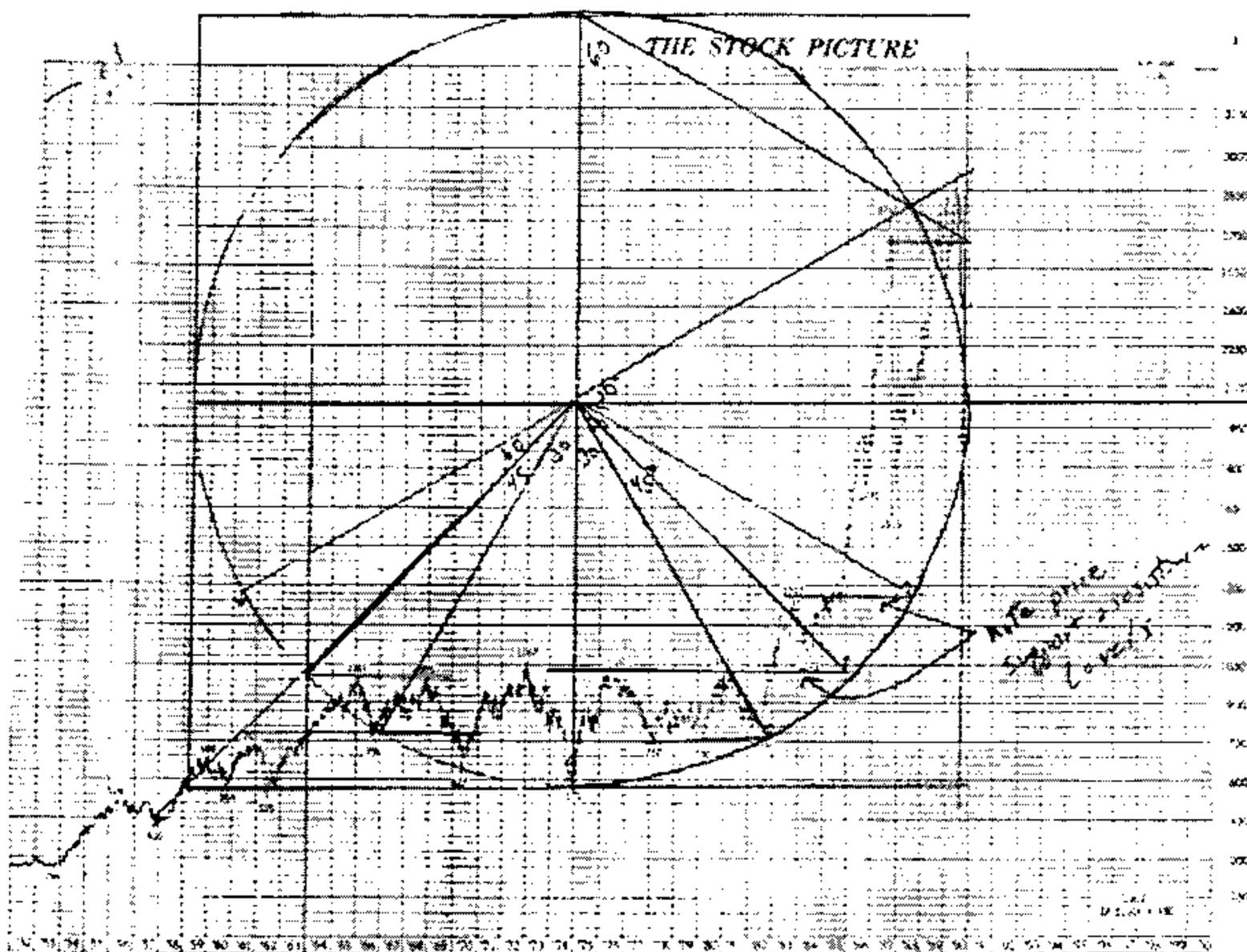
The mathematics prove conclusively that no rational "news" items or earnings reports move the market. The market is mathematical in structure and so must be the mind of man. As Plato long ago said "God geometrises". Note the 30, 45, 60-degree angles *at the point of intersection of the circumference* of the circle and how *that price level* determined the bull or bear market trading ranges. One can truly meditate for hours on the beauty of this chart and what it means for the rational deterministic choices for mankind. Also note that this master pattern perhaps suggests a 30-32 year cycle as the diameter of this big square and a 15-16 year radius.

Expansion of circles is an easy way to keep track of cycles. Angles can do this with a zig zag method of squaring the range over and over from top to bottom and back to top again until the price structure breaks out. Using angles, however, you can't see all the support and resistance points that the circumference of a circle gives you. Overlaying circles will do this keeping the time cycles intact and at the same time showing all the support and resistance. To overlay circles you pick one of the four key points on the circle- 12 o'clock, 3 o'clock, 6 o'clock, or 9 o'clock, and you move the radius length to start at that point. For example, keeping the radius the same amount you move your starting point to 3 o'clock and draw another circle. This circle will go through the center of the first circle and extend its length by 50% to the right. You can keep doing this for as long as you like. This method will give cycle lengths expanded by multiples of 1/2,(1.5, 2, 2.5, 3...etc). Another more dynamic way to adjust circles is to adjust the actual radius vector length. This will do two very important things. First it will expand the cycle length by a multiplying factor i.e. 2, 4, 8, 16, but more importantly it will *change the curve* of the various circle circumferences. These larger circle sections or arcs better fit long-term data and visibly show the growth spirals from an initial impulse wave. The chart below is an intra-day tick chart and the circles are started with an arc drawn from the low back up through the preceding high.
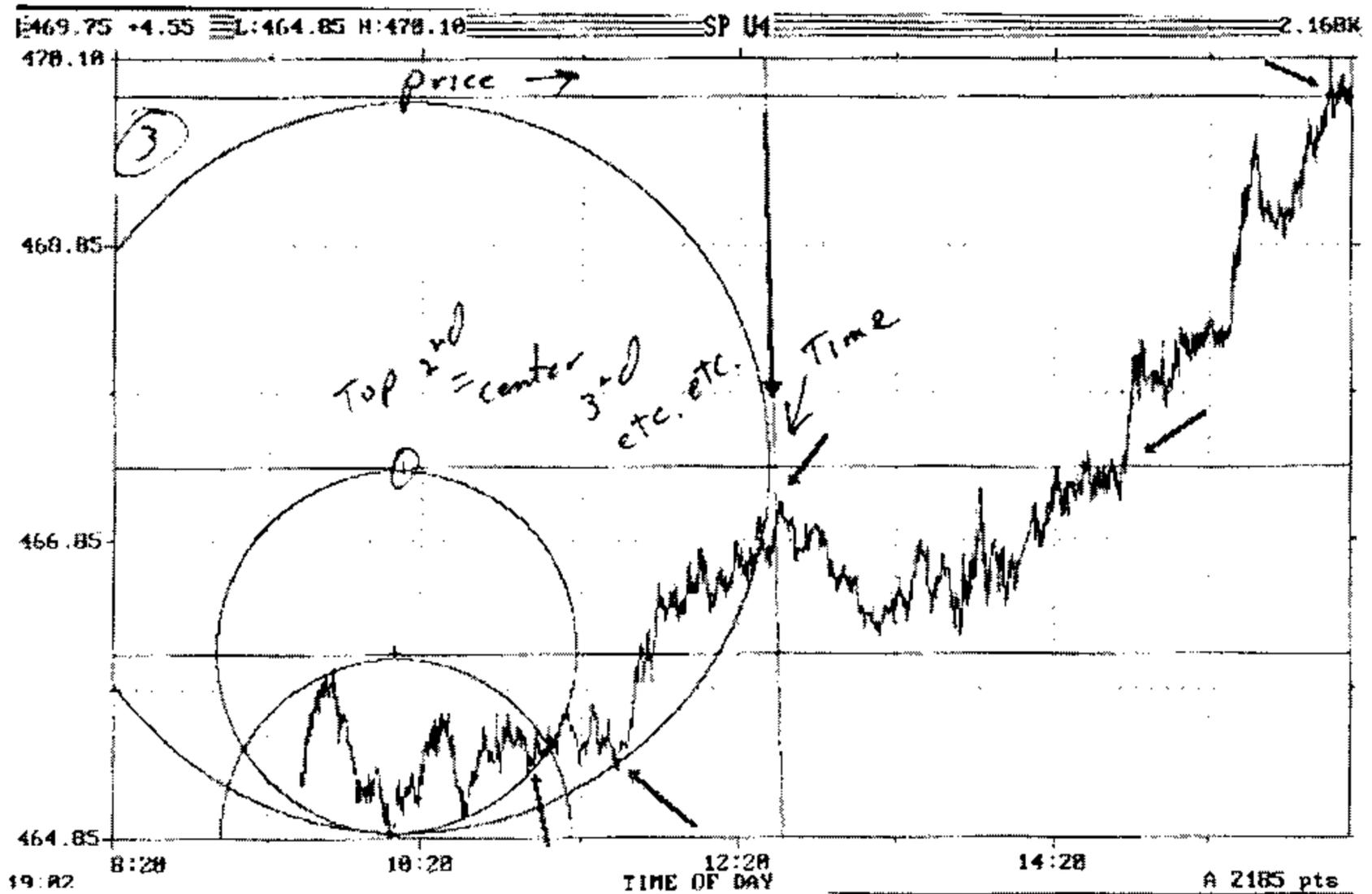
The first horizontal line shows that top and midpoint. We then move our compass to that point and draw a circle from there through the low and back up to the next top and horizontal line. Finally we go up to that high and draw a circle from there back to the low and up to our final high. The "arrows" show a number of important points in time and price resistance created from this **one** beginning low point! Of particular interest are the *slopes* of the two complete circles and note how those slopes caught the prices and forced them up, proving once again that the total structure is mathematically related. Where the arcs went "vertical" at the 3 o'clock position, the prices topped.

Once we see an arc section that fits the data we can use the total size of that circle to forecast end points and support and resistance. Always use expanding circles to get support and resistance points but also to find the slopes of arcs that can further define the price structure. Remember we can use these new circle radiuses and diameters as price vectors in the future and even if we haven't seen a length that size, if it comes from a circle drawn this way it will one day show up. Circles can also be expanded by ratios like Fibonacci ones- 1.27, 1.618, 2.236, or others, especially the square roots of two, three, and five: 1.414, 1.732, 2.236. To do this you just measure the vector radius distance and extend that the required amount before drawing the circle.

The idea of *using subparts of a geometric structure* as price vectors could be the *most powerful tip of all that I can give you.*

To get to the principle I must backtrack again briefly to discuss the idea of "Sacred Geometry". Sacred Geometry was the practice in past times of using the geometric solids to construct buildings in divine proportions that were found in nature and thought to be at the core of God's universe. From the Greeks on down, all palaces, churches and other important buildings were constructed from "seed" drawings of geometric shapes and then lines and angles and circles were extended from these seed blueprints to enlarge and incorporate all the divine proportions and ratios into the actual building's design. The Great Pyramid is the perfect example of such a structure that starts with a small seed design and uses the ratios of 1.618, 1.141, 1.73 and a host of others to reflect all the perfect mathematical principles that underlie life on earth. Early artists who practiced "perspectives" like a scale drawing of a row of buildings in a city or multiple steps up to a large building, all needed a technique to make everything in proportion and exact scale. Using lines and angles they found how to expand a seed shape into an enlarged reproduction.

In the stock market the price structure is always perfect and we must both expand a seed up to see the structure and we must also work backwards to find the seed. The initial radius vector length is our working seed to build up the whole structure. Although the very first wave up in a new bull market is the best starting point, in the vast majority of cases we need to trade at the present time and don't have the time or chart space to go back and bring everything forward. It doesn't really matter, however, since the fundamental units show up over and over again as "Measured Moves". We need only start with an obvious one. The first step is to swing an arc from a low to a high (A to B in the drawing below), and then swing an arc from that high right back to the low. The shape created thereby is called a "Vesica Pisces", the fish sign used by early Christians. It has several features but the most useful one for our work is that the straight line connecting the two end intersection points is exactly the square root of 3 ratio of approximately 1.732. The vast diversity of life and stock market patterns come from just a few ratios and the most important are the square root of two (1.414), the square root of three (1.732) and the square root of five (2.236) and (2.236+1)/2=1.618. Completing a universal 6 would be PI (3.1416) and E, the natural logarithm (2.718). By the way,

$$AB = CD$$
$$AC = \sqrt{2}$$
$$DE = \tfrac{1}{2}AB$$
$$CF = \sqrt{2}$$
$$AF = \sqrt{5}$$
$$AD = \sqrt{3}$$
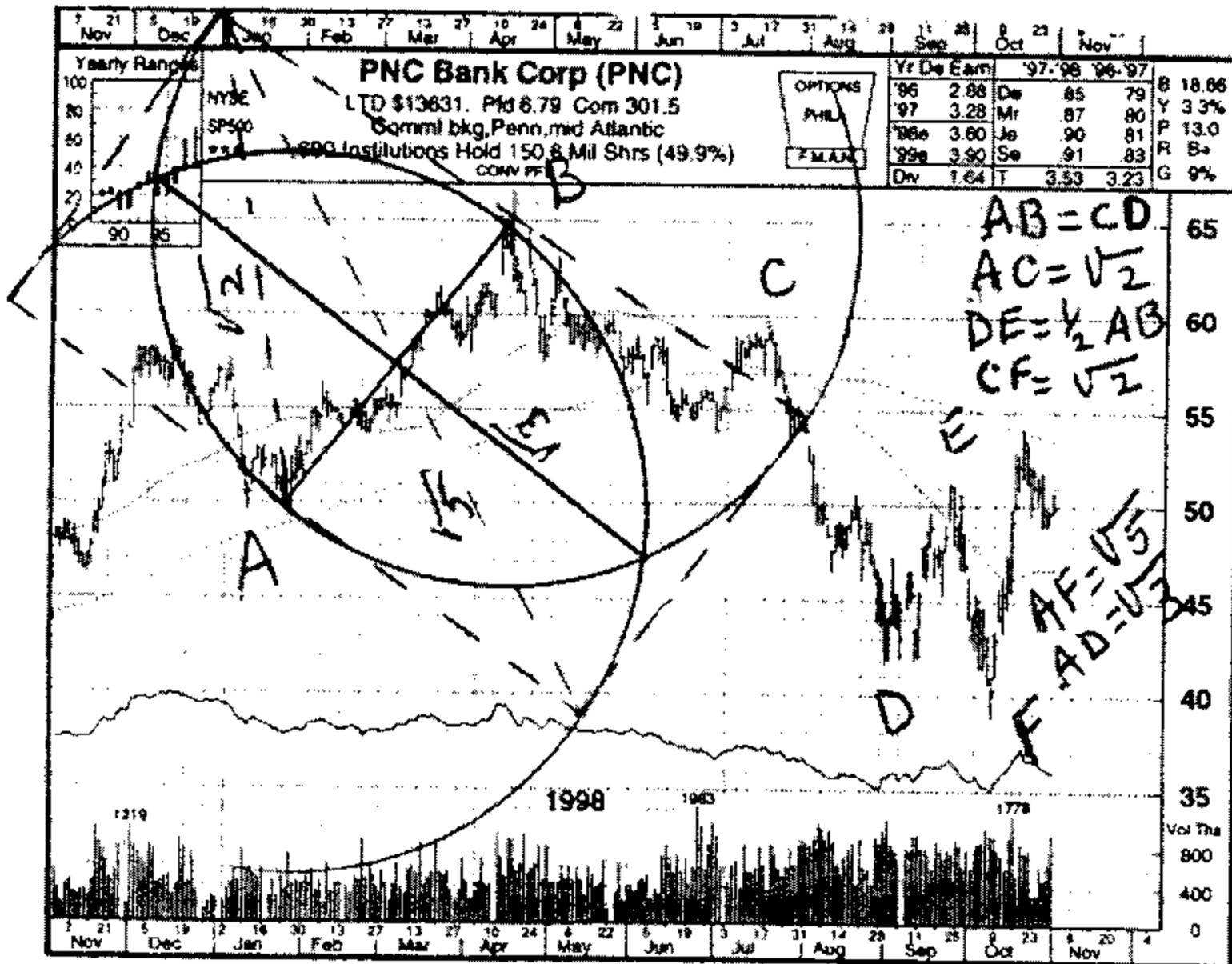
1.414+1.732=3.146.

The complete seed consists of two interlacing circles that are "squared". We then measure the distances from the various sides of those squares and from the Pythagorean theorem of A^2 + B^2=C^2 we know the diagonal of one square is 1.414 and diagonal of a two squares together is the square root of five 2.236. The line between the intersecting circles is the square root of three 1.732. The complete seed is shown in the graphic below. Study this figure carefully.
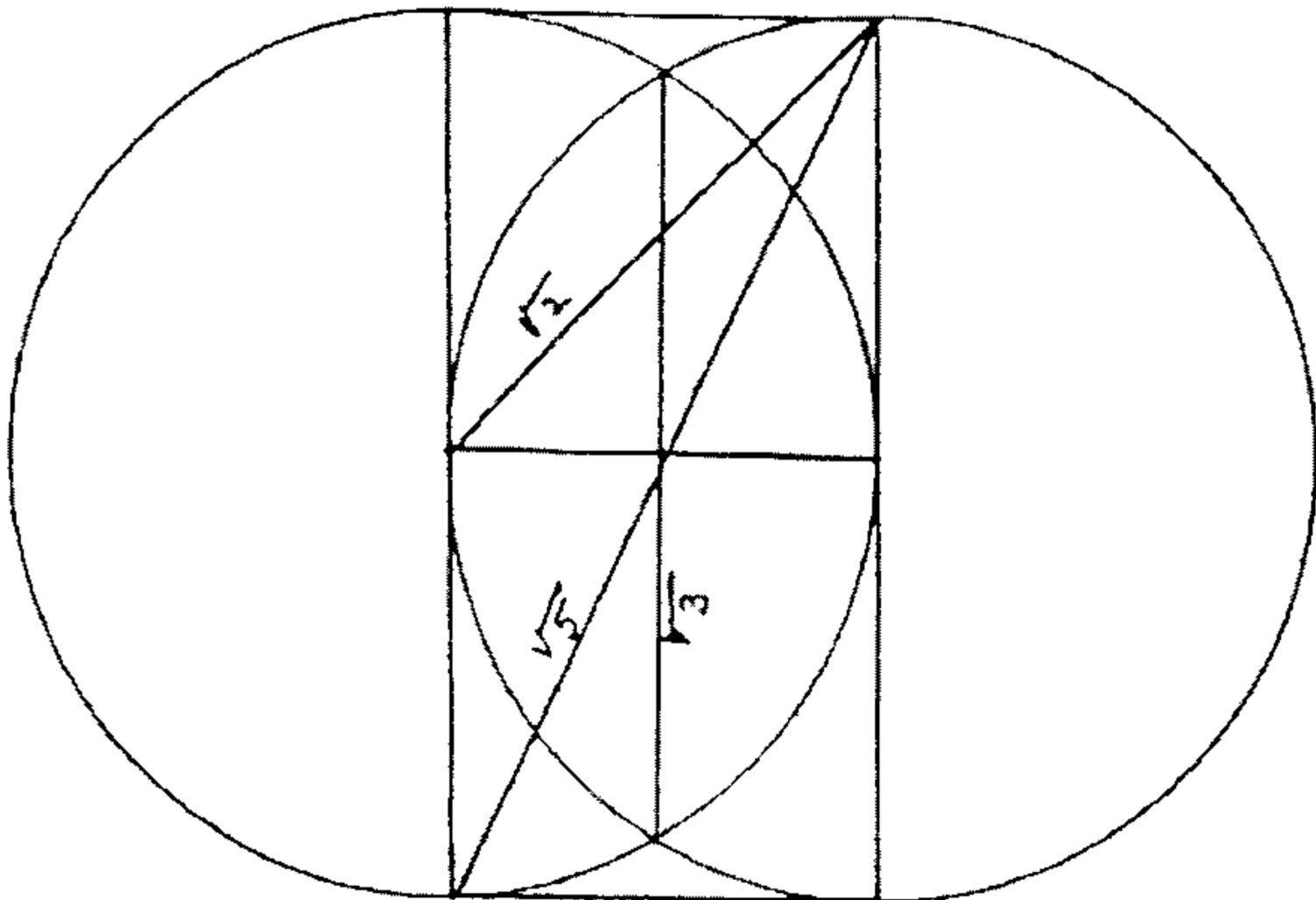
This graphic shows the universal ratios that spring from circles and squares and we can get these from any stock or commodity chart using a swing vector. Once we have these basic core vectors for any stock we know what the future extremes will be, even if never seen before. We can use the lengths spawned from these initial impulse waves on our chart to measure to target areas of resistance and time cycle terminations. Remember that each of these very stock specific vector lengths can be applied from any future high or low and rotated into a circle to get termination points. *This is one of my most important tips of all - to find and use the six principle vectors arising from any impulse swing of a stock or commodity (1-*

radius, 2-diameter= 2x radius, 3-sqrt(2), 4-sqrt(3), 5- sqrt(5) and 6-circumference of the circle- 3.1416 x diameter. Now look at this chart of PNC Bank again and note how all these geometrical segments arose from that first simple A to B swing and how *future* moves were entirely related to those measurements! Please take the time to get a ruler or use you fingers on this chart and verify the distances noted in the exhibit. This will make you a fortune if you understand the concept.
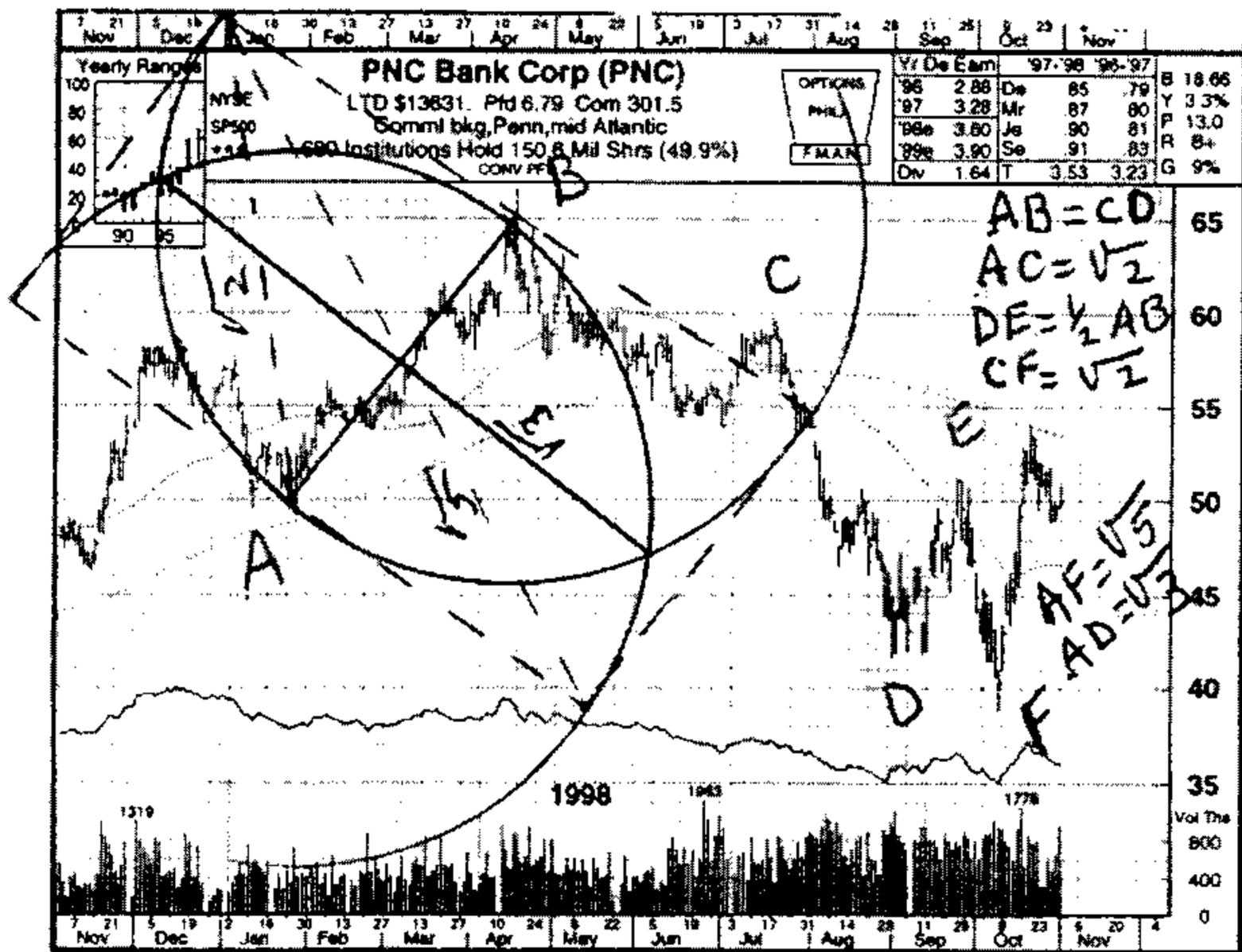
Chapter 6

SQUARES

We've developed techniques from the line, the circle, and now we'll look at geometric square shapes to forecast price trends. The basic square consists of four sides composed of vector lengths that are at right angles to each other. Ideally you would want to lay your first side along the slope of the impulse wave first vector and offset that line with the 90-degree sides. These work well but are cumbersome to expand and duplicate because of the odd offset angles that arise from the various impulse wave slopes. This chart below shows a square laid along the first impulse vector. The square is subdivided with each half side marked with a dot and
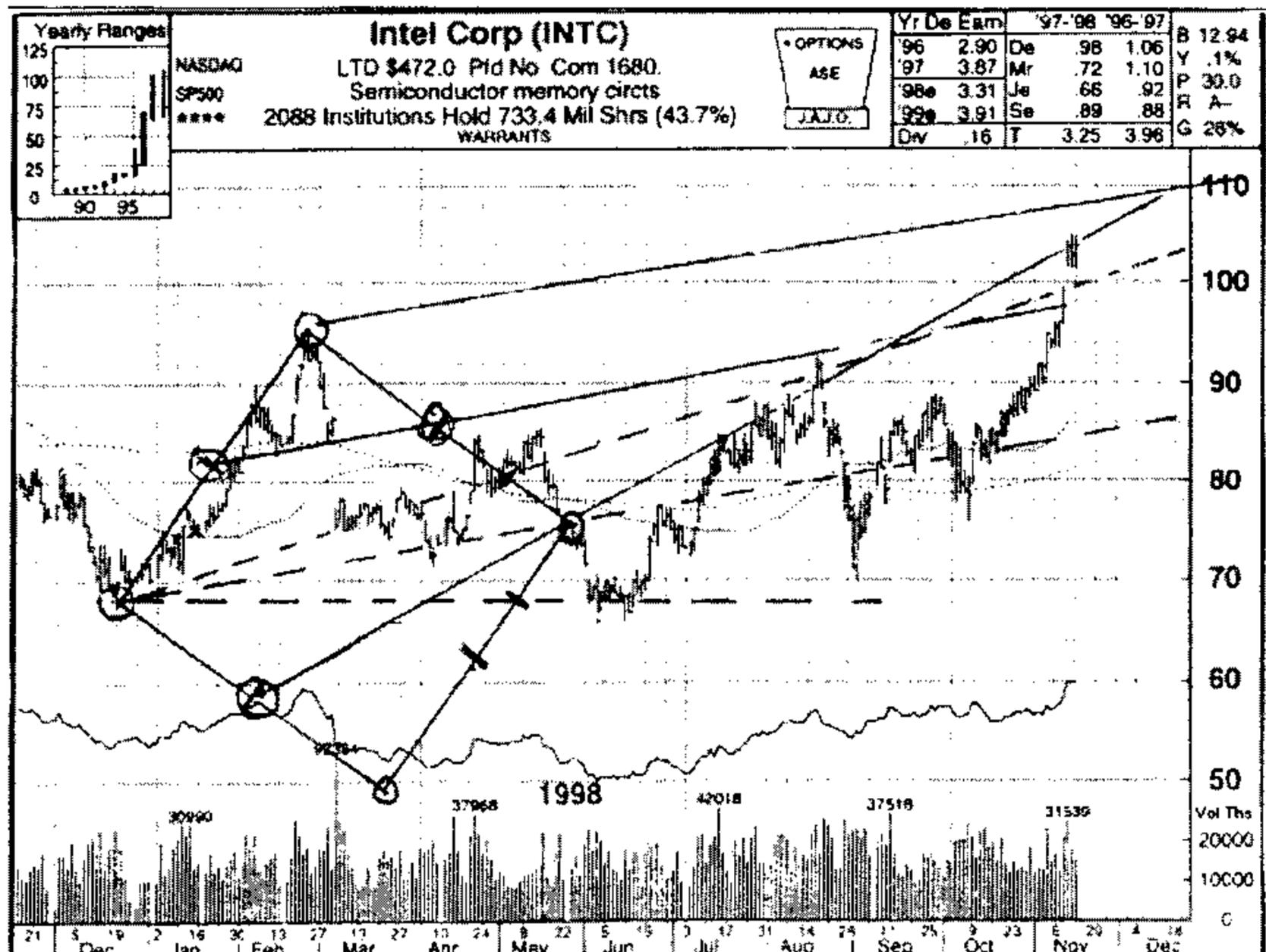
trendlines drawn through them to show you how the trendlines arising from those subsections do indeed forecast prices and this comes only from offsets to the first impulse angle. Note how the angles catch the two later tops.

The universal conversion to a circle is usually an easier solution to the axis of orientation problem. You first draw an arc up from your impulse wave and then use that top horizontal as a side and if a 45 degree angle is then drawn up from the low, the intersection with that top horizontal will give you the other corner of the box and hence its size. Subsequent boxes can now be stacked both horizontally and vertically to give you cycle counts and support and resistance levels.
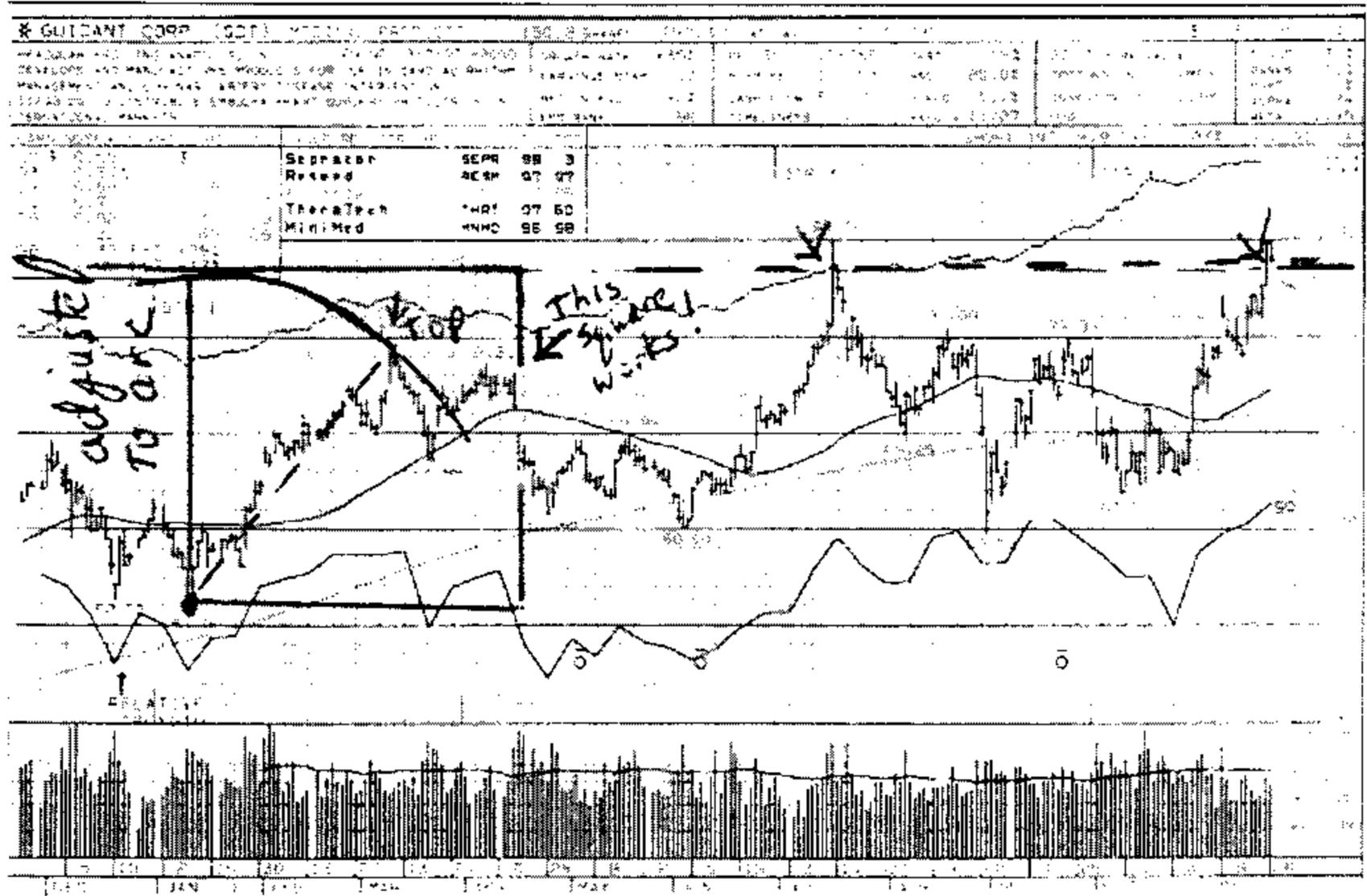
Other techniques can be incorporated with this i.e. the arc method shown in my "Chart Reading" book. This next chart (below) of Bonds shows that technique of stacking boxes to increase radius size, and then swinging those radiuses down to expand by square root ratios of the initial box size. Note that when stacking boxes the arc swung down from the vertical side will be a size equal to the radius of the length of the boxes, while the arc swung down from the diagonals will be the square root of the number of boxes squared plus one. These are often close together and often account for double bottoms or tests of lows. Note how the falling arcs describe resistance in space all along the path of the decline.
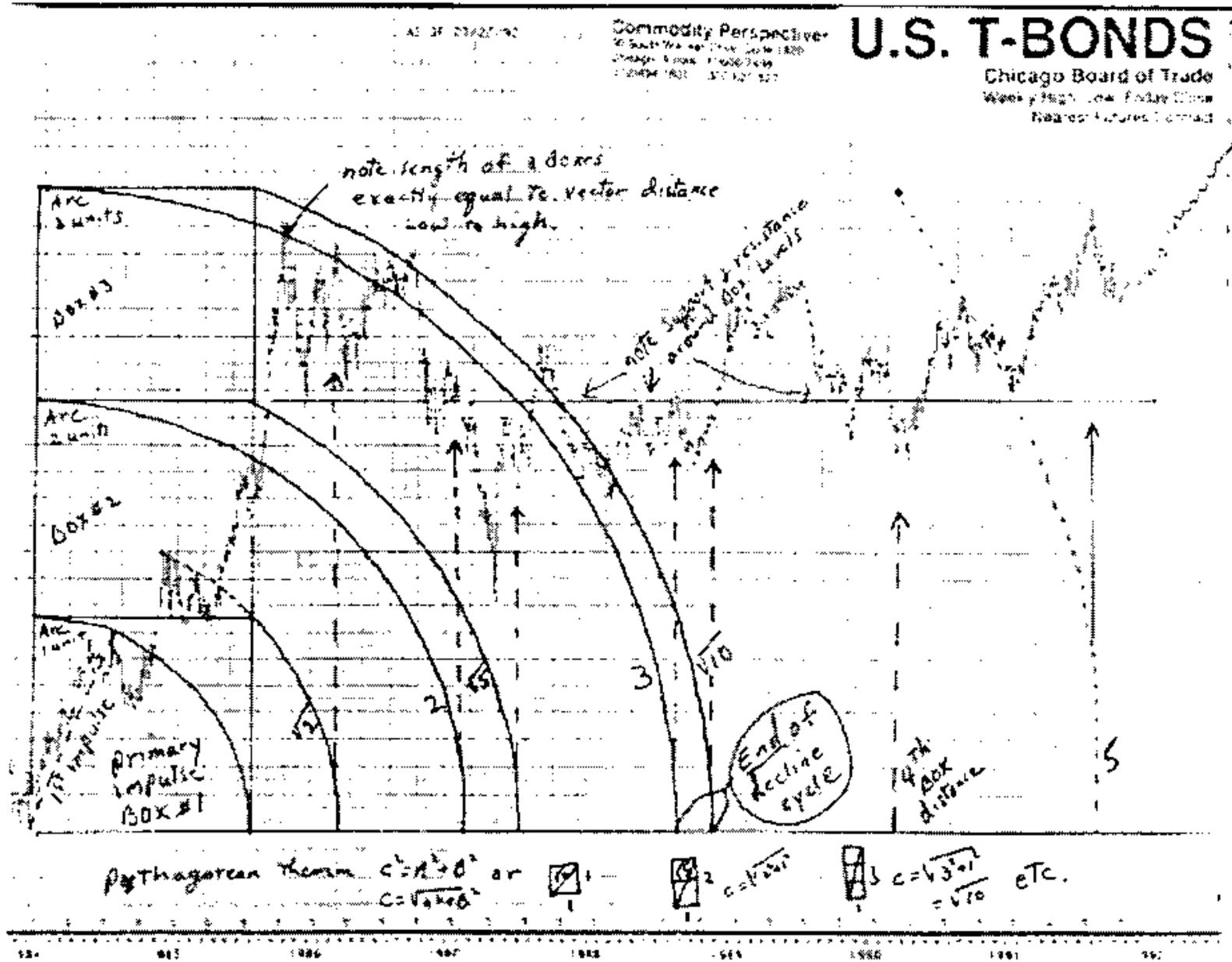
A very quick way to expand boxes and grow them at the same time with varying proportions is through the use of angles. Knowing that the diagonal of a square is the square root of two or the ratio 1.414 of the side, we can easily see that a 45 degree angle from a low can be extended across the page and be sectioned off at fixed lengths along that angle to form various size boxes. A more subtle and powerful technique is to use an angle to expand as a proportion like the universal Fibonacci ratio. The .618 ratio can be used as an angle (31.716 degrees or inverse Tan of .618) or chart scale proportions like 3/5, 5/8, 8/13 as representations.

The chart below is an example published in my Newsletter, *Stock Cycles Forecast* back in 1990. It shows the use of a timing angle of 31.716 degrees as a .618 representation and as noted the boxes are constructed with 45 degree timing angles starting down from the first impulse high. As this 45-degree angle zig zags from zero up to the Fibonacci timing line the boxes expand at Fibonacci ratios and so does the support and resistance levels on the market averages. The lower half of that exhibit shows that within each expanding Fibonacci box the subdivisions are growing by simple linear addition.

In the old days using hand charts it was best to use eight grids to an inch chart paper so these Fib ratios and octave note proportions could easily be sloped (over 5, up 3, or over 8, up 5). These expansions will give time count cycles that are in

Traders Tip

Using Fibonacci and Arithmetic growth angles.

Start with Fibonacci angle of 31.7° and draw up from low or down from high.

Next "Tic Tack" up & down with 45° Timing angles. Start from 1st impulse high above Fib. angle
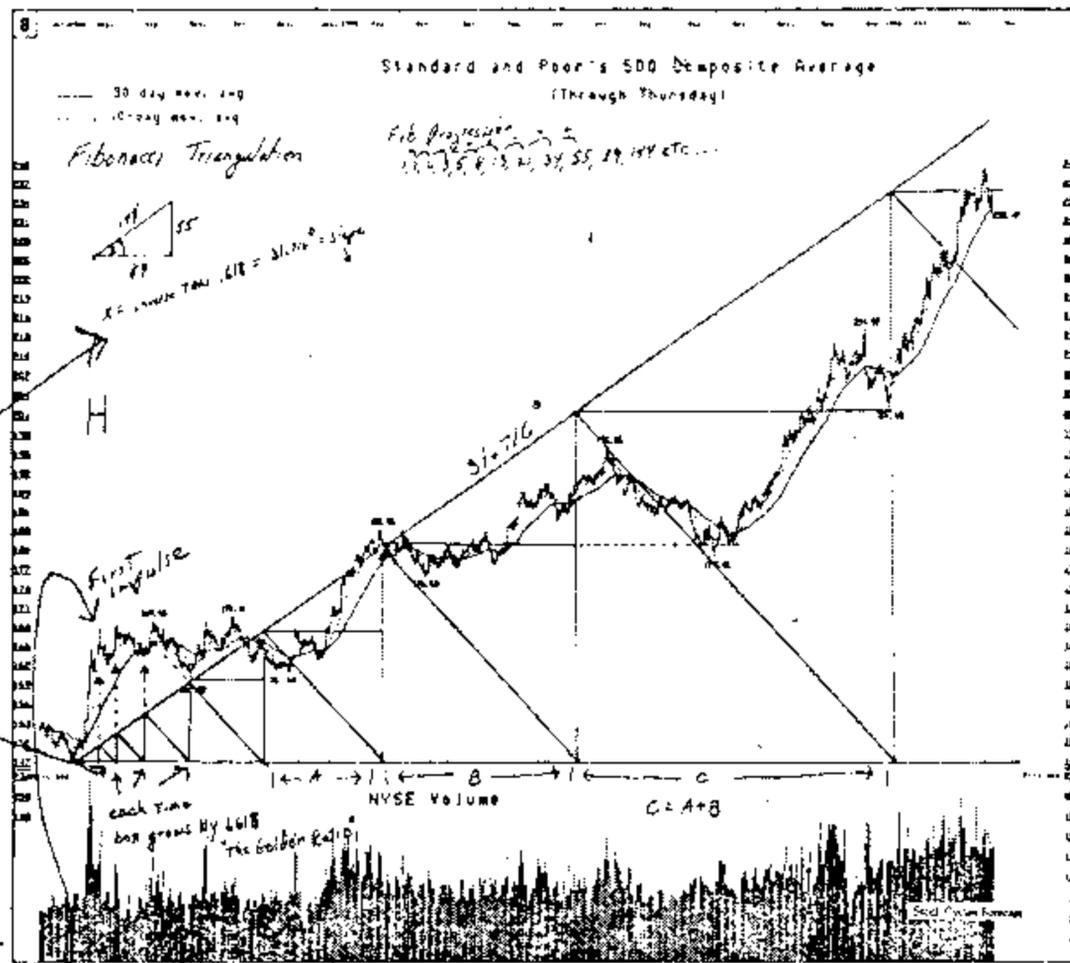
Second step is to subdivide Fibonacci growth into even arithmetic growth

Examination of these angles and boxes will reveal all market timing turns and support & resistance levels
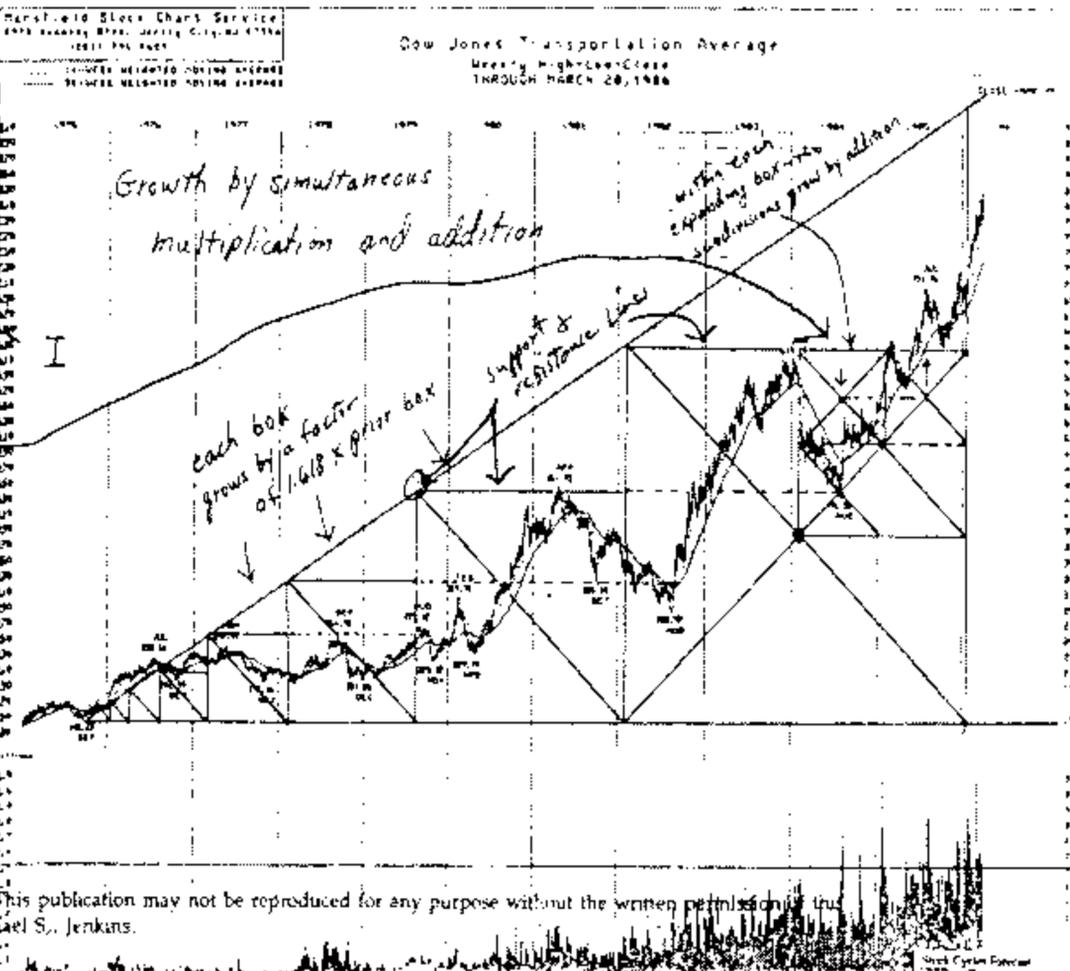
June 28, 1990   Volume 6, Issue 2

direct proportions to the initial impulse wave. The Fibonacci expansion in this chart below has a timing line connecting to the first correction low after the initial impulse up wave. The 45-degree declining angle intersects the base horizontal angle and then forms the square.
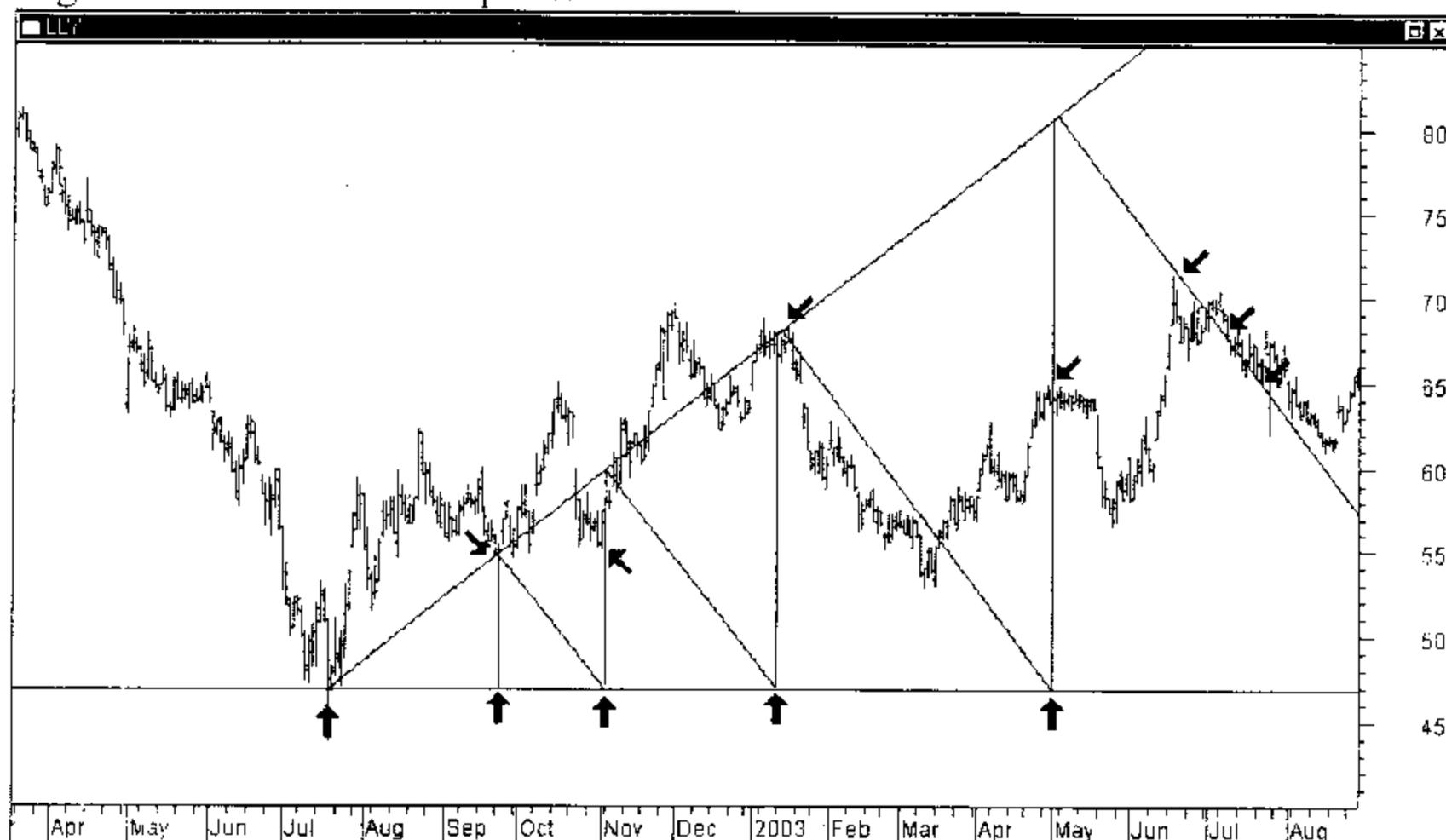
Note how each subsequent box is the sum of the two preceding boxes - the classic Fibonacci additive principle. The box end points all provided good trade entries. The angles on this chart are a little distorted as the graphic was resized but you can use 31.7 or 38.2 as Fibonacci representations, with downward sloping 45 or even 90 degree angles. You can also use the natural angle of the chart itself instead of a Fibonacci angle and just connect the first high or low with the natural vector angle from the start and then tic tac. These methods will all produce results, as they are geometric methods created from the stock's own pattern.

One final example of a box expansion is the simple technique of expanding a box by a natural ratio. Here we take a low and expand it by the Fibonacci increment 1.382 added to the square root of the low, and assume that level will be a top. We then box that level in by drawing a 45-degree angle up from the low and at the intersection point with the 1.382 expansion we create the side of our square. As the chart shows this technique works and the box can then be duplicated sideways or vertically to get future trades. Please note how the diagonals of the subsequent squares caught the later tops.
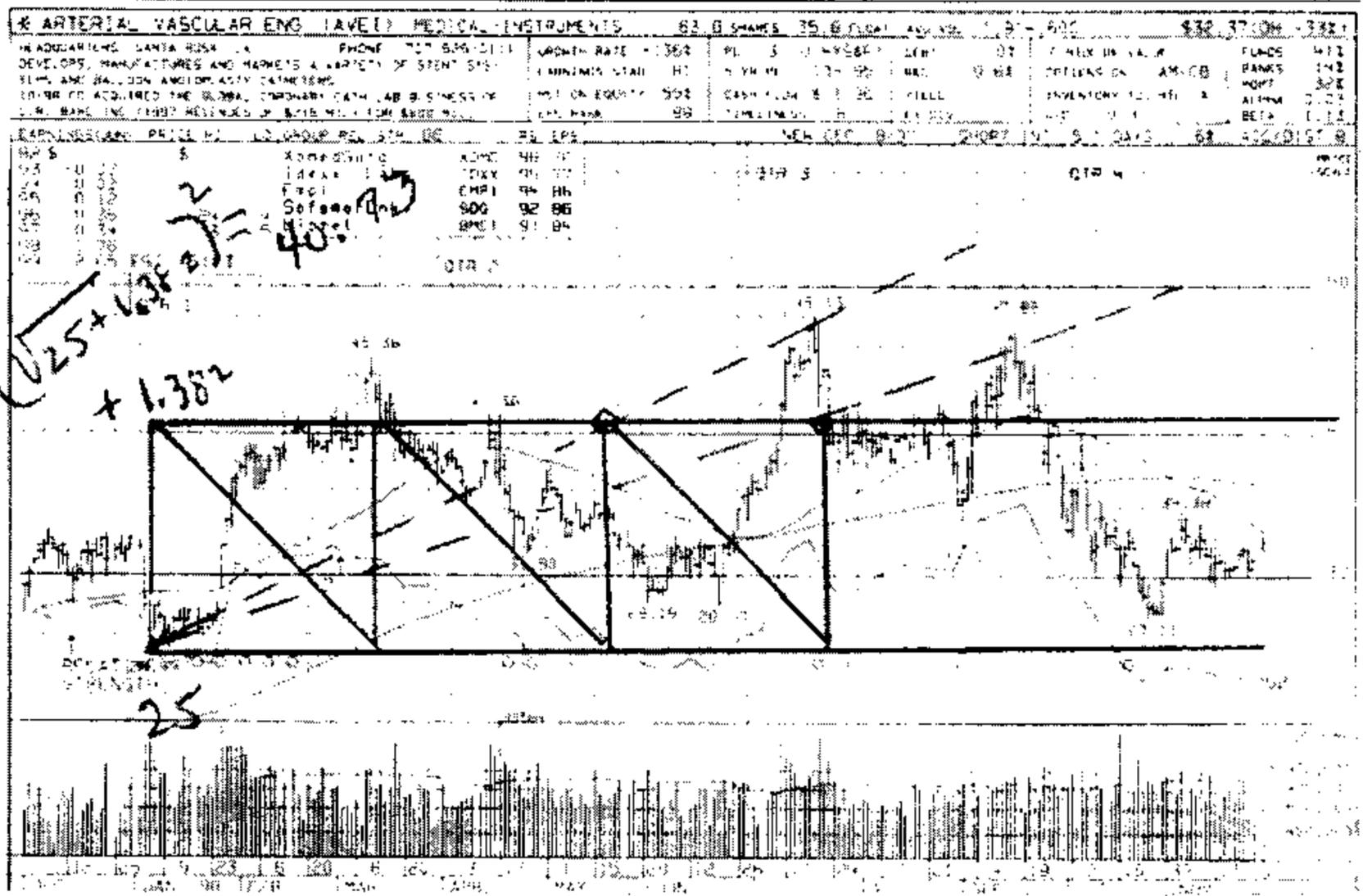
Chapter 7

PYTHAGOREAN THEOREM

Triangles are the next shape to examine and one of the most important. Those of you familiar with the Gann Square of Nine method will recall that it is a square with a circle inscribed within it and a triangle and square attached to the center of the circle that are moveable. The interconnectedness between the square, circle, and triangle and the ratios of the square root of two, of three and of five lie at the heart of most speculative markets.

If we start with our original concept of drawing a line from an initial low to the first high for a measured move vector, we will note that this angle can also be considered the hypotenuse of a right triangle with the vertical side the price change and the horizontal side the time element. Remembering that we can swing an arc up or down to get culmination moves we know that this hypotenuse can be converted to a horizontal line for time count measurements if we know its length. The old Pythagorean theorem solves this problem with the formula of $C^2=A^2+B^2$ (the ^ sign means raise to a power). We'll use C (the hypotenuse) as our vector line, so B and A will be the price change from low to high, and calendar day's distance from low to high, respectively (see diagram in next chart). After we square the quantities A and B and add them, we take the square root of that to get our adjusted calendar day C. This amount added to both A and to B dates will give us two future dates that will yield good trades. The following example comes from the 9/11 lows up to the first high after that. This was a very emotional time and a good impulse wave vector to try out the math. As the example shows the results were spectacular. If you look at the dates, you'll see almost all of the next major turns in the market including March 12, 2003 final low (the sqrt (5)). Techniques like this need few others.
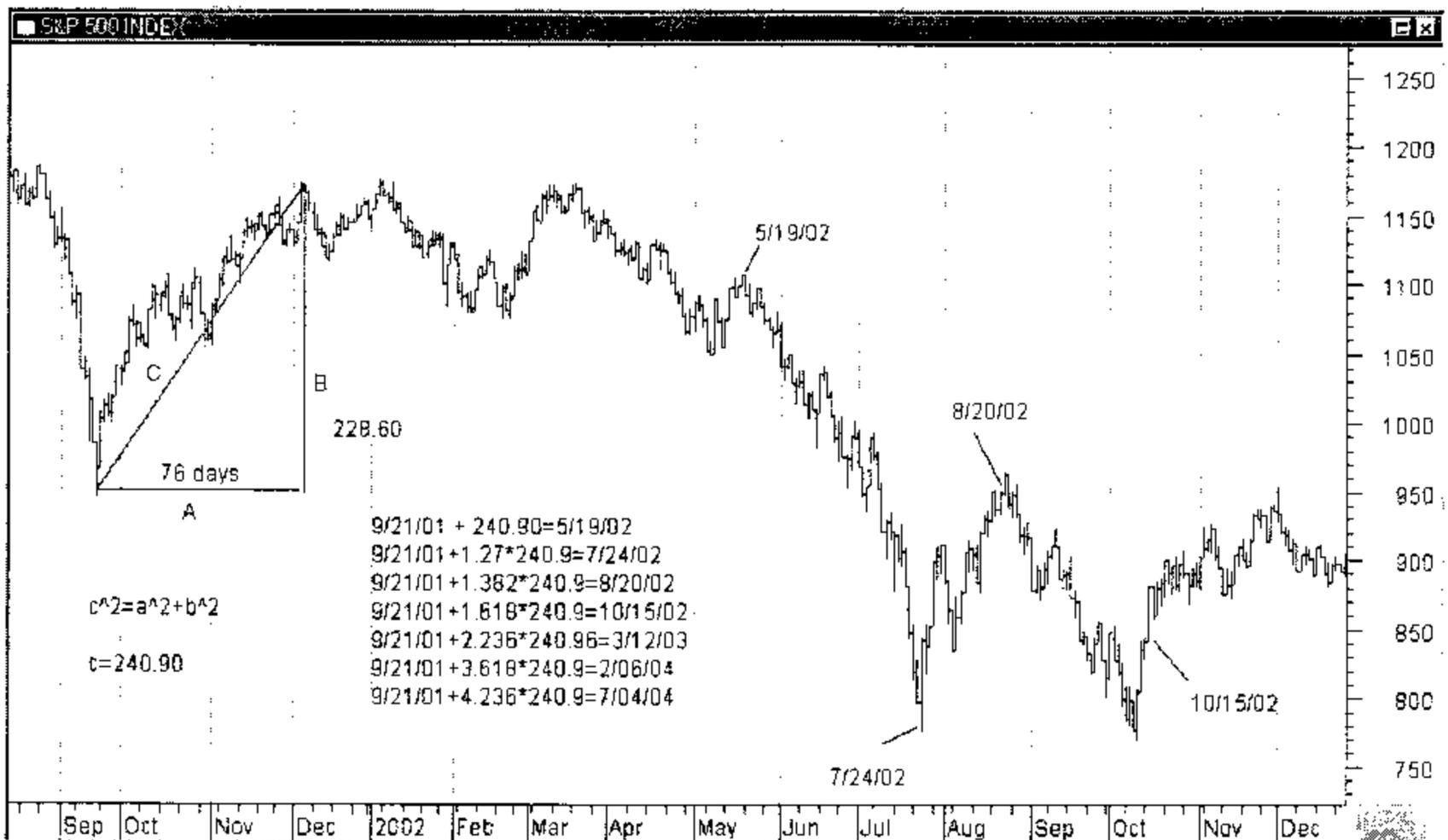
Throughout this book I have emphasized the fact that these techniques are "principles" and lie at the root of the stock price patterns. If so we can expand all these techniques to larger size proportions and get innumerable market turns in the future for trading purposes. Triangles are no different and here we expanded our right ABC triangle with well know ratios like 1.272 (sqrt 1.618), 1.414 (sqrt 2), 1.50, 1.618, 1.732 (sqrt 3) 2, 2.236 (sqrt 5), 3.1416, 3.618, and 4.236 (1.618^3). In this chart from the 9/11 lows up to that year end high we see how a simple C vector expansion caught almost all the major moves of the next two years! This is an example of how a good seed structure can duplicate itself well into the future. One technique not shown with this, but is the principle behind it, is the fact that as we expand our initial C vector by a ratio, the result is the horizontal distance of an arc extended from the plane of the C vector extended and swung down to the horizontal. If you were to actually draw along the C vector line an extension equal to the ratio increase and swung that arc down you would see that that arc was a valid circular arc that defined resistance to price advances all along the way and as it went into a "vertical drop", the price would usually create a low as most declining arcs do. The advantage of drawing triangles and arcs this way is superior to just doing the calculation of the end point as all the resistance points along the swung arc can be visibly seen on a chart and warn you of its probable outcome long before the actual termination date is reached.
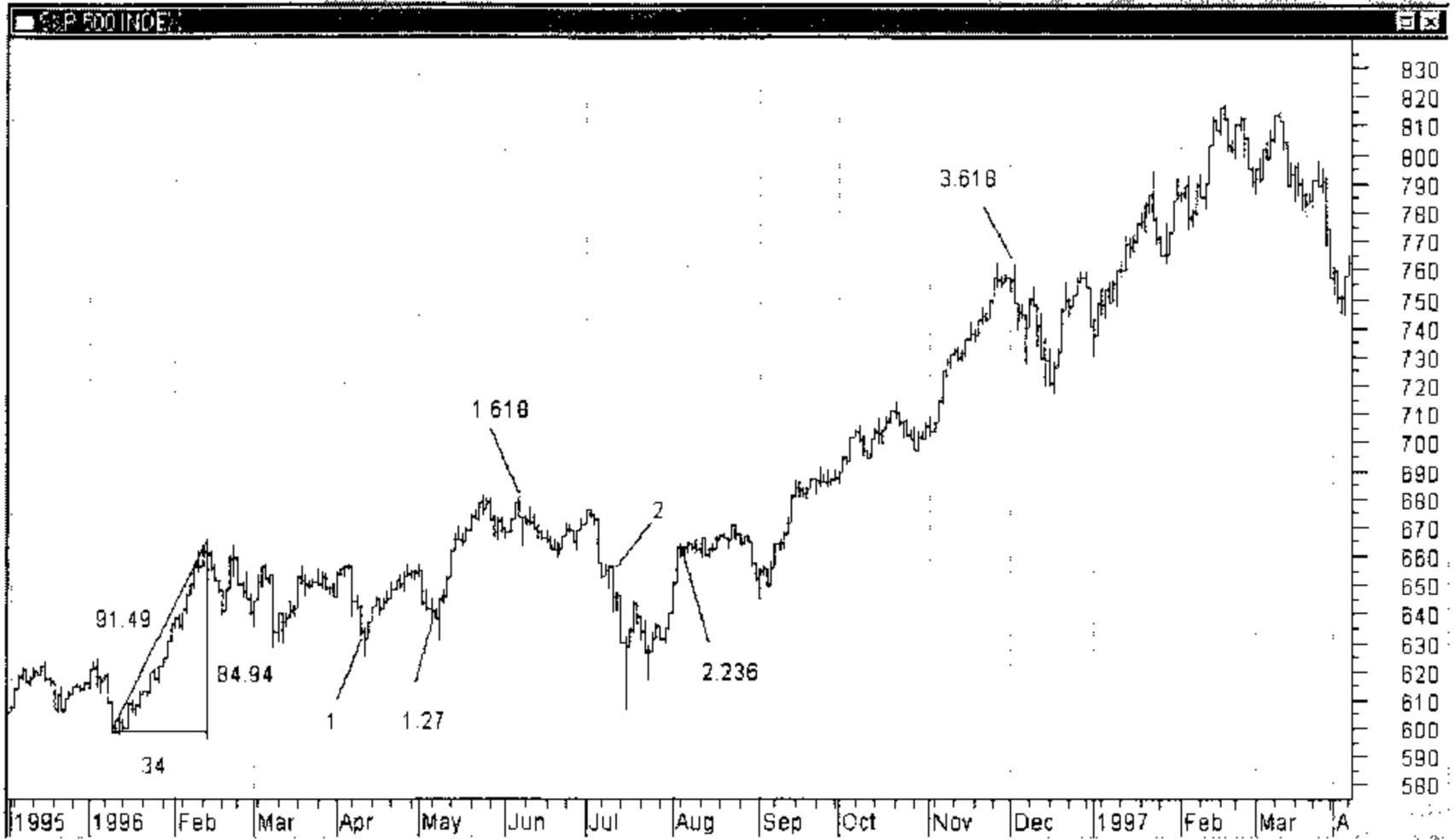
This chart above is another example of a smaller impulse to start our triangle and as such the resulting calculations don't produce major turns but nevertheless quite tradable ones. The numbers "1" "1.27" "1.618", etc. are the ratio expansion factors for the "C" leg, and where that calculated hypotenuse expansion came out in calendar days.

The final triangle example above shows a different kind from the prior ones - this is from a high to a low - the July 1998 top to the October 1998 bottom as shown in the small triangle glyph in the top left corner of the exhibit. Once again, the days calculated from this simple method yielded great trades and market reversal points, if waited for. Of particular note is that 1.618 big top to the day!

Chapter 8

GANN SQUARE OF NINE

We briefly mentioned the Square of Nine earlier but now we will take a more thorough look at it and how to use it. W. D Gann was the originator of a number of interesting calculating squares used for trading the markets. Many of these had base number schemes of 4, 6, 8, 12, 24, or 36 but the most important of these was the Square of Nine and since I based the Jenkins True Trend Line on its fundamental principles it's a good time to review what it is and what it can be used
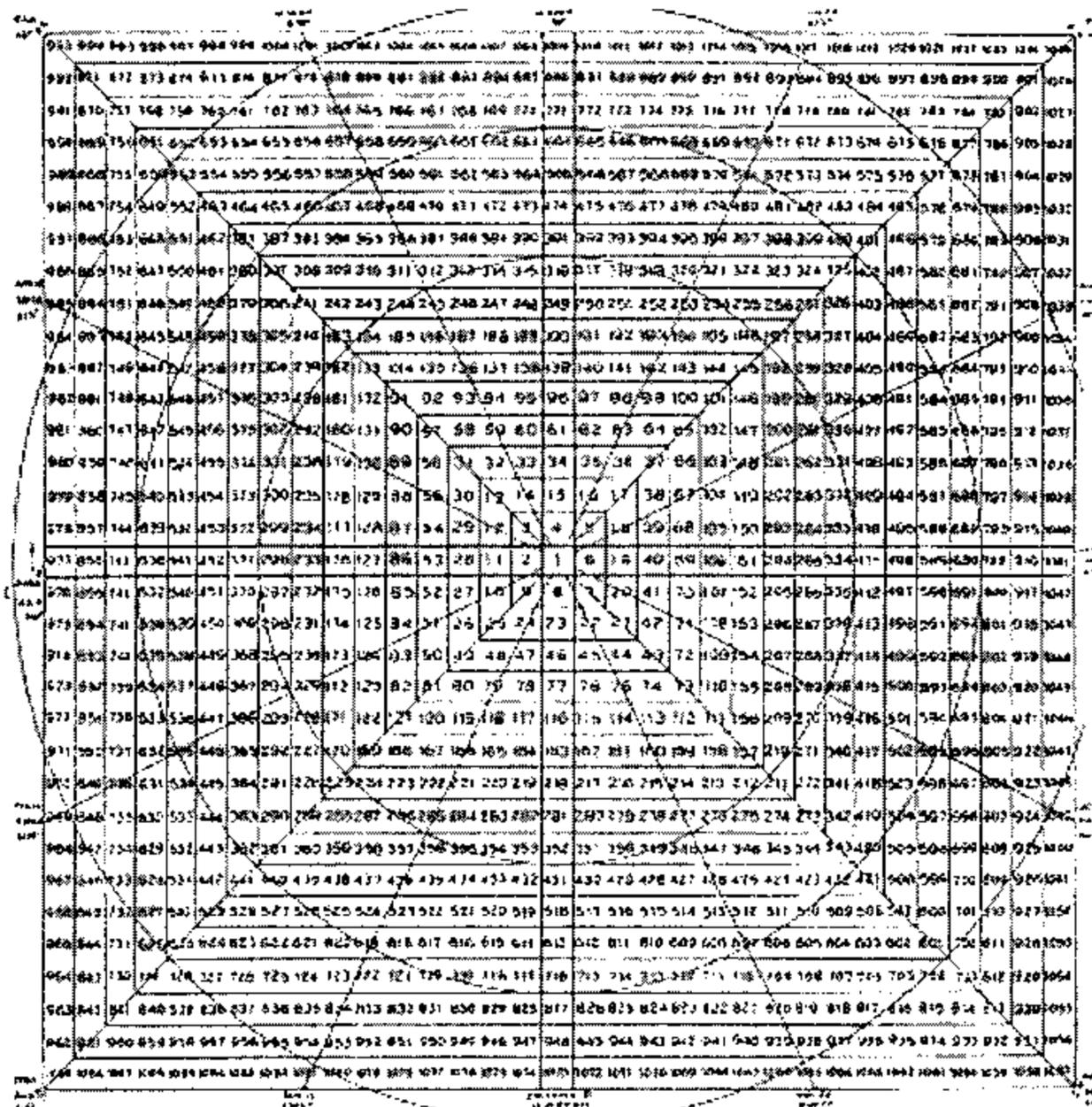
for.

The actual square (above) has many names and for years I called it the Octagon Chart since if you start with the number "0" in the center the first complete ring ends with the number 8. It also is largely based on angles of 45 degrees of 1/8th of 360 and the 8 major seasonal turning points in the year based on this eight-fold

division of the year (it also has 24 minor seasonal turning points every 15 days and keep in mind that 15 days times 24 *hours* is 360). Modern terminology calls it the Square of Nine and puts the number 1 in the center and the first rung ends with the number 9. It was also the Enneagram of Gurdjeiff (enneas- Greek for "9"). It is also a top down view of the Great Pyramid, which was probably its origin. The square is circled with an outer ring of the calendar days of the year offset slightly to yield 360 degrees in 365 calendar days. The most notable feature of this outer ring is that the "zero" starting point is always the first day of Spring, usually March 20th or 21st some years. It is this starting point that makes all the difference for setting the numbers of stock prices to the Equinox. This wheel is based on the Sun going through its NODE. The node is the point in the Earth's orbit when the plane of the equator crosses the plane of the Sun and this sets our first day of Spring. This nodal point is called an equinox because there is equal day and equal night hours. The daylight increases to a maximum on this chart on the first day of Summer (in the Northern Hemisphere), straight up on this wheel and 90 degrees from the first day of Spring. Daylight then declines to equal days and nights again on the first day of Fall on September 21st. Then darkness increases until the first day of Winter, straight down on December 21st. These four points of the seasons- Spring, Summer, Fall, and Winter give rise to the name "Cardinal Cross" as the section on the wheel that forms a cross, straight up and straight horizontal. The chart starts at the Spring equinox because the Sun is exactly 90 degrees to the plane of the earth at that point and there is much electromagnetic radiation because of that 90 degree angle, so consequently the activity of all living things is greatly affected. Man's subconscious mind is particularly active then and translates numbers into prices quite easily. That's why most major highs and lows in all of stock market history fall within a week of these cardinal points.

The wheel is usually made with the "0" point of the first day of Spring on the left side at the 9 o'clock location and prices go up and to the right in a clockwise fashion. Now I have used wheels that have different locations for the "0" start (like the 3 o'clock position) and you can get good results based on the numbers, but realize that this wheel is a method to bring the numbers into sync with the calendar date so it is important that the numbers spiral in line with the first day of Spring and go up to the first day of Summer. That usually requires the number 1 and 2 to be lined up pointing to the starting point, and 3 the first number going up.

Since all physical movement is three dimensional but we can only graph prices on two dimensional chart paper (time and price) to represent that movement, we must at least have a method to convert numbers to a 360 degree circle. Many schemes have been devised to convert time and price representations to 360 degree

circular measure and common scales are 1 to 10, 1 to 100, 1 to 12 and 1 to 24, 1 to 36, and in the Square of Nine case 1 to 9, all the single digits. Most of these methods are "wheel" type circular charts with each number representing a degree or several degrees of the 360 whole. The second rung of these wheels expand the numbers in the same proportion as the first and this process continues to 360 and beyond. That way any price can be converted to an equivalent angle of 360 degrees and that in turn can be equated to standard time measurements like 15, 30, 45...90 calendar days, or degrees of the Sun or other planetary movement. Gann's primary principle was that when a stock or commodity was at a price that was also an equal time period you got a change in direction. He stated that a stock selling at 180 six months from a low would be a high because it was on a time angle equal to its price (180 day and 180 price). The theory behind this is that every calendar day has a *specific angle* associated with that date and if a price is located on that same angle then it will usually be hit on that date. The whole purpose of forecasting is to find a time and price that will come together on the forecasted date and this type of wheel was designed to do that with strong emphasis on the four cardinal seasonal turn dates.

The Square of Nine is both numerological in that all the digits (1-9, 10-19,20-29 etc.) can be represented as specific angles, and the square is also planetary in that the number 1 is in the center and represents the Sun and the next numbers 2 to 9 literally represent planets orbiting the Sun. The common numbering of those planets in the wheel is related to their orbital speeds around the Sun i.e. Sun, Moon, Mercury, Venus, Earth, Mars, Jupiter, Saturn, and Uranus. Other planetary number systems are also in use among various Masonic teachings but that is a topic more advanced than I wish to get into at this time. There is also much that could be said about specific planet numbers and angles that relate to them individually. As far as the planets go, the ancients knew well the 7 visible planets out to Saturn and named the days of the week after them but a master planet Uranus (which is not visible to the eye) was accounted for through unknown means, -perhaps psychic. Uranus is interesting in that the literal square of nine is 81 and 4.5 times that is 364.5, very close to a year, but the odd square 19x19 is most important and closest, being the first 361 numbers or degrees, and 19 is the rough astronomical unit length of Uranus' orbit from the Sun. Actually the length is closer to 19.2 and 19.2 x 19.2=368.64 and George Bayer long ago proved how the Bible was full of detailed references to the combined orbit of Jupiter and Saturn being 368+ degrees and not 360 (there are 360 degrees to a circle, but since the two bodies are moving through space they need 368 degrees to get to the same joint location again). Uranus has an orbital period of almost exactly 84 years, which is

perfect for the match up between the 7 planets the days of the week are named after and the 12 signs of the zodiac (7 x 12=84). So it could be that the number 9 is a representation for Uranus and the wheel ends at 361 on that first square of 19 lined up with 9 and the odd squares.

The origin of the wheel is unknown but it goes back thousands of years and can be used to measure time or space in several different ways. The obvious structure as mentioned previously is to look at the left side, descending diagonal of the odd numbers and see that they are the odd integers squared (3 x 3=**9**, 5 x 5=**25**, 7 x 7=**49**, etc.). That means from one rung of the circle to the next is the square root of the number plus the number 2 (odd numbers), re-squared. Since what we are tying to do is come up with an angular approach to any number we can sense that from the geometry of the square a number opposite a given number will be strongly harmonically related as will numbers 90 degrees away. The approximate calculations for those points would be the square root of the base number plus .50 for the 90 degree, and square root plus 1 for the 180 degree opposition, those numbers re-squared gives the projected resistance numbers those number of degrees away. The full circle is a base number plus 2 squared so basic 15 degree segments (15, 30, 45, 60, 75...360) will be 2 divided by 24 (360/24=15 degrees) or .08333 added to the square root of the base. For example, we start with a low on a stock at $34. The opposite point (180 degrees) is (sqrt(34)+1)^2=46.66. Note the Gann wheel shows the rounded integer, $46. The 90 degree point would be (sqrt(34)+.50)^2=40.08. When we get out to "big" numbers like the Dow Jones at 10,000 we note the full cycle increments are 404 points (sqrt(10,000)+2)^2=10,404. We can divide this 404 increase by 360 to get 1.12 points for each degree approximately, or we can just use our root 15 degree segments of .08333. These calculations will give *approximate* numbers as the wheel is complete not at 360 but at 361 (19 x 19) and can also be called the square of nineteen at times for that reason.

To really use the wheel as it was designed we must incorporate the seasonal dates with our numbers. Usually that is done with a large outer ring with the yearly dates on it and lines are drawn from the outer ring to the center of the wheel at the number "1". Any number that falls along that angle line is harmonically related to that calendar date. This does not work as frequently as liked so an adjustment is made to that angle to include 90 degree and 180 degree offset harmonics to those numbers on the line. We do that by adding or subtracting .50 and 1 to the square root of the number and re-squaring. We can also easily do this in a visual way with a "square" overlay that is attached to the center of the wheel and spun around until one corner is on the current calendar date and the other three corners will be lines

with the above 90 degree offsets. We can also do this with the triangle points (square root +- .6667).

The difficulty arises when we use different commodities or investments like bonds that trade in 32nds or various non-typical fractions of a dollar. The principle is to construct your chart with the fundamental elemental unit as the base. With bonds that might trade in 32nds you could construct a wheel with each number representing 1/32nd. A price like 110 11/32 would first be converted as 110*32=3520 and then add the 11 to get a total of 3531 32nds. The 3531 number would then be used on the wheel. Now that 3531 big number brings up another problem. How do we make a wheel that big or even get the Dow Jones at 10,700 on it? The answer is that we don't need the wheel if we know how to get the angle mathematically.

Lets backtrack for a moment and try and come up with a formula to do this. The obvious principle of the wheel is that the odd numbers squared always fall along a line that is the 315-degree angle (end of 1st square is 9, 45 degrees from the start at 2, 360-45=315). We know the odd numbers are separated by 2 so we know the full circle from any odd number squared is the square root plus 2 re-squared. So the formula for the 315 degree angle is $(2*N+1)^2$. N here is the number "rung", or cycle out from the center, you are looking for (1st rung N=1 formula gives 9, 2nd rung N=2 formula gives 25). Opposite the odd squares are the even squares and they fall *near* the 135 degree angle (315-180=135). Their formula would be $(2*N)^2$. Knowing that each 45-degree angle is offset from a starting point we can just add .25 to the square roots of these angles to get the offsets like this:

315 degrees=$(2*N+1)^2$
0   degrees=$(2*N+1.25)^2$
45 degrees=$(2*N+1.50)^2$
90 degrees= $(2*N+1.75)^2$
135 degrees=$(2*N)^2$
180 degrees=$(2*N+.25)^2$
225 degrees=$(2*N+.50)^2$
270 degrees=$(2*N+.75)^2$

Now we have all the primary angles defined for the specific seasonal dates related to those numbers ("0" is March 21st and the rest average 45.65 calendar days from then or 365.24/360=1.015 days per degree), and can put these in a simple spreadsheet or use a hand held calculator and just run the number "N" to as many levels as we need for our stock or commodity. For more precise angles we

can add or subtract small roots or we can interpolate one full cycle and divide by 360 to get points per angle. An example of interpolation would be that Dow Jones example of 10,000 (100^2) to 10,404 $(102)^2$. This full circle is 404 points or 404/360=1.12 degrees per Dow point. We would add those degrees per day to our major angles to get the precise unit and day we are looking for.

The complimentary problem is how do we know the numbers that relate to a specific angle like 60 degrees that ties in with the seasonal date of May 21st (60 days from March 21)? The solution is to note the "0" angle formula of $(2*N+1.25)^2$. We just add to this the ratio of the angle we are looking for but double the angle first or 2A / 360 with A as the angle we need. This gives the additional fractional part of the circle since the starting point. The complete formula would be $(2*N+1.25 +2A / 360)^2$. For 60 degrees this is $(2*1+1.25 +.333)^2$=12.83 for the 2nd rung or 57.50 for the fourth rung and 465.82 for the 10th cycle. There is some notable slippage the way these numbers line up with the actual physical chart square but as you go out further they get more accurate. In the final analysis as most traders will tell you, if you look for too much preciseness you will never make a trade or you will get chopped up trying. A close approximation along with other indicators will usually make you money. If you are a perfectionist, however, and you want numbers that are exactly the same as on a printed chart do this- start with the odd squares and then take the square root and increment by .25 for the 45 degree angle and then ROUND that answer BEFORE taking the next square root of that number and adding the next .25 and squaring it. If you round these numbers at each 45-degree angle before doing the next then you will come up with grids that match the manually drawn wheels. That doesn't solve the problem, however, as to whether the rounded up numbers are better to use than the fractional exact ones. Remember the wheel is a forced shell to put numbers in an approximate 360-degree correspondence and some numbers will not want to be forced into that alignment no matter how precise you want to calculate them. I will say that you could solve this problem by using the slow moving planets and watching their precise numbers to tell which you should use, but it is not my goal to teach astrology in this book so I'll leave that to your experimentation. If you want a good working Square of Nine sample, a "free" Gann Square of Nine computer program is available for downloading on my website: www.Stockcyclesforecast.com.

The above discussion is the typical use of the square within a circle of calendar days listed around the outer ring. This is a means to translate each day into a number that falls along a line drawn from that date on the outer circle to the center point number 1. Angles 45 degrees, 90 degrees and 120 degrees offset from this

angle give numbers harmonically related and this method yields good time and price forecasts. Gann, however, used another method that is not so widely known. This is the technique of looking for exact literal translations of the 360 degrees of the circle into numbers. In other words that May 21st date is the **60th degree of the Sun** and Gann would use that 60 number *within* the wheel as that time degree. That number located in the wheel is almost straight up near 12 o'clock if you look at the wheel and on the outer circle would be a date near June 6th, not May 21st. As illogical as this may seem the method works quite well. Obviously a number like 60 can perfectly represent 60 degrees of the Sun and the wheel out to 360-361 makes that translation possible, but the illogical part comes when you see that the number above 60 on the wheel is 95 representing 5 degrees Leo or July 28th. That would mean May 21st and July 28th are related. I don't know the logic either but the system works! This also means that two dates can be "square" or 90 degrees apart in the wheel but not square in real time. This does make it simple to calculate angles 45 or 90 or 120 degrees away by just taking that literal 60 degree and incrementing roots or drawing angles from that number on the wheel itself. For example, the recent bear market low of October 10, 2002 on the S&P had a price that day of 806.51 high, 768.63 low, and 803.92 close. October 10th is the 197th degree of the Sun and that number is found at the top right angle of 135 degrees. Following this angle up we get the number of 785 for the expected price this date. The average of the high of 806.51 and the low 768.63 is 787.57, not far off from the 785 expectation. A second example is the high of March 5, 2004 with the S&P cash at 1163.23 high, 1148.71 low, and 1156.86 close. March 5th is the 345 degree of the year and following that angle out we get to 1195 as the closest natural angle with the 90 degree offset being $1161((sqrt(1195)-.50)^2)$, only 2 points under the high spike and 4 points above the close which was the average of the day. This is a very simple and quick way to find date and price forecasts but it is to be noted the accuracy is often off when using small number degrees like those under 10-15 (the first two weeks of Spring). It is also to be noted that the traditional method shown in my course using the outer wheel can give similar targets at times but it seems to be my experience that you should try both methods since one or the other will usually be the obvious and exact choice on the day in question.

Getting back to our basic use of the Square we find that *our first practical use of the square of nine is to find support and resistance numbers from any base number by determining the "hard" aspects of 45 degree multiples* (square root plus, .25, .50, .75, 1, 1.25, 1.50, 1.75, 2). For example a low at $46 will have resistance going up at $49, $53, $57, $61, $65, $69, $73, and $77. These are taken directly off the chart. The mathematical square root technique would yield numbers of

$49.45, $53.03, $56.74, $60.56, $64.52, $68.60, $72.80, and $77.13. These are all off slightly from the chart numbers and may or may not have great significance in forecasting but the differences are worth noting. My 'Jenkins Lines' technique of drawing horizontal lines across the chart at the root +.25 increments, does prove, however, that the *exact* numbers are being hit and NOT the rounded whole integers. The same technique is done for the decline from a $46 high- $43, $40, $37, $34, $31, $28, $26, and $23, all taken directly off the chart. These numbers are price levels which serve for support and resistance but since time and price are interrelated the same numbers also and simultaneously, represent times periods like days, weeks, and months, or even minutes and hours. A valid forecast will usually find one of these price levels hit *during a time period* that is also in the same series. Before the age of hand held calculators and computers it was a simple task to just read off the numbers in a straight line on the chart. Most traders knew the price levels well, but subtler and more powerful was knowledge of the time periods. A stock at $53 could be traded off the horizontal numbers in the 53 row- 86, 127, 176, 233 going to the left and on the opposite side of 53, 28, 11, 2, 6, 19, 40, 69, 106, 151, etc. These were the full circle (root + 2) and the half circle (root +1) numbers that held strong resistance. You could also use the less powerful 90-degree corner numbers. *Less obvious is the fact that the $53 row of numbers- 176, 127, 86, 53, 28, 11, 2, 6, 19, 40, 69,106, 151 etc. are also calendar day turning points from the date the $53 price was made.*
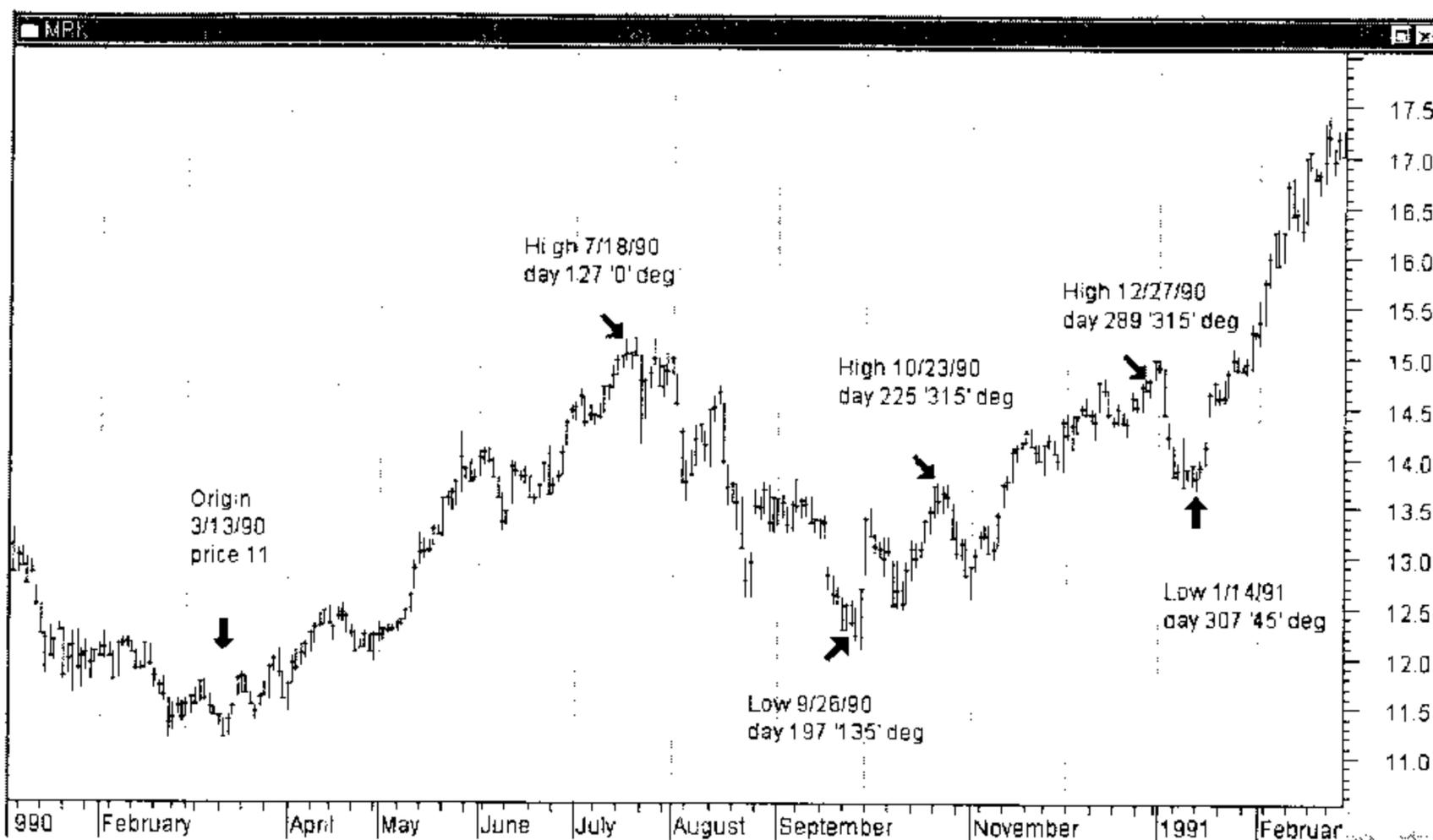
This first chart of Merck from 1990 shows a low near $11 near the March 21st '0' angle of the square of nine. Note the low in *March* lining up with the seasonal March number system. The calendar day hits on the chart are labeled with the angles on the Square of Nine where those day numbers fall. Note importantly that the origin here at **$11** gave rise to a major low on almost the same date (March 7, versus March 13) **10 years later** in 2000 at a price of **$53** on the close (53 is on the same line as 11-see earlier Merck chart, page 23, discussing Jenkins True Trend Lines). In times past it was easy to see these relationships by circling those numbers on the paper Square of Nine so 10 years later you would not overlook them. Note in particular the dates 10/23/90 and 12/27/90 and see that they both are on the same angle of 315 ((sqrt(225)+2)^2=289)) and both were tops. More interesting is that there appears to be a mirror image foldback between the two dates and the 135 degree angle before the 10/23/90 date is a 45 degree harmonic, and the 1/14/91 date is a 45 degree harmonic and folding out of those patterns at those points gave the same big vector distance move. You can see they are connected by the similar gaps in the chart near those 45-degree dates, starting the foldbacks.

Even less obvious than calendar day use is the fact that the number scheme 1, 6, 11, 19, 28, 40, 53 days on the cardinal cross *also implies a number cycle of the differences* between those numbers 6-1=5, 11-6=5, 19-11=8, 28-19=9, 40-28=12, etc. Using the differences between these numbers is sometimes the only way to

crack the key to a market. Suppose a low to a high is 106 days and we find another high 45 days later. This could be a key to the axis of 19, 40, 106, 151, as the price and time master angle this stock or market follows. In examining the chart of Merck there might be a better "fit" to the data that would make more sense out of the pattern. In the example, I did what 99% of all traders do and I started with the low and saw that first top 127 days later. That might not actually be what's going on. If that March low was coming from another point in time further back, then the 127 might be a progression on the Gann wheel. As an example assume our March 13th low was a "seasonal" number in which case we know March 13th is the 352nd day of the year if March 21th is the first. If we assume the count started with the first day of Spring on March 21th, 1989 (the year before), then our March 13th low would be number 352 and 127 days later would be day 479. The 197th day would be day 549 and so on. If you complete this exercise you get a sequence like 352, 479, 549, 577, 641, 659. If you go back to your Square of Nine and circle these numbers you will see most are on the angles plus or minus a day or two. This is not to imply that this is the right sequence for this particular stock but it does point up a method of attack to solving the problem of what is the master angle for Merck. If you look up a chart for Merck for March 1989 you will see a tradable low on the 21st but not the lowest low in its history.

I might add that markets like to follow the same "master" angles from the date of the first trade or very significant highs and lows in their history. For the New York Stock Exchange its birthday on May 17, 1792 is still making active angles to today some *77 thousand* days later. That May 17th date is the "Natural" angle date of 57 degrees and that falls on the important 45 degree angle fixed cross on the square with the 90 degree offset at 135 degrees which had most of all the highs and lows for the past five years along it. March 9, 2000 (day 75,901 from 5/17/1792, less than 2 weeks from final high but many techs topped on this date +-2 days) was on the 45 degree axis. The big July 1932 all time low was on the 180 degree (day 51,190) axis as was December 1974 (day 66,694). On the 45-degree axis **the next date after** March 2000 was March 2003 (any relationship between those dates?) If you're not sure the birthday of May 17, 1792 has relevance today, use your own birthday as the start and prepare to read off the angles the dates of all your visits to the hospital, wedding chapel, or employment office.

In talking about the Square of Nine it's important to review again that time and price are the same thing. If space movement or time passage is converted into numbers in the subconscious mind of man then a number can represent a date and a date can represent a number. For example, the big stock market low of 1982 started on August 12th with the Dow Jones at 770. If we try and convert the price of 770

to a number within the 360 degrees of a circle we can do it directly by subtracting 360: 770-360=410, 410-360=50. This means the number 50 is reduced from 770 to a number that represents it. If we use our "square out" technique of moving a number of calendar days equal to a price than we can add 50 days to the start at August 12, 1982 and we get the date October 1, 1982.
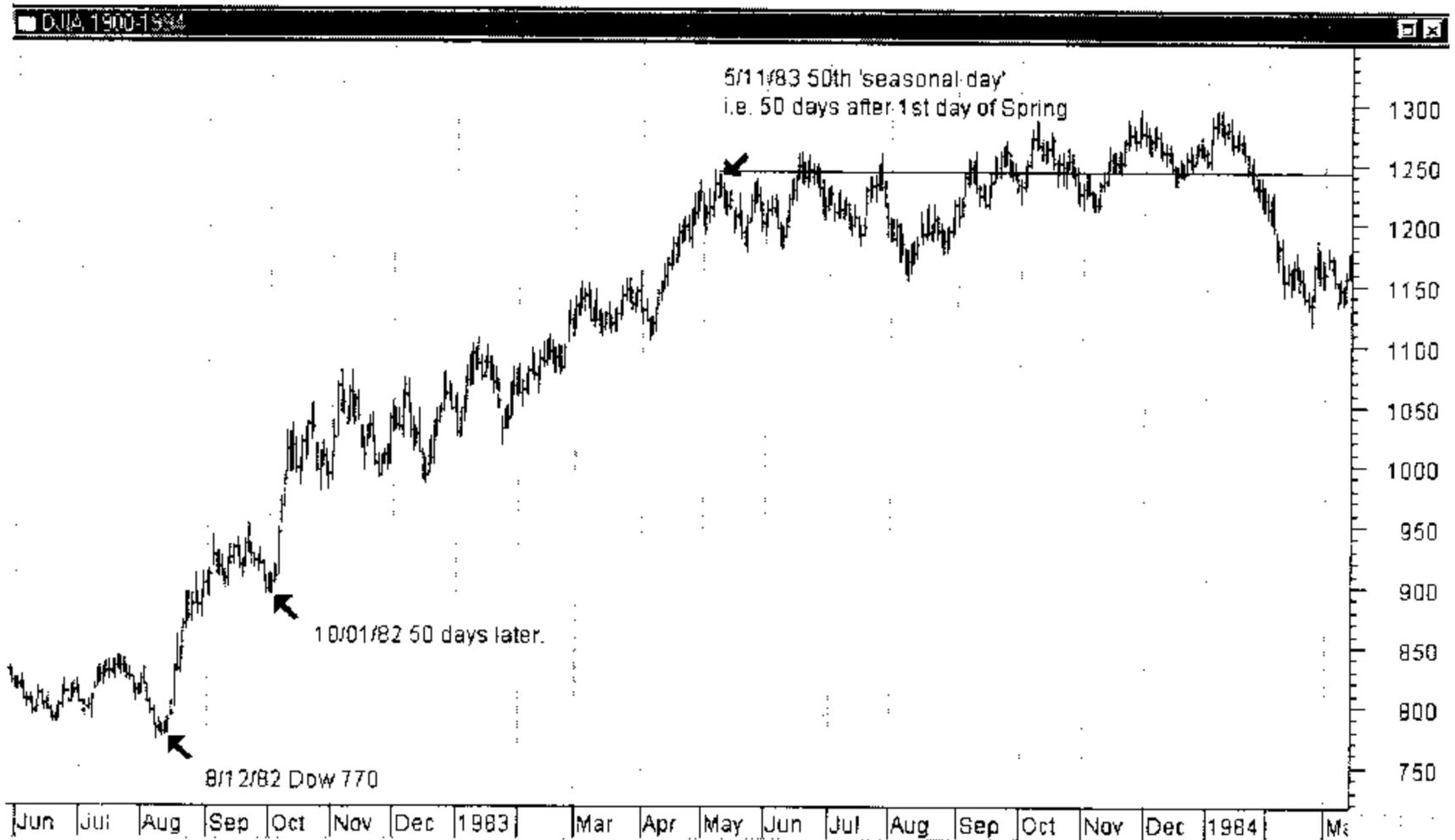
If we use the number 50 as the literal 50th day of the 'Seasonal' year (Spring, March 21st is the 1st day) then the 50th day is May 11th. The chart shows how that date effectively stopped the advance of the bull market when it was hit the next year.

The other approach is to put the number 770 in the Gann Square of Nine and look for market turns as the days pass. 770 is close to the 771 number, straight up on the Cardinal Cross of the Gann square and it is in the 14th cycle or rung out from the center. An important observation about the square of nine is that the cycle (or wrung) number *is also equal to the number of prices between each 45-degree segment* on that rung. That is, the 14th rung has 14 prices between each 45 degree segment and the 87th rung would have 87 prices between each segment, i.e. 8 X 87=696 for the full circle (30,016 is the first number on rung 87 and sqrt(30,016)+2 re-squared is 30,713(full circle) - 30016=697). With the number 771 on the 14th rung, we would expect *minor turns every 14-calendar days*. By the way, to get an approximate rung number for any number, take its square root and

divide by two and round up, i.e. number 1041 sqrt(1041)=32.26 / 2 =16.13. It's in rung 16 and there are 16 numbers between each 45-degree segment. Keep this in mind since if the Dow Jones is moving rapidly on a '9/11' type day and the Dow is at 9800, you may want to quickly calculate what numbers it could stop at and find support. Square root(9800) is 98.99 / 2=49.49 or 49-50th rung or cycle on the Square of Nine. That means the minimum 45-degree support levels will appear approximately every 50 Dow Points. Likewise this works for **time.** The birthdate of the NYSE was in 1792 so in 2004 it's 212 years old. That is 365.2422 days x 212 =77,431 days and sqrt(77,431)=278.26 / 2 =139.13 rung, or 139 calendar day turns approximately, between each major high and low from the birthday chart.

Two simpler examples should further explain the wheel's function. The following chart is from the recent 50% retracement high near 1163 on March 3, 2004. On this chart you will see the starting point labeled #343 since March 3rd is the 343rd degree of the zodiac. Of course after March 20th the degrees start at zero
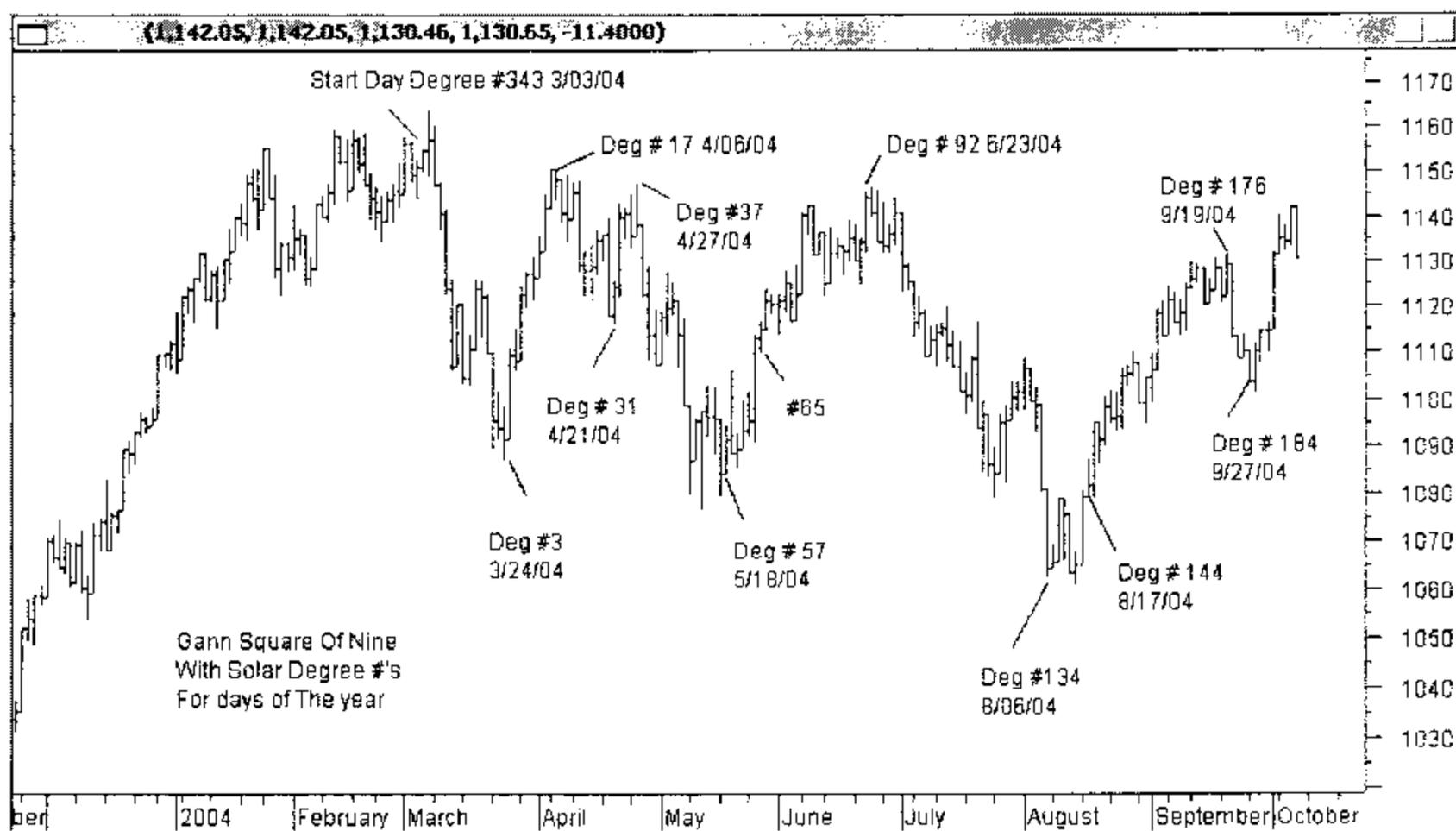
again and run to 360 on March 19th the next year. The highs and lows are labeled on this chart as these solar degrees.

The reason I labeled the calendar days with their respective solar degree numbers is now clearly shown in this next chart below of the Gann Square of Nine with the origin (# 343) and all the other points labeled. Those axis lines are NOT random. The 45-degree axis lines to the origin provide support and resistance in time but if you do some homework you will see that they also provide price support and resistance. Before the advent of computers this simple system was an

easy way to keep track of the passage of time in terms of geometric angles that harmonized with any origin point. By circling the numbers, even old highs and lows from years ago would be made clear when the advancing numbers lined up again. The fact that all these dates of highs and lows form rows on this chart is proof of an underlying pattern to the market's price structure. Once that structure is known, future prediction is easy.

307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325
306	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	326
305	240	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	258	327
304	239	182	133	134	135	136	137	138	139	140	141	142	143	144	145	198	259	328
303	238	181	132	91	92	93	94	95	96	97	98	99	100	101	146	199	260	329
302	237	180	131	90	57	58	59	60	61	62	63	64	65	102	147	200	261	330
301	236	179	130	89	56	31	32	33	34	35	36	37	66	103	148	201	262	331
300	235	178	129	88	55	30	13	14	15	16	17	38	67	104	149	202	263	332
299	234	177	128	87	54	29	12	3	4	5	18	39	68	105	150	203	264	333
298	233	176	127	86	53	28	11	2	1	6	19	40	69	106	151	204	265	334
297	232	175	126	85	52	27	10	9	8	7	20	41	70	107	152	205	266	335
296	231	174	125	84	51	26	25	24	23	22	21	42	71	108	153	206	267	336
295	230	173	124	83	50	49	48	47	46	45	44	43	72	109	154	207	268	337
294	229	172	123	82	81	80	79	78	77	76	75	74	73	110	155	208	269	338
293	228	171	122	121	120	119	118	117	116	115	114	113	112	111	156	209	270	339
292	227	170	169	168	167	166	165	164	163	162	161	160	159	158	157	210	271	340
291	226	225	224	223	222	221	220	219	218	217	216	215	214	213	212	211	272	341
290	289	288	287	286	285	284	283	282	281	280	279	278	277	276	275	274	273	342
361	360	359	358	357	356	355	354	353	352	351	350	349	348	347	346	345	344	343

One more example is perhaps needed to make sure this sinks in, especially the method I use of using the literal Solar Degree number as the date *instead* of using the outer wheel calendar dates. This example is from the birth of the bull market on August 12, 1982. On the outer calendar wheel of the Gann Square of Nine the date

(1142.050, 1142.050, 1130.460, 1130.650, 11.4000)

1/19/83 # 298

10/22/82 # 208

12/09/82 # 257

1/02/83 # 281

12/17/82 # 265

11/01/82 # 218

11/24/82 # 241

10/04/82 Solar degree # 190

S&P Index 1982

Start 8/12/82 Solar Degree # 139

August   September   October   November   December   1983   February
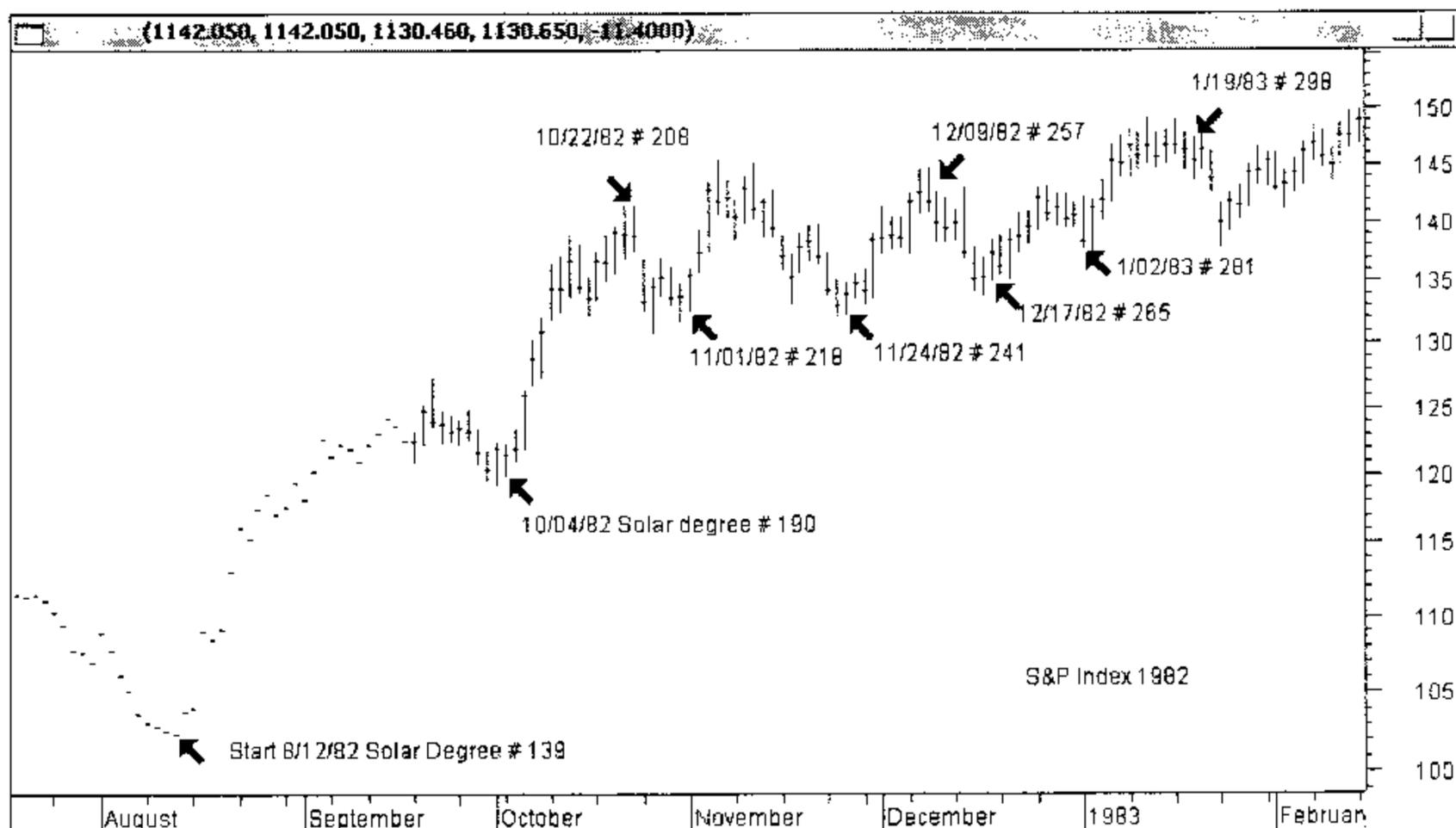
August 12th draws a line down to the center "1" and that line intersects the number 198, if your March 21st date lines up with the 9 o'clock position on the wheel. This is the traditional way most people use the Gann Wheel. In this example, however, I will not use that axis but will use the literal degree of the Sun at 139 (August 12th) as the axis instead. This chart above shows the turns in the market with those Solar Degree numbers marked. The next chart after this shows the Square of Nine Wheel with those same numbers circled so you can at a glance see the relationship between those degrees and the market turns. Note the origin number of 139, straight up on the wheel. If it was always this easy we would all be rich!

On the next page is the wheel with the solar degrees circled. Nothing random here!
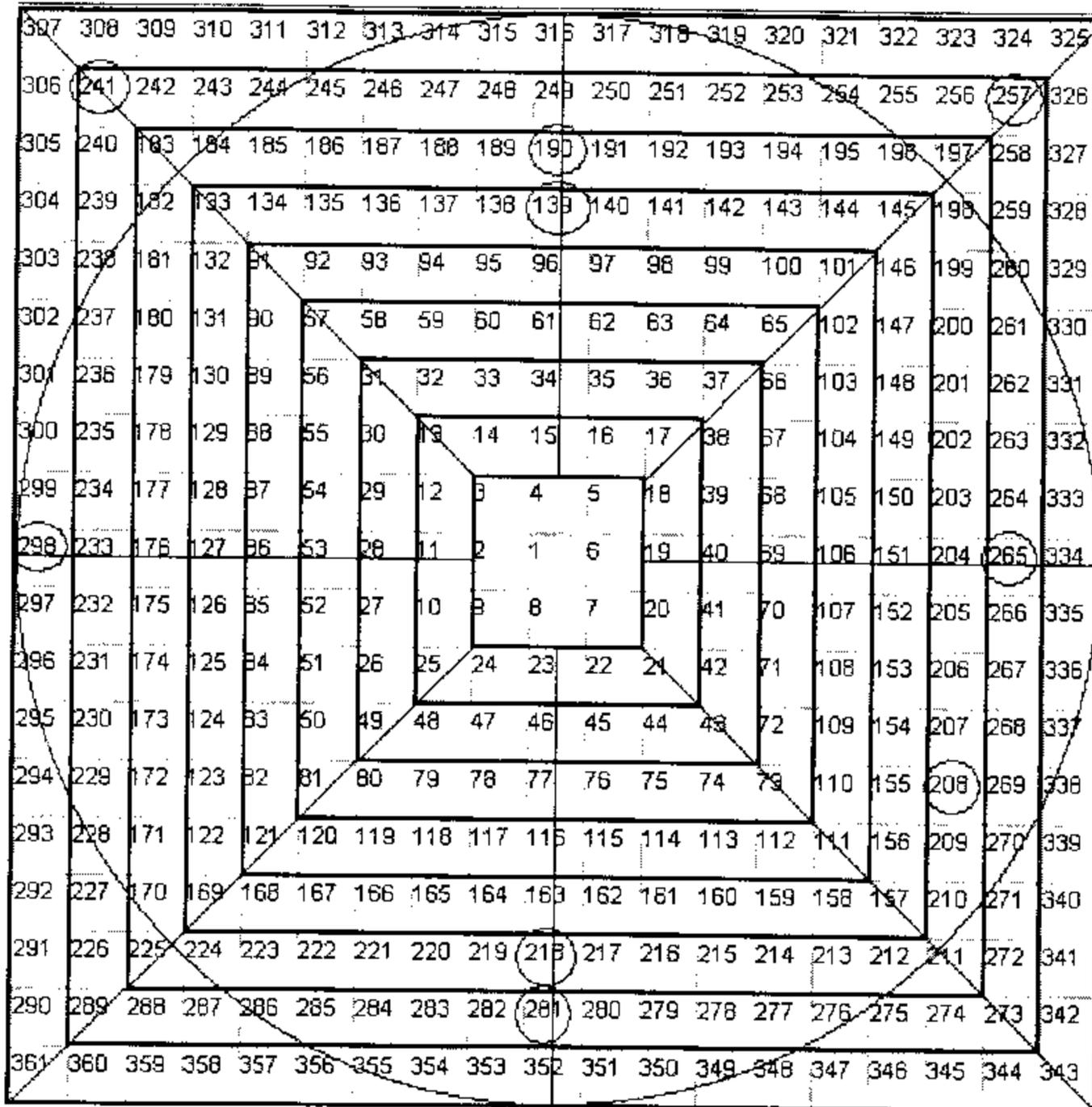
Finally before we leave the Gann Square of Nine I will show a chart that may have clues as to what it's really all about. Can you guess what this chart on the next page is a prime example of?
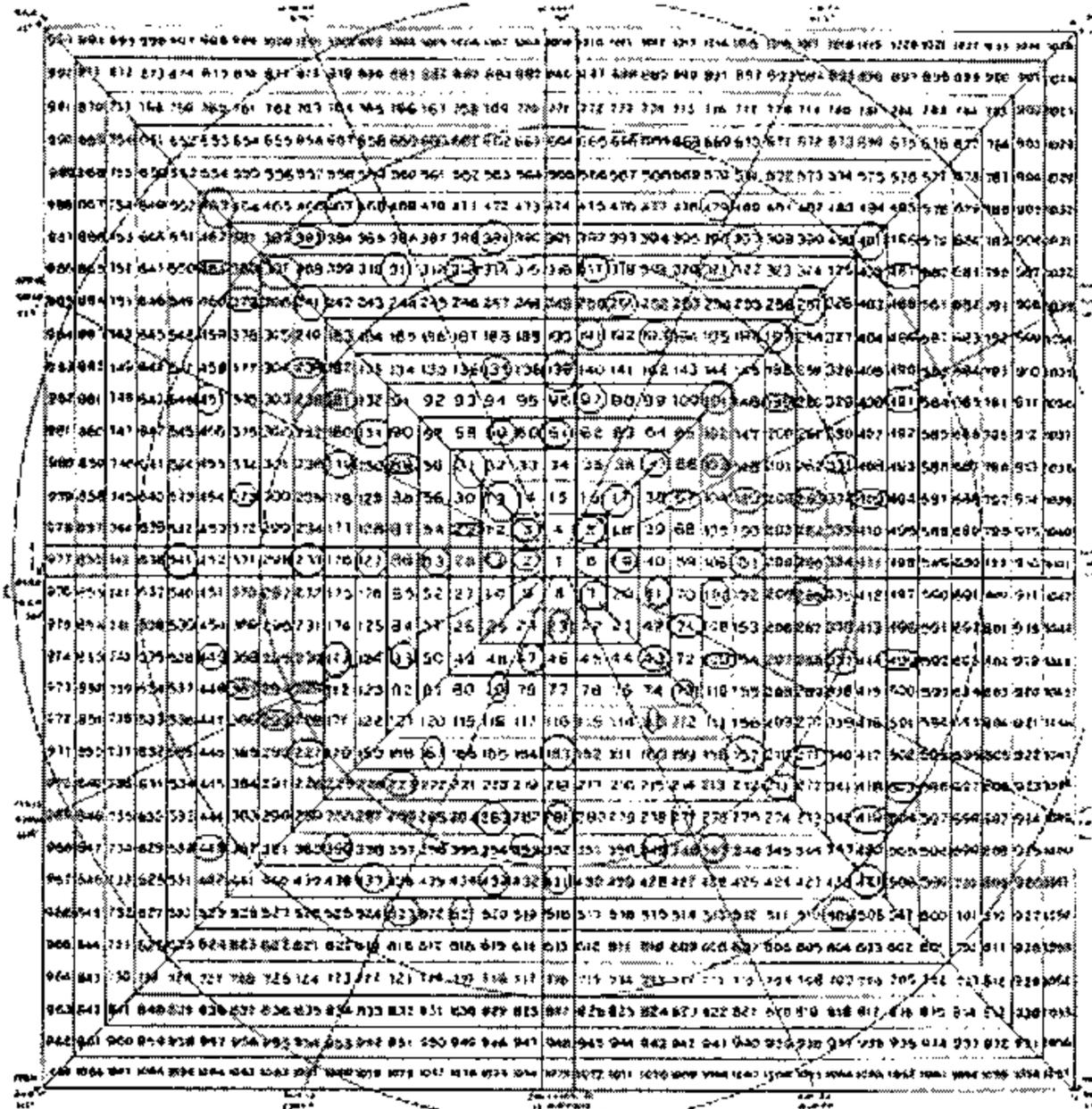
That's right. In typical Gann and Masonic fashion I already told you what it is. It is a PRIME example, i.e. prime numbers. As you recall from school days, a prime number is any number that can only be divided by 1 and itself. In other words there are no factors to prime numbers and that makes them unique and very solid and stable. I have only circled a few of the primes in this chart up to the number 541 but if we went further we would find common S&P numbers like 769 (October '02 low), 787 (March '03 low), 1163 (March '04 High), and 1553 (Final high March '00). Note how the primes cluster at the major cardinal cross and fixed cross angles. Note especially the 45-degree diagonals going up and down the right hand sides as being prime laden, and the odd and even square lines naturally devoid of primes. Perhaps primes are the only numbers relevant in this chart. If you were to circle all the stock market highs and low in history you would find most very close to these numbers and perhaps without the slippage they would all be primes. You might also want to check dates in terms of prime number distances. By the way, a general observation about prime numbers over 3 is 6X+1 or 6X-1. That basically means they are all divisible by 6 with an under or overage of 1. This

does not include all primes but it catches many. Note that it does not mean primes are *every* 6 numbers apart! If you read my *Geometry* book you will know I use 6 hours in my hourly charts and that 6 is a working number of the universe, along with ten. 6 x 6=36 x 10 =360. My advice would be to divide market numbers by 6 and check each day if it's off by exactly 1 and then play close attention, because that would mean it could be a prime number (i.e. 1123 =187 x 6, +1). Below I have listed the first primes up to 1733.

The First 10,000 Primes
(the 10,000th is 104,729)
For more information on primes see http://www.utm.edu/research/primes

| 2	3	5	7	11	13	17	19	23	29
31	37	41	43	47	53	59	61	67	71
73	79	83	89	97	101	103	107	109	113
127	131	137	139	149	151	157	163	167	173
179	181	191	193	197	199	211	223	227	229
233	239	241	251	257	263	269	271	277	281
283	293	307	311	313	317	331	337	347	349
353	359	367	373	379	383	389	397	401	409
419	421	431	433	439	443	449	457	461	463
467	479	487	491	499	503	509	521	523	541
547	557	563	569	571	577	587	593	599	601
607	613	617	619	631	641	643	647	653	659
661	673	677	683	691	701	709	719	727	733
739	743	751	757	761	769	773	787	797	809
811	821	823	827	829	839	853	857	859	863
877	881	883	887	907	911	919	929	937	941
947	953	967	971	977	983	991	997	1009	1013
1019	1021	1031	1033	1039	1049	1051	1061	1063	1069
1087	1091	1093	1097	1103	1109	1117	1123	1129	1151
1153	1163	1171	1181	1187	1193	1201	1213	1217	1223
1229	1231	1237	1249	1259	1277	1279	1283	1289	1291
1297	1301	1303	1307	1319	1321	1327	1361	1367	1373
1381	1399	1409	1423	1427	1429	1433	1439	1447	1451
1453	1459	1471	1481	1483	1487	1489	1493	1499	1511
1523	1531	1543	1549	1553	1559	1567	1571	1579	1583
1597	1601	1607	1609	1613	1619	1621	1627	1637	1657
1663	1667	1669	1693	1697	1699	1709	1721	1723	1733

Chapter 9

MUSIC

Since ancient times or at least 500 B.C. when Pythagorus was said to have discovered the mathematics of music, man has tried to tie in this intangible mathematically defined power that effects emotions and health and most other aspects of man's life with the higher realms that direct man's existence. The 'music of the spheres' was often alluded to as a psychic interpretation of the silent sounds the planets made in their orbits, and of course early number systems often related to seven and eight units. The seven days of the week repeat on the 8th just like the musical octave of DO, RE, MI, FA, SOL, LA, TI, and DO again to start another cycle. The notes are commonly called C, D, E, F, G, A, B, and C again. In terms of simple numbers, if we use the note C as our base and make that the number '1' then we find the ratios of the other notes in succession to be approximately thus: 1, 9/8, 5/4, 4/3, 3/2, 5/3, 15/8, and 2/1 or in decimals: 1, 1.125, 1.25, 1.333, 1.50, 1.666, 1.875, and 2. These are just our simple 1/8 divisions we see all the time in the market with the exception of the 1.75 ratio being absent.

The scientific study of stringed instruments relates that the frequency of a string is *inversely proportional* to the *square root of its weight (length)*, which of course ties in frequency with gravity, and perhaps the music of the 'gravitational spheres'. The frequency is at the same time *directly proportional* to the *square root of its tension*. If we double the tension of a string, the frequency will increase by 1.4142 (the square root of 2). To double the pitch of a string one octave we need to multiply its tension by 4 not double it. In other words if our square root frequency tension is 1.4142 and we want to double that to make an octave, the question is 2 x 1.4142=2.8284 and we find that the **number 8** if taken the square root of, is that 2.8284 number. So we see that from 1 to 8 (the octave) the frequency doubles and the tension goes up by a factor of 4. Piano makers will tell you that other factors can affect string stiffness and frequency and instead of a scale octave being exactly a 2:1 ratio, practical considerations often make the preferred choice 1.875:1 or 1.9375:1. I point this out because I have observed innumerable times that stocks do not double in price as expected but often fall short and that amount is invariably either the number 1.875 or 1.9375. Apparently there is slippage in the stock market octave also.

Actually the octave is more than eight notes because we have sharps and flats, so it really consists of 12 different pitches and the 13th starts the new octave. Although different cultures have adopted slightly different pitches in their scales, the practice in the West is to use 12 equal tempered tones to the octave. This number 12 also ties in with the 'music of the spheres' since there are 12 signs of the zodiac (along with 12 houses of Israel and 12 Disciples of Christ). The day and night are defined in the Bible as having 12 hours each.

The equal tempered scale is equally toned so each frequency is multiplied by the twelfth root of 2 (2 is the octave doubled so the twelfth root of 2 (2^.08333) is 1.05946, times each note to get the next). Keeping in mind the market, we would *use this primary tonal increment of 1.05946 to find ranges between major moves.* If the all time S&P high on March 24, 2000 was 1552.87, then we can step down the scale by these equal tones to see our octave: **1)**1552.87 / 1.05946=**1465.71, 2)** 1465.71 / 1.05946=**1383.45, 3)** 1383.45 / 1.05946=**1305.80, 4)** 1305.80 / 1.05946=**1232.51, 5)**1232.51 / 1.05946=**1163.33** (high March 5, 2004) **6)** 1163.33 / 1.05946=**1098.04, 7)** 1098.04 / 1.05946=**1036.42, 8)** 1036.42 / 1.05946=**978.25, 9)** 978.25 / 1.05946=**923.34** (October '98 low), **10)** 923.34 / 1.05946=**871.52, 11)**871.52 / 1.05946=**822.60, 12)** 822.60 / 1.05946=**776.44** (Final low October

Musical Scale Frequencies
on the S&P 500
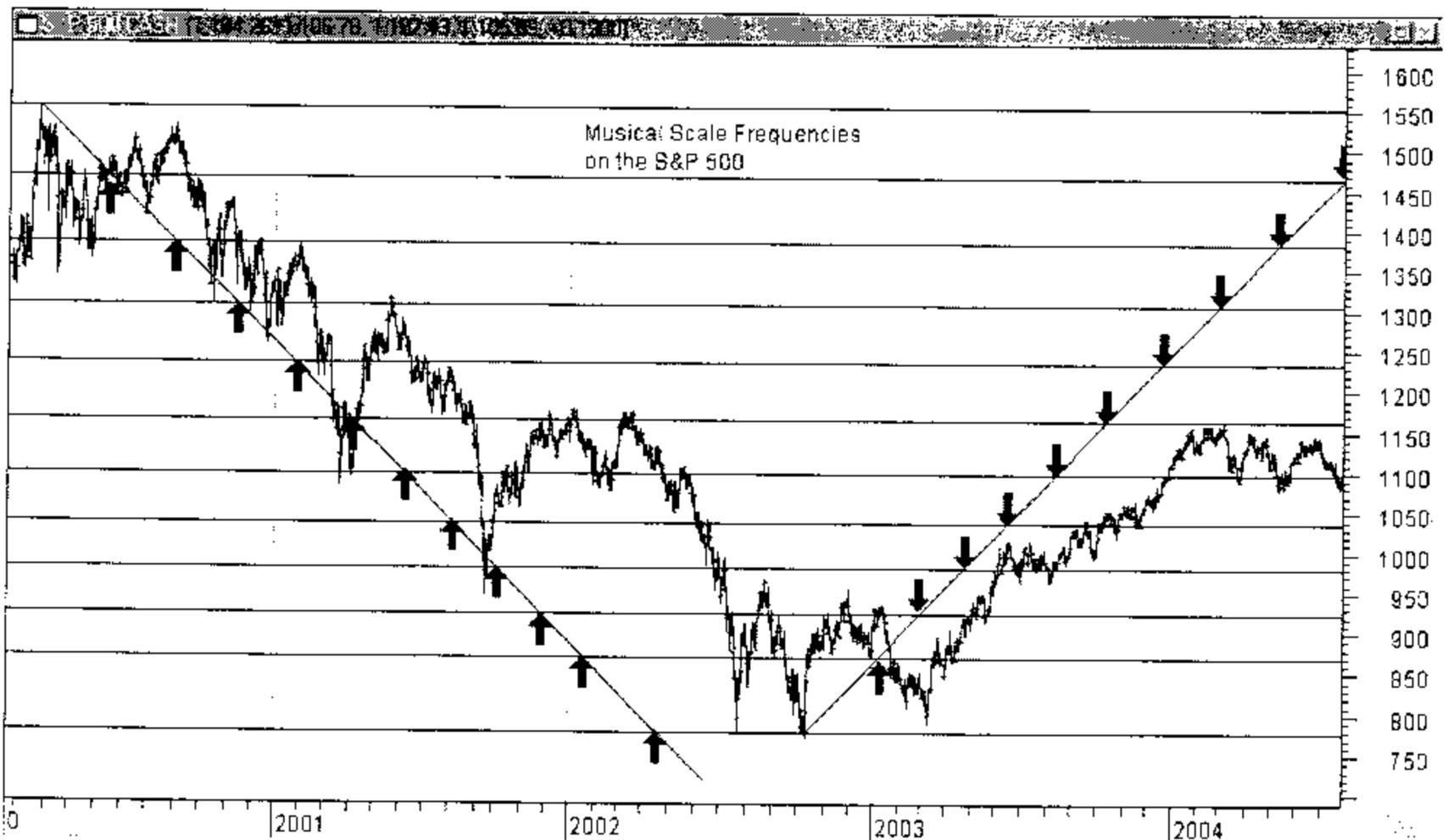
2002, and March 2003).

This chart shows the 12 tone scale numbers down from the S&P final high with 45 degree "timing" angles intersecting those frequencies. Many good trades

developed on the dates those arrows indicate. Note that because of sharps and flats in the scale the size of the various divisions can vary but the frequencies are all related by the 1.05946 multiplication ratio.

These numbers above should look quite familiar to S&P traders but the 1.05946 ratio is seen all the time in individual stocks and commodities and you should make it a habit to check swings for this percentage. So far in this book I have tried to emphasize the strange concept that time and price are the same thing and with musical scales it is no different. The 12 numbers listed above can also be considered calendar days, weeks and months. If we use calendar days and start with the smallest (12th) and start at the March 24, 2000 high, we get this series of dates: 5/09/02, 8/13/02, 10/03/02, 11/27/02, 01/24/03, 03/27/03, 05/31/03, 08/08/03, 10/21/03, 01/06/04, 03/28/04, 06/24/04. Not all these dates were perfect hits but most were +-3 days from major turns. Here too, you should remember the key principle that a big turn is expected when a harmonic price is hit on a date that is also harmonically related.

Various methods have been used to tune musical instruments but since the 1930's all pianos have used standard frequencies to tune them so all are as identical as can be manufactured. Actually the American Standard Pitch adopted in 1936 comes from mathematics developed in the late 1600's and used by Bach in the early 1700's. The first left side key on the piano is A and that standard pitch is 27.50 cycles per second, and the C above that is 32.703 cycles per second. The next C is often a starting point for much of music and that frequency is 65.406 cycles per second. Remember, to create the 12 tone octave just start here (at C) and multiply each note by 1.05946 i.e. C 65.406 x 1.05946= Dflat=69.29 x 1.05946=D=73.41 x 1.05946=E flat=77.78 x 1.05946=82.406=E, etc. Each next higher octave will be twice the frequency of the starting C. Those *standard octaves* in cycles per second frequency are from the lowest 'C' on the piano (note 4, 'C'): 32.703, 65.406, 130.813, 261.626, 523.251, 1046.502, 2093.005, 4186.009. In this series of "C's" note the 'Middle C' is 261.626 cycles per second. Middle C is the major note near the center of the piano's 88 keys that starts much of music and sounds "good". This is because this frequency is tied in with the Fibonacci golden ratio of 1.618. 1.618 squared, times 100 is 261.79 compared with Middle C at 261.63. This is a very advanced concept - that numbers can be "felt" - but many great classical composers designed music around these ratios and produced great works of art. Early Rock 'n Rollers were accused of doing the Devil's work because of musical inharmony and perhaps that criticism is a bit more valid on closer mathematical inspection.

You can create any scale from these frequency starting points because as we saw they are all separated by the 1.05946 ratio and every 12 notes the frequency will double for an octave. Years ago I noted that the Dow Jones averages were hitting highs and lows around musical scale frequencies and I experimented with various number conversion tables. I had some success but dropped the practice after I discovered I was "re-inventing the wheel". Literally that is, the Gann Wheel.

Below is a copy of the Gann Square of Nine with the octave starting with the C at 65.406 cycles per second and those 13 tones (103.813 is the start of the next octave) circled on the wheel. All those numbers are very near hits on the angles and show a connecting structure with the wheel, 360 degrees, and the musical scale. It's also interesting to note how this square so closely resembles the Great Pyramid and that structure is full of relationships relating to the Sun, the Moon, and the Earth. Perhaps there's more to Pythagoras' music of the spheres then modern day man realizes.
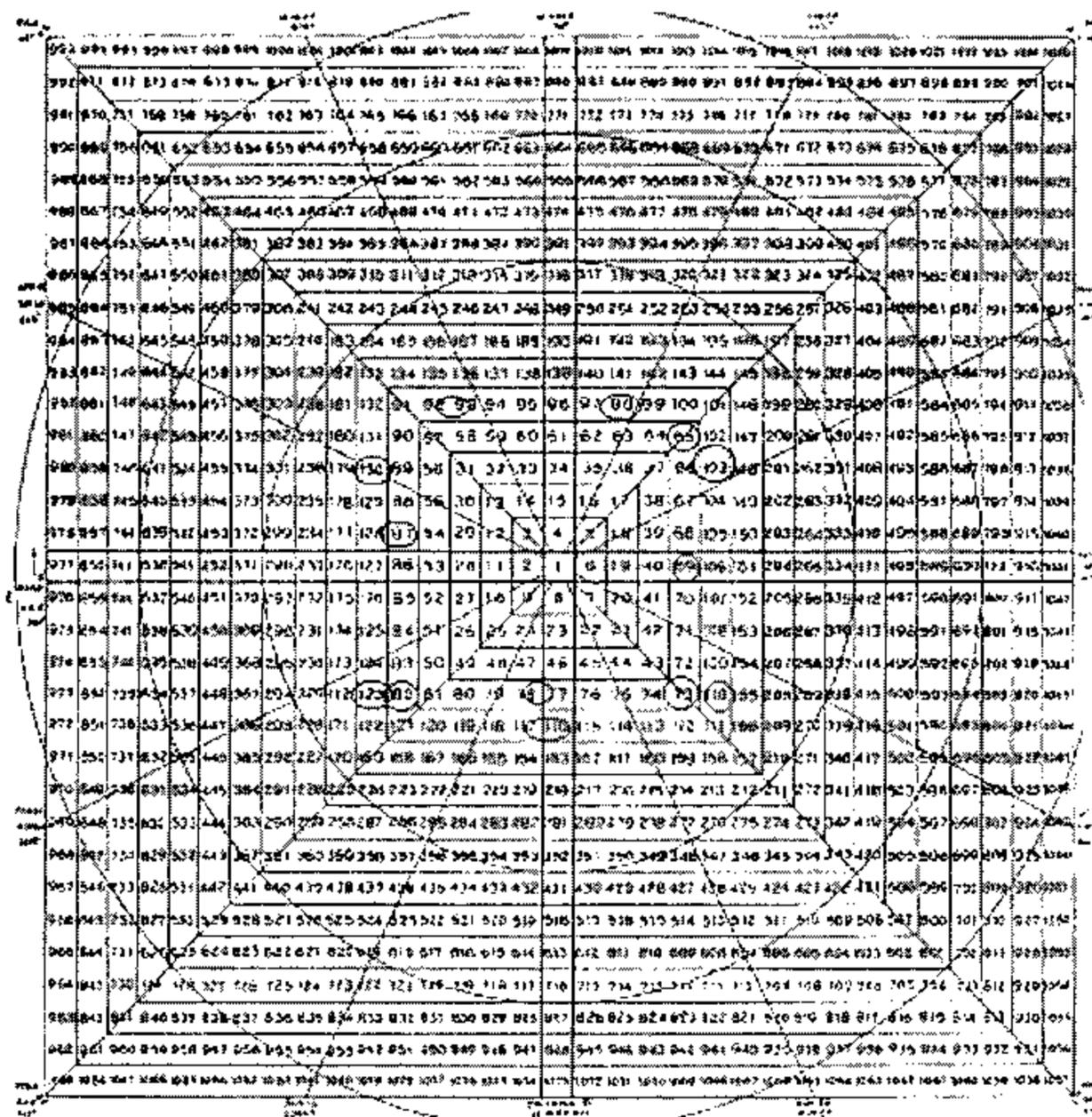
The numbers circled above are the exact modern day frequencies used to tune pianos, but if we 'adjust' these numbers to refine our scales we can see the origin of common trading numbers. Instead of the C starting at 65.406 we could make it start at 68 and the correspondence would be even greater with this series of numbers each 1.05946 greater than the last: 68, 72.04, 76.32, 80.87, 85.67, 90.77, 96.17, 101.88, 107.94, 114.36, 121.16, 128.36, 136, 144.08, 152.65, 161.73, 171.34, 181.53, and 192.33, to name a few in the series. An equally attractive base number would be 8 x 8 or 64 as our primary starting point. Of course if you use Middle C starting at 261.626…you get the idea.

Those with musical skills may well discover that if we find a stock at a low and apply these $1/12^{th}$ root intervals, or even just the eighth division ratios of 1.125, 1.25, 1.333, etc., the terminal high would be thought to be in sympathy and probably at a major octave interval.

Gann used a simple rule that said you took a range of high to low and divided it into 8ths and this was based on music theory. All 8ths are not created equal, however, and most notably absent is the ¾ ratio, .75 in decimal. This is more than made up mathematically by the musical ¾ ratio of 1.68179 which is ¾ to 12 on the equal toned scale and is 1.05946^9 or in base 2, $2^{.75}$. This 1.68179 is always seen at important turns. Note especially the October 8, 1998 panic low of 923.32 which started the last run to the all time high in March 2000. Now, what was that all time high price? Oh yes, it was 923.32 times 1.68179=1552.83 give or take *a few pennies*!

Other ratios of importance in the market are the 3/8 and 5/8 ones of the range. These are near Fibonacci ratios and if you plotted on an 8 x 8 grid graph paper like Gann did you would get Fibonacci numbers or angles connecting those grids (3, 5, 8). If you were to look at the chart of a ball bouncing or any other impulsive thrust you would see that after an initial big swing, the vast majority of action would be confined to a range of 3/8 to 5/8, gravitating to the 50% level. Stocks act the same way and this has resulted in the Elliott Wave practitioners only buying or selling above and below the .618 retracements since once stocks get above the 5/8ths range they usually go all the way to the top, and if they break $3/8^{th}$ level they go all the way to the bottom. The vast majority of good trades come when a stock or commodity is resting on a $3/8^{th}$ or $5/8^{th}$ support level AND is also at an eighth TIME zone from the origin. If you recall the prior exhibit of the Stock AFL with the $1/24^{th}$ natural time and price grids you would want to do the same with an $1/8^{th}$ grid. If you do this you will see these major reversals at the $3/8^{th}$ and $5/8^{th}$ divisions. Of course if you are a perfectionist - and why not if you are reading this

book- then I would suggest making a grid of the 12 equal tone octave by multiplying the low by 1.05946 twelve times and then converting those price levels to sideways time levels. If you did that you would get a chart like the one below. In this chart the low is stepped up by the 1.05946 ratios and the breakout above the first octave (line 12) and holding, indicated higher prices. Note, however, how the 2nd octave in Time caught the price high.

Noting the prior discussion about 3/8 and 5/8 retracements, note that $3/8^{th}$ of 12 is 4.5, and $5/8^{th}$ of 12 is 7.5. If you look at those levels on the chart above you will see the horizontal support and resistance (lines not drawn but note horizontally at the 4.5 and 7.5 line areas). Also note how the prices seem to bounce off these natural 12 'tones' and see how the frequencies go up as the stock's price increases. This also helps account for why expensive stocks seem more volatile than 'cheap' ones- the distance between notes is greater.

Finally we'll return to that first 15-degree fundamental principle of the 24th. Music can't be left without addressing the term 'harmonic' as in Harmonic Progression. This is just a mathematical series that converts a simple arithmetic progression like 1, 2, 3, 4, 5... and flips it over to fractions like ½, 1/3, ¼, 1/5...For years I have used the exact number of a high or low as the fraction to create the series but we'll demonstrate with the fundamental 24th so unity is 24/24=1. In the chart below the horizontal lines increase by the fractions 24/23,

Example of a Harmonic Progression based on fundamental 15 degree or 1/24th
so 1=24/24, then progress on is 24/24, 24/23, 24/22, 24/21, 24/20, 24/19...24/1
This results in a parabolic looking type spiral advance.
Note how all the prices seems to gravitate to these levels.

One Octave i.e. 24/12

Start 5.90
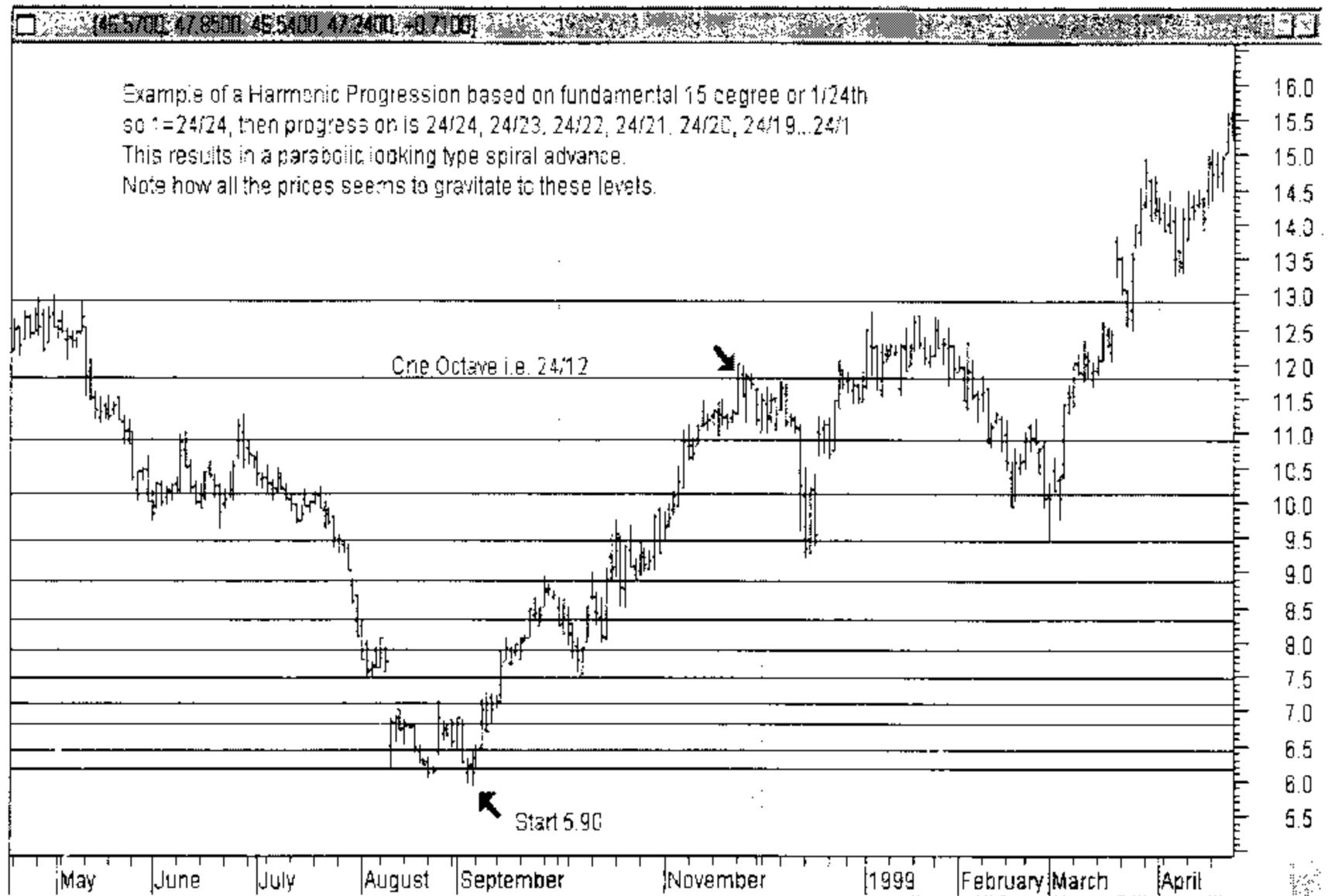
24/22, 24/20, 24/19, 24/18… to 24/1. The chart shows clearly how the prices cling to these harmonic levels and if you go back to the scale ratios and apply them you'll discover the big moves inherent in these charts.

Again, I urge you to think in terms of BOTH time and price. This chart shows the price levels. You can put on timing lines to get the time levels. Big turns only come when both time and price are in sync.

The below chart is one more example of the musical scale and the S&P 500. This one starts at the low in April 1994 and displays the first 7 frequencies above the low. Most of the arrows point out the place where the prices hit the horizontal "pitch" line and it's easy to see that they are truly mathematically precise. The round numbers going up a 45-degree timing angle show the intersection of that angle with these same pitches. The downward pointing arrows from those numbers show the time cycle change during that time. Remember we always want to look at both price level support and resistance, but also time to note when the change in trend will occur. I have also drawn in 45 degree declining lines from each frequency so you can see when they squared out the bottom and also to note the intersection of these grid lines to see the frequency change effect on the prices at the time of those intersections. It's clear to see that all these angles and intersecting points are connected to the price structure, but remember the main point - they

were all created from **just one point** in time and price at that origin. If this is so then it implies that stocks are controlled by something a lot different than what they want you to believe on Wall Street.
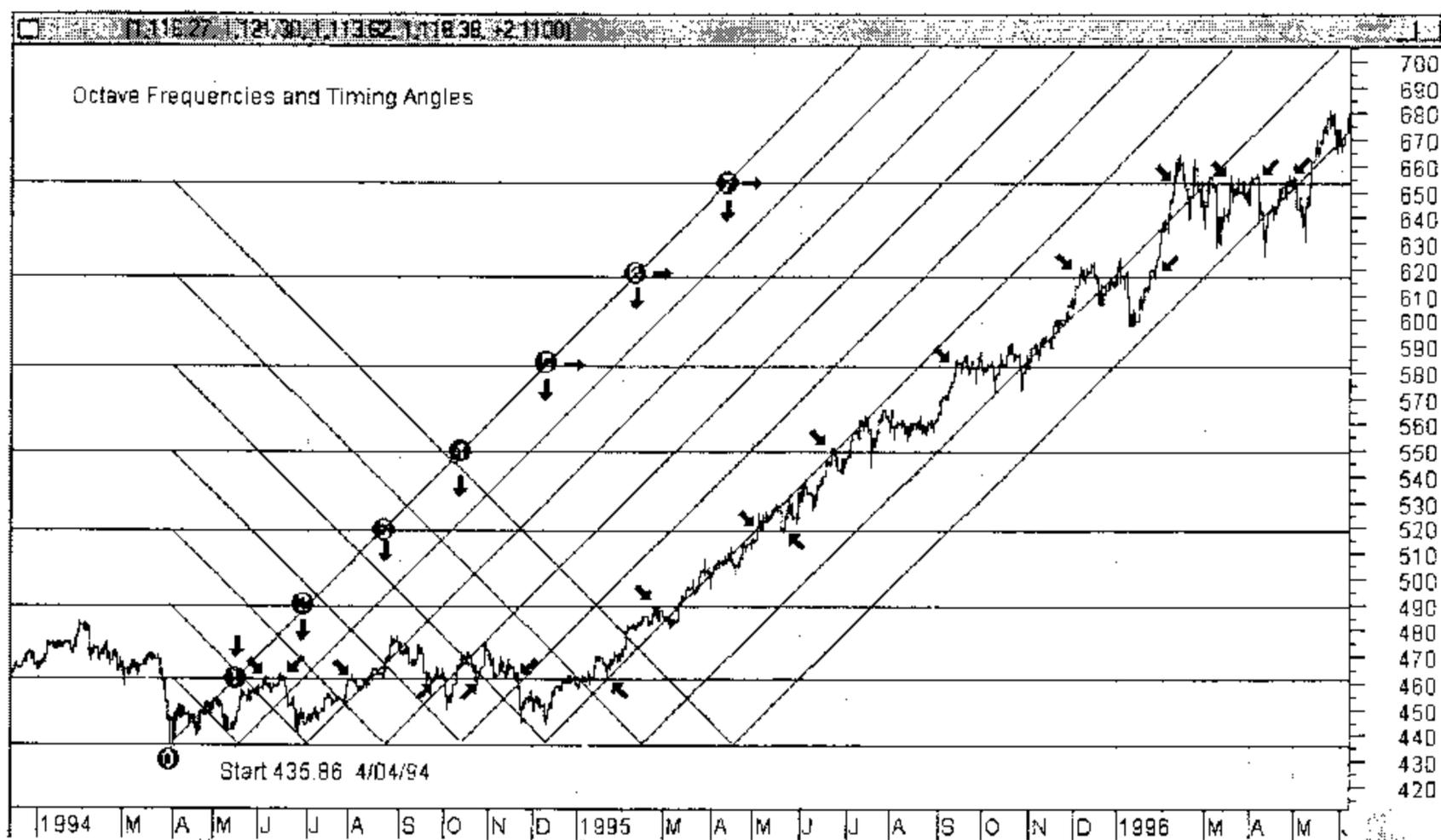
In thinking about music, the octave, and why we can divide a stock's range into 8th's and get support and resistance, one might think that the 12 equal tone scale of western music might have some notes or frequencies more important than others. Certainly we need all twelve notes since we have to multiply each one in succession to get the next and only through that one-twelfth frequency of 1.05946 can we do that. The piano tuners basic frequency guide starts with the first note on the piano, A, which has a frequency of 27.50 cycles per second (as compared with the tuning fork of 440 C.P.S. on A, note 49, on the keyboard- this is 4 octaves higher (4 doubles, so 27.50 x 16 =440)).

The following chart summarizes the whole tones and sharps and flats and their base frequency as a ratio. Note that in normal musical nomenclature a 'sharp' of one note is a 'flat' of the next higher note. Here I will just use all sharps (#).

Note	C.P.S.	Whole Tones	Sharp/Flats
A	27.50	1.00	
A#	29.135		1.05946
B	30.868	1.12246	
C	32.703	1.1892	
C#	34.648		1.25992
D	36.708	1.3348	
D#	38.891		1.4142
E	41.203	1.4983	
F	43.654	1.5874	
F#	46.249		1.68179
G	48.999	1.78179	
G#	51.913		1.8877
A	55.000	2.00 next Octave	

You will want to make a copy of this page, as these ratios are quite handy when working with stocks. Remember, these are just 1.05946 times each note.

In looking at this table we once again notice very familiar numbers and perhaps 50% retracements or 25% were really .4983 and .2599 or that third as .3348. We'll take a closer look and see if we can find out.

You can use these ratios in all stock market work and major long term highs
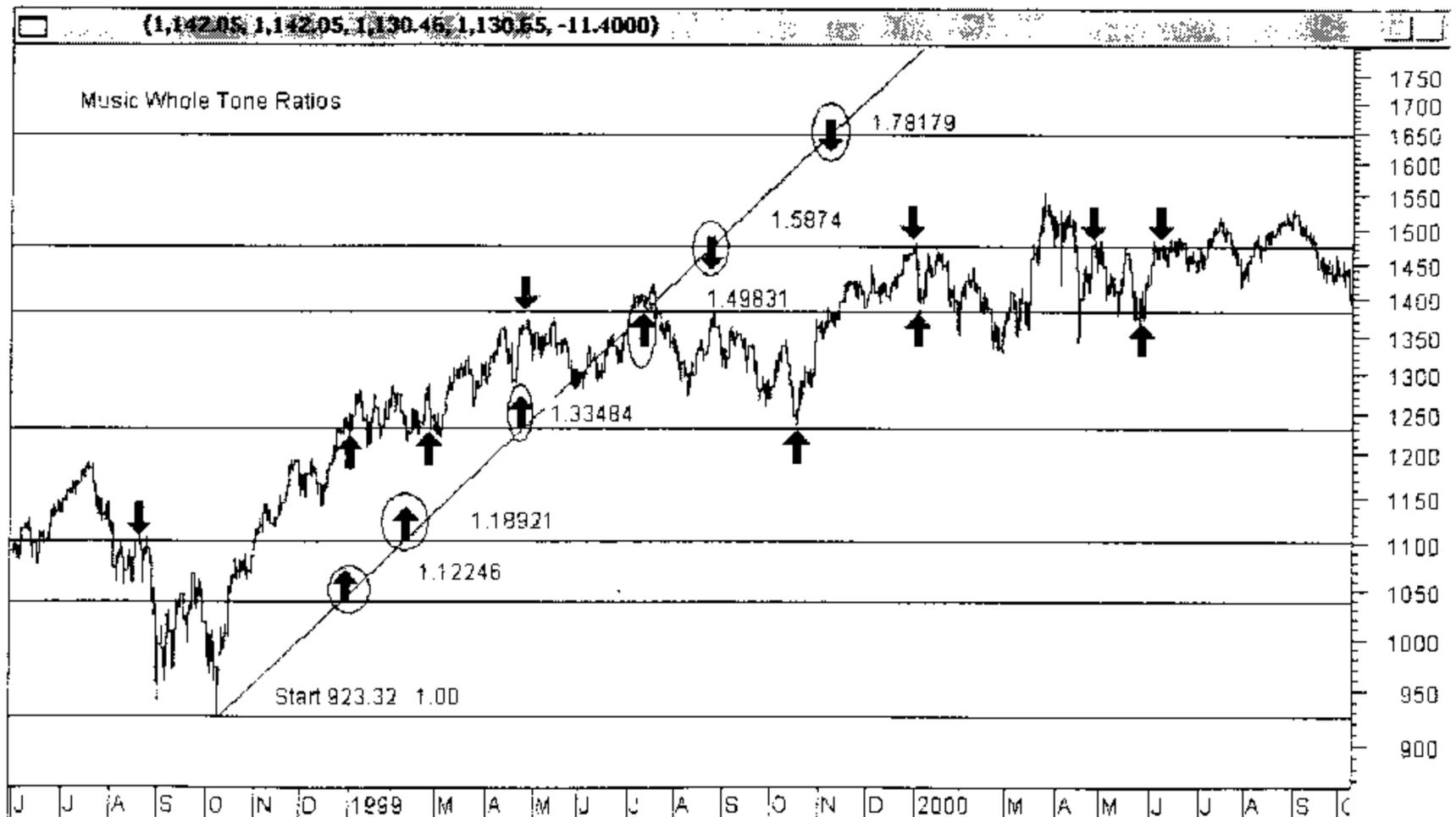
and lows can be set by these ratios. These two charts show how the various Sharp and Flat, or Whole Tone ratios show up in the S&P. Note how the 45 degree *timing angle intersects those ratios and gives market turns*, while the *ratios themselves gives rise to support and resistance numbers.*

I did not combine these two charts into one as that would make it much too confusing, but if you do that you will see that a very big percentage of trend change 'hits' are accounted for by these ratios. I might add that converting these price ratios to calendar time increments is a very good use of time.

Chapter 10

RATIOS

The first nine chapters of this book demonstrated that time and price are the same thing in that they are just energy vectors that human beings translate into stock prices in a mathematical way. The proper role of science in regards to human behavior would be better suited to studying these speculative market charts to learn why the emotions of humans are so precisely controlled. In any event in this relatively primitive time, we can use this information to our advantage to make money before the people in some distant future routinely know these facts and ruin the markets for speculation.

The basic 'square out' is a one to one correspondence of time and price and is frequently represented with a 45-degree angle or the diagonal of a square. Remember when a 45 degree angle goes from a low to a high it does construct a square at that point and the amount up in price is equal to the amount over in time. The ratio of price to time is one to one even though the diagonal vector distance traveled is 1.4142, the square root of two. Most of the long term bull and bear market resolutions are these time and price equalities - but not all. Many of the intervening 20% swings we see all the time are ratios or fractions of time and price. Furthermore many highs and lows are ratios of only one component like price and do not include time. A stock that goes from $50 to $100 may top out due to the doubling in price but that says nothing about the time factor. If you look closer you will see that the time component will also be at a harmonic of the price in most cases. But before we get into the more complicated ratio analysis of highs and lows let's look one more time at the basic one to one timing lines that can be used everyday.

When I come to work everyday, I need to know where the market is going. If I don't have an opinion based on cycles or chart structure I at least must know where there is valid price support or resistance. Most people just use percentage retracements or my 'Jenkins Lines' square root increments to get these support and resistance targets but there is a much simpler, elegant and practical way to know exactly where the market is going. It tells you! W. D. Gann used to say that when the market traded at a price you should look back and see the last time it traded at that level. Now double and triple tops and bottoms certainly would explain why this could be so, but Gann was really talking about the cyclic characteristics of stocks and commodities. Of course he often used planetary cycles that repeated so

he could look back and see if a planet had returned to the same spot again but more importantly he used 'timing lines' to keep track of highs and lows. Timing lines are just angles running up and down from prior highs and lows that when they get to 'zero price' they square that range or when the current stock price rests on them it means it is a proportionate time and price point from that prior high or low. The basic form is the zero angle I mentioned in the first few pages of this book but we need now to look closer at them to see what they really mean. If the S&P is trading near 1100 one day and a prior top occurred 985 calendar days back, and a low was 1190 days back, we would know that angles starting at zero price on the dates of those past turns would be located today at 985, and 1190 and climbing at one point per day. That's what I look at everyday. I know the market can break down and not hit great support until it hits the angle at 985, or if it goes up it will hit it's head on the underside of the angle at 1190 and rising one point per day. Lets look at the chart to see what that looks like.
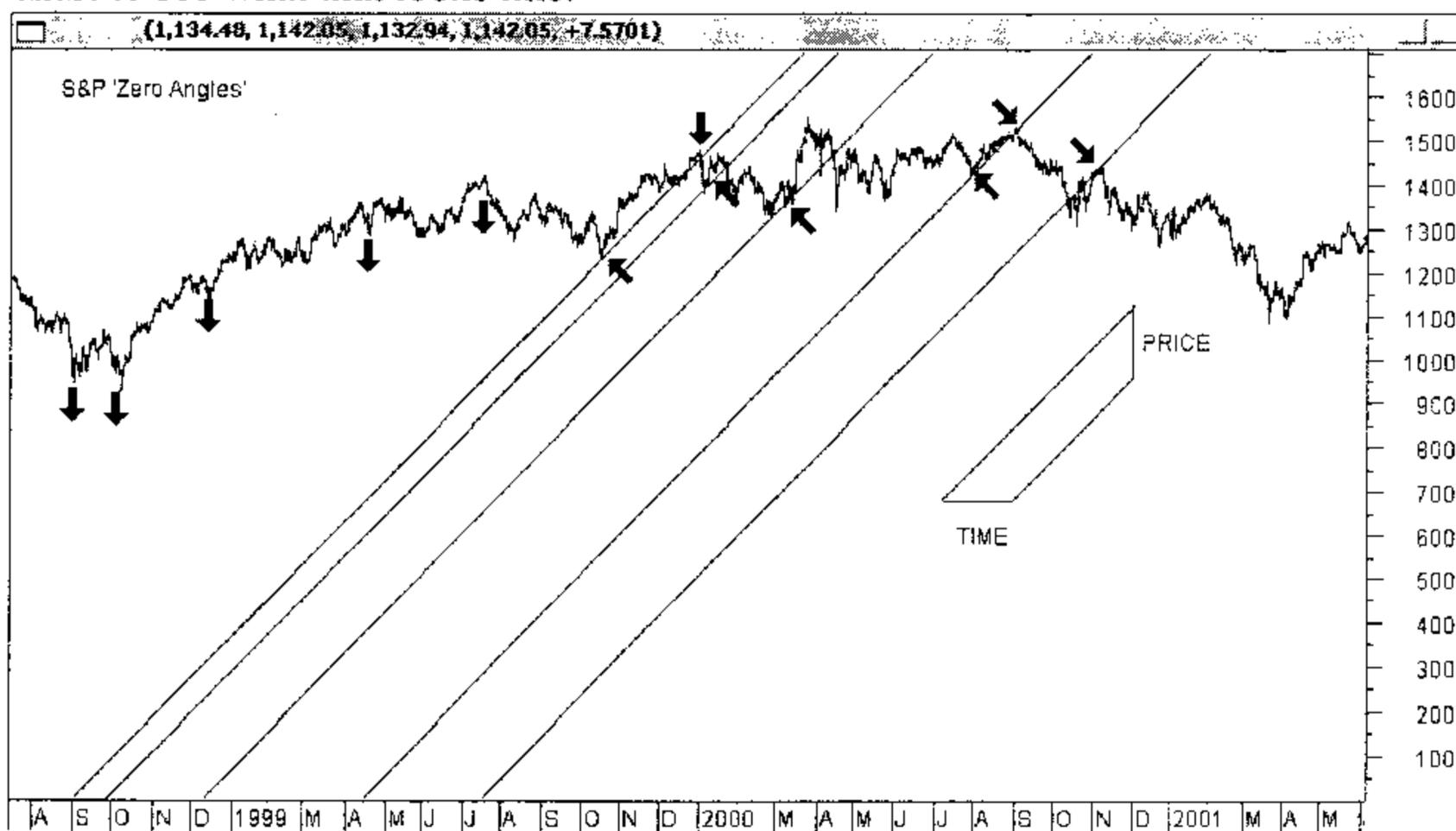
This chart of the S&P with the scale starting at zero price, shows 45 degree trendlines coming up from zero under a number of important highs and lows from the past. The origin is on the left side of the chart and on the right we see how those angles rose up to eventually catch the prices of the current market and become support or later resistance. Scaling is always a consideration and if this was a perfectly drawn chart you could make the angles one point per day, week, and month. The little glyph drawing with the Time and Price labels show that on any given day the market can EITHER go up or down until it hits one of these

angles, or it can continue sideways until it hits one. Only when it hits one will time and price be balanced and a change in trend be possible. I keep a spreadsheet with all the highs and lows going back to 1885 on the Dow Jones, and S&P since its inception, and have before me everyday the location of these angles of one point per day, week, and month. You can also use trading days in addition to calendar days. This way I am never taken by surprise when the market makes a big turn since I know all the possibilities of time and price angles which could stop the market. Note what this really means. I started by saying the market will tell you where it's going. That means that if we are trading at 1100 S&P we look back 1100 days to see if a major high or low was made at that point. If so a reversal is likely, if not, the existing trend will continue.

On February 19th 2004 listeners to my daily telephone update were warned to watch for the top of the year on the Dow Jones since it just hit 10,730. I told them it was 10,730 days from the great bear market low of October 4, 1974 when the Dow Jones hit 573. This was a very big square out of price and time on a one to one ratio. Since I had all these zero angles updated daily I knew what to expect. Note, however that three or fours months earlier the Dow Jones could have had a big 300 or 400 point up day and also hit this angle, so why was the top on February 19th? The answer is multiple reasons. The high price was approximately 10,730 and the low was 573 so the difference was 10,157 and THAT many days back from 2/19/04 was the TOP in late April 1976 after the bear market low. Furthermore the one point per day trendline at 10,730 tied in the date February 19, 2004 with October 4, 1974 so the price of 573 that day had to be related also. 573 days back from 2/19/04 was 7/26/02- the big panic low! It is beyond belief when you see how these numbers square out a high, a low, and the difference between them, that the people running Wall Street can still with an honest face tell you the "GDP price deflator upset the market" that day.

Here's another example. The recent top on March 5th 2004 was near 1163 S&P. Now note that in most cases a 'range' price is made on the final high so that range could be 10 points or turned sideways, 10 calendar days, so these numbers and dates I give you will often have a slight slippage factor in them but the methodology is quite clear. From the March 5th high going back 1163 calendar days is 12/28/00 and a major low was made at that time. But the real key was the HOURLY chart of one point per trading hour which was 1158 to 1163 trading hours from the big top the prior year on June 18th where bonds made their all time high. Trading hours are very important and I have many times used hourly charts exact to the hour thousands of hours after an event. Indeed few people other than myself know that when the Dow Jones topped on August 25th 1987 it was

approximately 7,700 trading hours from a price of 770. Somehow humans do keep track of precise time counts over very long periods and nothing is overlooked. By the way, in regards the spreadsheet solution, an approximate calendar day to trading day ratio is 1.44 so just multiply or divide one by the other to adjust angles. I keep check on the hours with both my preferred hourly charts of 6 and 6.5 hour days and convert from both trading and 24 hour real time hours (see my other books on hourly charts).

Lets look at the zero angle one last time, this time on an individual stock.
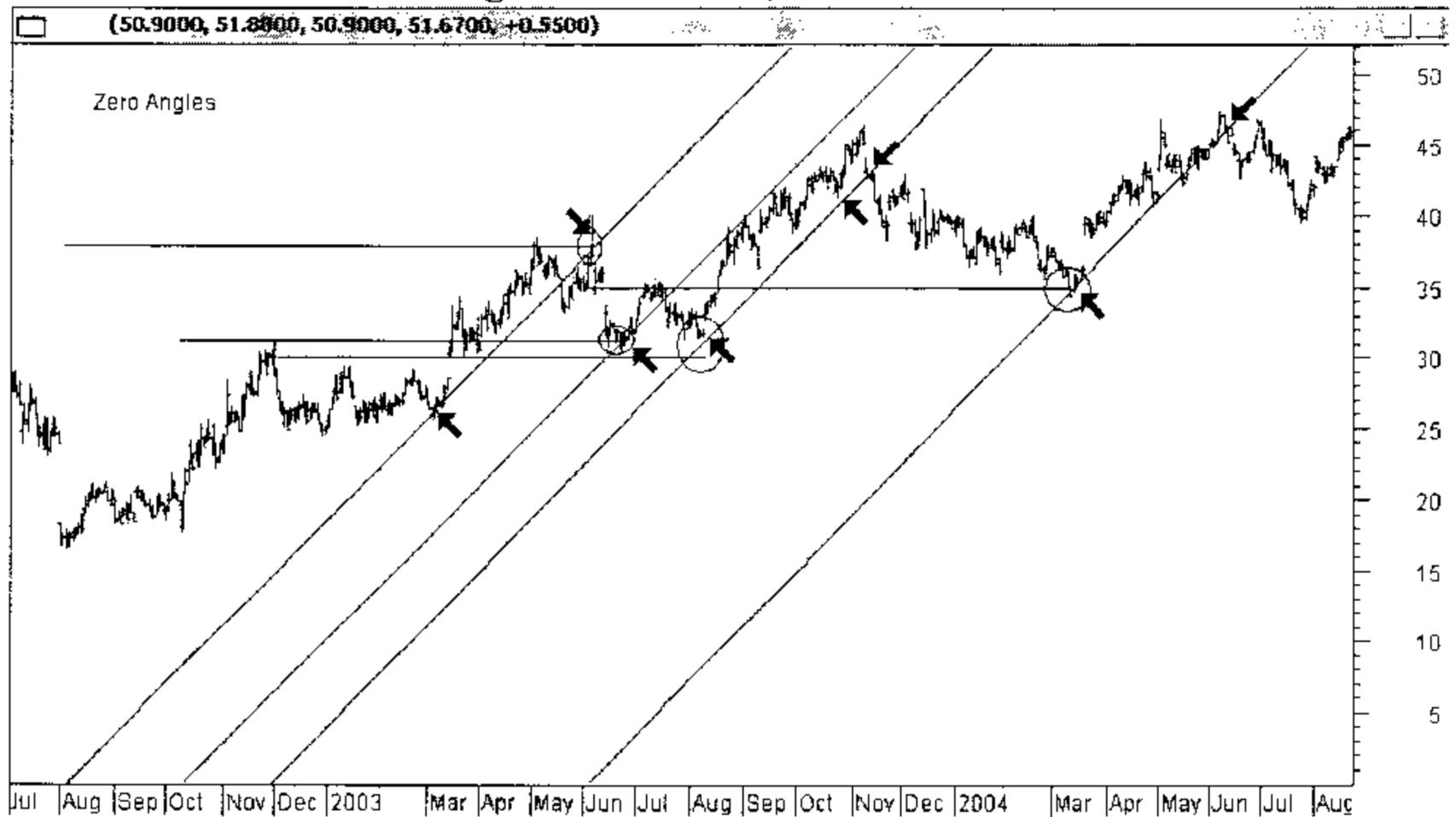
In this chart of Adobe the angles coming up from zero price caused the price to dramatically bounce up or change direction when first hit. The 'bigger' the past high or low, is directly related to how important the current square out in time and price will be. I have put horizontal time 'rulers' on this chart to tie in the date the zero angle was hit with its origin point. If you use you fingers to imaginarily slide these rulers back and forth horizontally across the chart, you will get a feel for what's going on. You will be able to see the cyclic highs and lows coming up as you slide these time counts across the page. Now think what is going on here. If you are using calendar days of one point per day, when a past price takes a plunge the width of these horizontal rulers will shrink to a shorter time cycle, and when the price rises sharply in the past the width of these rulers will expand point for point. Note the last two zero angles on the right side of the chart and note how the prices followed them up a long ways before breaking down. If you follow those two angles back to their origin you will see they started from a chart pattern which

was a sudden crash plunge and in both cases there were gaps in the chart. Knowing how cycles expand and contract from sliding those horizontal lines back and forth, we now see that a sudden price change in a vertical distance will result in two zero angles very close together at the zero price- one the top, and one the bottom only a few days later. These close together zero angles rising, give doubly strong support when hit, but also 'clear out' a lot of support and resistance equal to that vertical drop, *only in terms of time* in a future period. After those kinds of drops the zero angles usually forecast long stretches of straight-line price movement. Good to know when looking for bull and bear market durations.

One last zero angle chart is below and it shows how long term monthly charts and zero angles of 45 degrees can create major reversals years later. Note how this angle started under the 1987 top and when first hit created the 1990 top and finally the all time high in March 2000. The angle here is really about 10 points per month but if you keep up long term 1 point per month charts you will see some remarkable hits.

Monthly Zero Angle On S&P

Now we will tackle the more difficult subject of fractional square outs or ratios like the title of the chapter suggests. The Elliott Wave practitioners like to use .618 and 1.618 ratios all the time because based on experience those numbers turn the market a lot. This is a type of fractional square out of less than or more than one point per unit of time. Earlier in the book I showed some techniques to expand boxes by Fibonacci ratio timing angles and when prices hit those timing lines they

were in a Fibonacci ratio of time to price. One obvious example of fractional ratios comes to mind quickly and that is the last giant run from October 8th 1998 to the all time high on March 24th 2000. Previously in discussing music I showed how the low at 923.32 was expanded by exactly 1.68179 the musical note F# to get the exact high of 1552.87 so this was a PRICE ratio of .68179 (note this is NOT the Fibonacci ratio of .618). But what about the TIME? The time from October 8, 1998 to March 24, 2000 was 533 calendar days and the net point difference was 629.55 points. The price to time ratio was therefore 629.55 / 533 =1.1814. This is extremely close to the musical note C with a ratio of 1.189 being off by only 3 calendar days, but as mentioned previously there is 'slippage' in the numbers and I'm using extreme high and low prints in the calculations so perhaps an average would make more sense. Since the price ratio of .68179 was exact, lets try that ratio on our time scale of 533 days. 533 x .68179 = 363.39 and if you add 363 calendar days to 3/24/00 you get March 22, 2001! That was the exact low the next year. What about the price? The last leg up was 629.55 points, so .68179 x 629.55 = 429.22. The high on 3/24/00 was 1552.87 minus 429.22=1123.65. The high price on March 22, 2001 was 1124! By the way, remember how this all started with the low of 923 in October '98 and going to 1553 in March 2000? If you divide 1553 by 1.68179 you get 923 of course—add 923 days to March 24, 2000=October 3, 2002!

(1,142.05, 1,142.05, 1,130.46, 1,130.65, -11.4000)

Musical Ratio F# .68179

March 24, 2000 1552.87

1552.87
-1124.00
_____
428.87
428.87/629.55
=.6812

629.55 Points

1552.87 / 923.32=1.68179

533 x .68179=363

533 Calendar Days

363 Calendar Days

October 8, 1998 923.32

March 22, 2001
1124
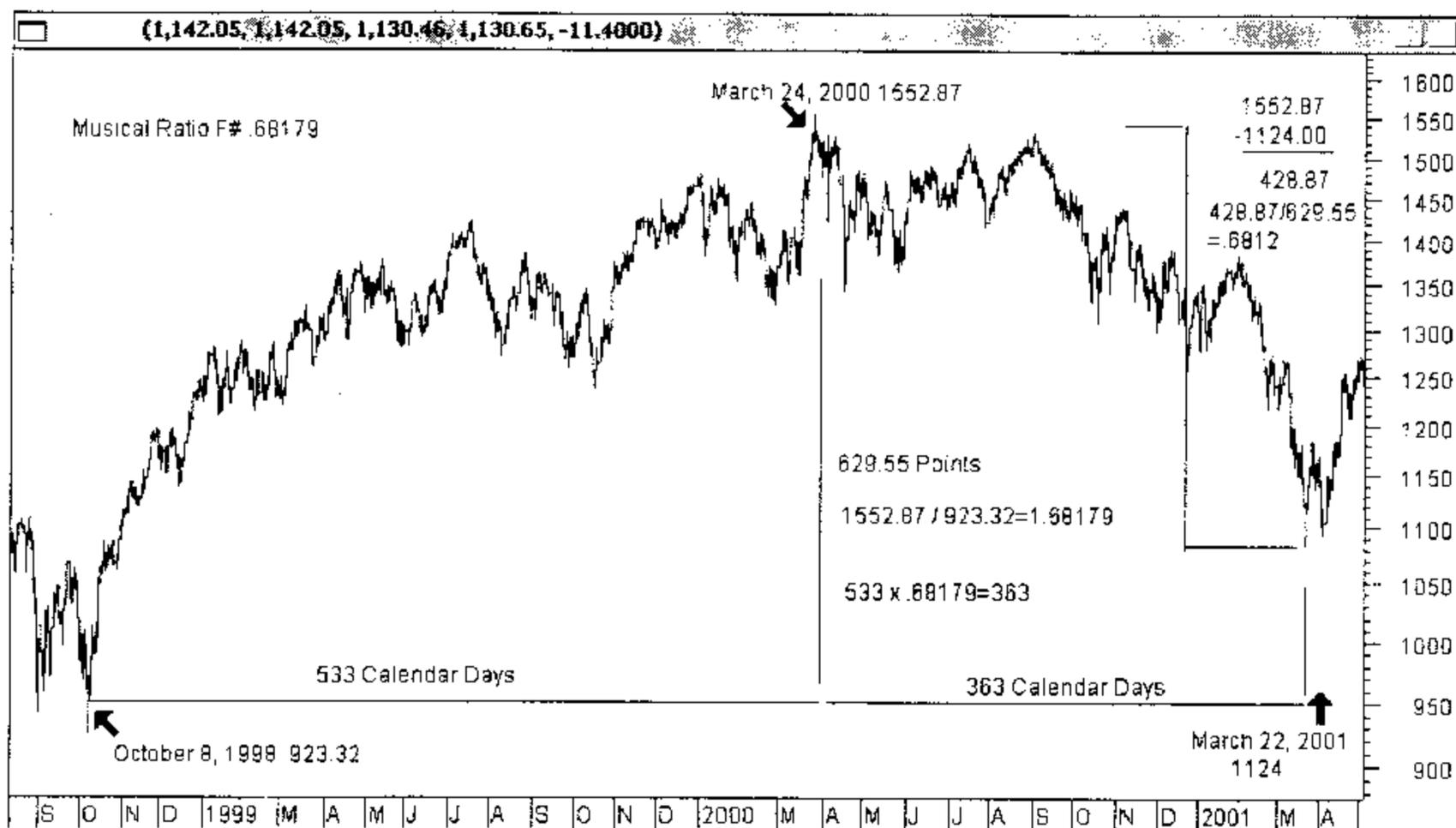
You can see where we are going with this ratio analysis of so many days up or down and so many net points. It can get very complicated but I will soon show you a simply way to keep track of it. First lets try another example. From the 3/24/00 all time high to the 9/11 low i.e. 9/21/01, the price drop was 608.12 points in 546 calendar days. The ratio of the price drop was 944.75 / 1552.87=0.6084. If we advance the time count by this ratio we get 546 days x .6084=332 days. That many days into the future was 8/19/02 a big top and the price was the *same* as it was on 9/21/01. The chart on the next page demonstrates this relationship. This is another meaning of what Gann meant when he said to look back to the last time a stock sold at the same level.

One last thought on that run from October 8,1998 to March 24, 2000. We saw how the .68179 price ratio came out perfectly but perhaps more obvious but less apparent is the fact that a 'zero angle' starting under the October low of 923 would be up a number of points after that 533 calendar day run. The 1 x 1 angle would of course place the angle at a price of 533. But what angle would square out the 923 price in exactly 533 days? That angle would be 1.732 points per day- the exact square root of three!

Now we'll look at some Fibonacci ratios since they are very popular. The Fibonacci series is an additive series where "each number is added to its neighbor" to get the next number in the series. The ratio of each number to its neighbor converges to a constant ratio of 1.618 and .618. The series starting with 1 is: 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144…etc. Traders know these numbers and ratios but

```
(1,142.05, 1,142.05, 1,130.46, 1,130.65, -11.4000)
```

546 days x .6084
=332 days
9/21/01 + 332=
8/19/02

← Price level is the same on harmonic dates →

9/21/01 944.75

3/24/00 1552.87-944.75=608.12 price change
3/24/00-9/21/01=546 Calendar Days
944.75/1552.87=.6084 ratio

Note curiosity of price change 608
and ratio .608
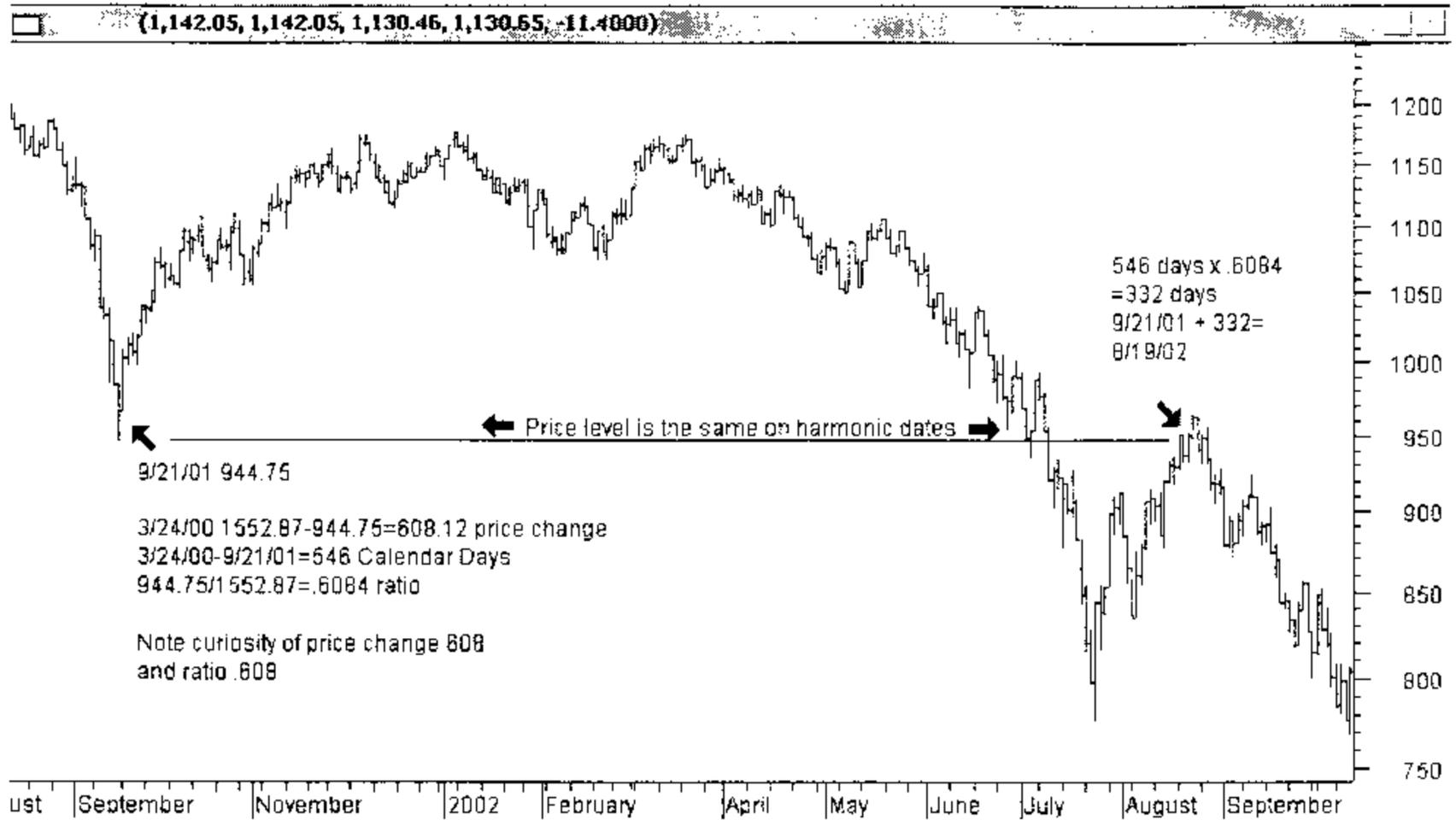
many don't realize that ANY number series if added this way will ultimately turn into the Fibonacci ratio. That's why most things in the universe that have growth exhibit this ratio. Any additive series will converge to the .618 ratio, for example 410+480=890, 890+480=1370, 1370+890=2260, 2260+1370=3630. 3630/2260=1.606 after only six numbers. Since this is a growth ratio, you can actually start with any series of highs or lows in the market and easily forecast the next several turns by just adding the prior ones together. An example will demonstrate what I mean.

Fibonacci Additive Series
Of Highs and Lows Starting
With A and B

In this chart I started with the 1932 low and went to the first top in 1934. This distance was labeled 'A'. I then moved to the next top and labeled that 'B'. Now I have the first two series of numbers so I can start the addition process. C is the combined distance of A&B, and D is the sum of C and B. E is the sum of D and C. This could go on forever but the distances grow quite rapidly although they do converge to the 1.618 ratio of the prior sequences. Now most traders will simply take a proportional divider or ruler and expand a top by 1.618 to calculate the next but note that this is NOT what is really happening. The early additions of this summation series could vary greatly in amounts and the ratios could be numbers like 1.90 or 1.70, or 1.40 and not exactly 1.618. Traders who expect these Fibonacci ratios to forecast accurately can be greatly disappointed. The market swings in real time are very specific ratios and you must use those ratios even though at times the universal fundamental ones will show up. But if you do use variable ratios, the easiest way to keep track of them is with our zero angle technique. Just start at 'zero price' and find the number of days your ratio will take to square that high or low price and draw a line from zero through that high or low price on the date in the future the ratio requires to square out. Then just extend the trendline into the future. This next chart shows the technique.
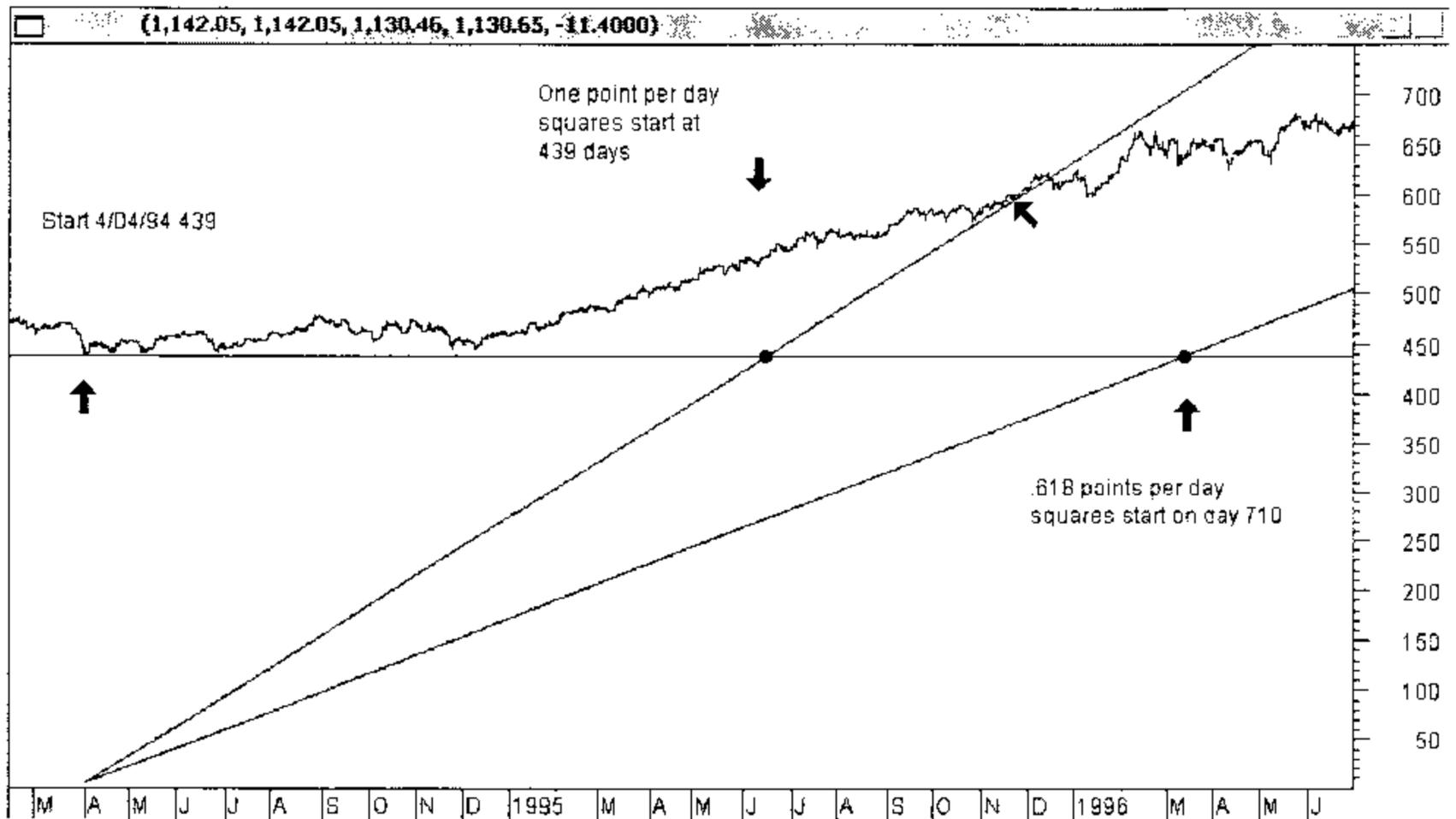
This chart above shows two timing lines, one the typical one point per day, and the other the .618 points per day. Note how on the date of the 'square out' (the black circle dot) not too much happened in the market but later the trendline caught up with the price. This is why timing angles are superior to just a one time square out like 439 days. This next chart shows the future period and the effect of the .618 (price) angle (1.618 time angle) when it catches up with the price. Note that this angle lasted for years with each square out on the trendline resulting in sharp market bounces off of it.

(1,142.05, 1,142.05, 1,130.46, 1,130.65, -11.4000)

1.618 timing Angle from 4/04/94

10/18/99
day 2023
.618 x 2023=1250.21
close=1247.

Baseline from start

The important observation from the above two charts is that although the timing angle keeps track of potential square outs since it is an exact ratio of time and price and that is manifested on the day the price touches the line, not all hits of the line are significant. In other words, how can a market follow a trendline for years but only reverse on one and only one final top date? The answer is that there are multiple cycles that come together on the final day and they are all interrelated. I often use the analogy of the planetary system and gravity to explain market highs and lows. Modern day science fiction movies are always telling stories of meteorites crashing into the Earth and destroying everything. The reality is that if a meteorite hit Mercury or Venus, or Mars, or the Moon, all the other planets in the entire system would feel it and possibly radically change their orbits causing death and destruction on the Earth. The force of gravity ties in all the planets in their orbits and to move one you must move them all. The highs and lows in the stock market are the same thing. They are all mathematically connected and although we can't change a past historical date, the future high or low will tie in harmonically with all the prior ones when it occurs. We see this every day with simple cycle analysis of 4-year cycles or 10 and 20-year anniversary patterns. Each major origin will converge to a square root target price and a harmonic time period. At the 'final' high or low there will be several well known cycles all converging and usually time angles in days, weeks and hours will all come together. In most cases the market will close on the exact number it is supposed to and that is the final giveaway that the change in trend is occurring.

When trying to validate whether a particular number series is working in the price structure it is often best to shrink down to the lowest factor and see if the cycles can be worked higher. If you read my 'Chart Reading' book you saw a very simple trailing stop method that is almost infallible but also works as the ideal buy entry point for stocks. As a day trader I have made thousands of profitable trades off of this method just blindly buying at these points. It was based on the principle that if you are looking for a 'square out' of a high or low, the fundamental building block of such a 'square' would be its **square root** by definition. A stock with a $49 top could go down by its square root $7 to find major support at $42. In a strong trending market, however, this rarely happens, but what does happen 90% of the time is that the stock trades down to the **square root of the square root** or in this example, sqrt(7)=$2.65 and the price would be $49-2.65=$46.35 as the ideal buy point and stop out point for a correction that could go to $42.
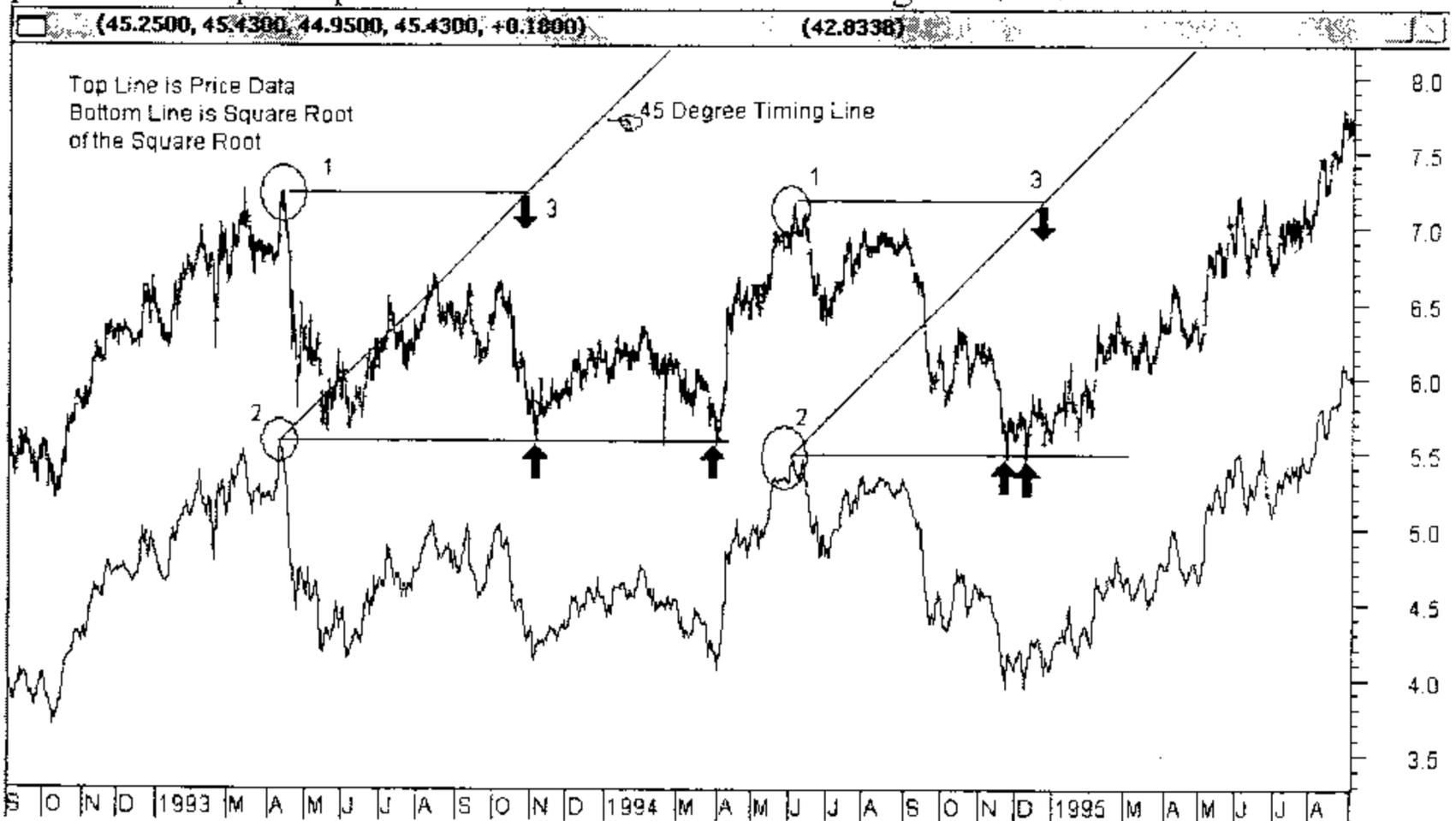
This chart above was programmed in Metastock with the simple formula C-Sqrt(sqrt(c)). That is the lower graph, the upper graph of course is the actual price data for the stock. There are a lot of important points on this chart so pay close attention. The first top labeled '1' is our working point and we are looking for a cover short and buy long price in the future. The '2' below that is our calculated level of the square root of the square root of that high, subtracted from that high. The horizontal line out from that lower '2' is our entry point line should it be hit. We see that hit at the big black arrows. Label '3' is the 'square the range' technique of starting a 45 degree angle going up from under the high starting at the

square root of the square root level, and when it intersects the top a **TIME** square root - square root, increment is indicated. Note how the market hit bottom at this **TIME** but also on our **PRICE** simultaneously! This, in the final analysis, is the dream of all trading - finding the price and the time that price will be hit. This next chart shows the same technique for upside targets.
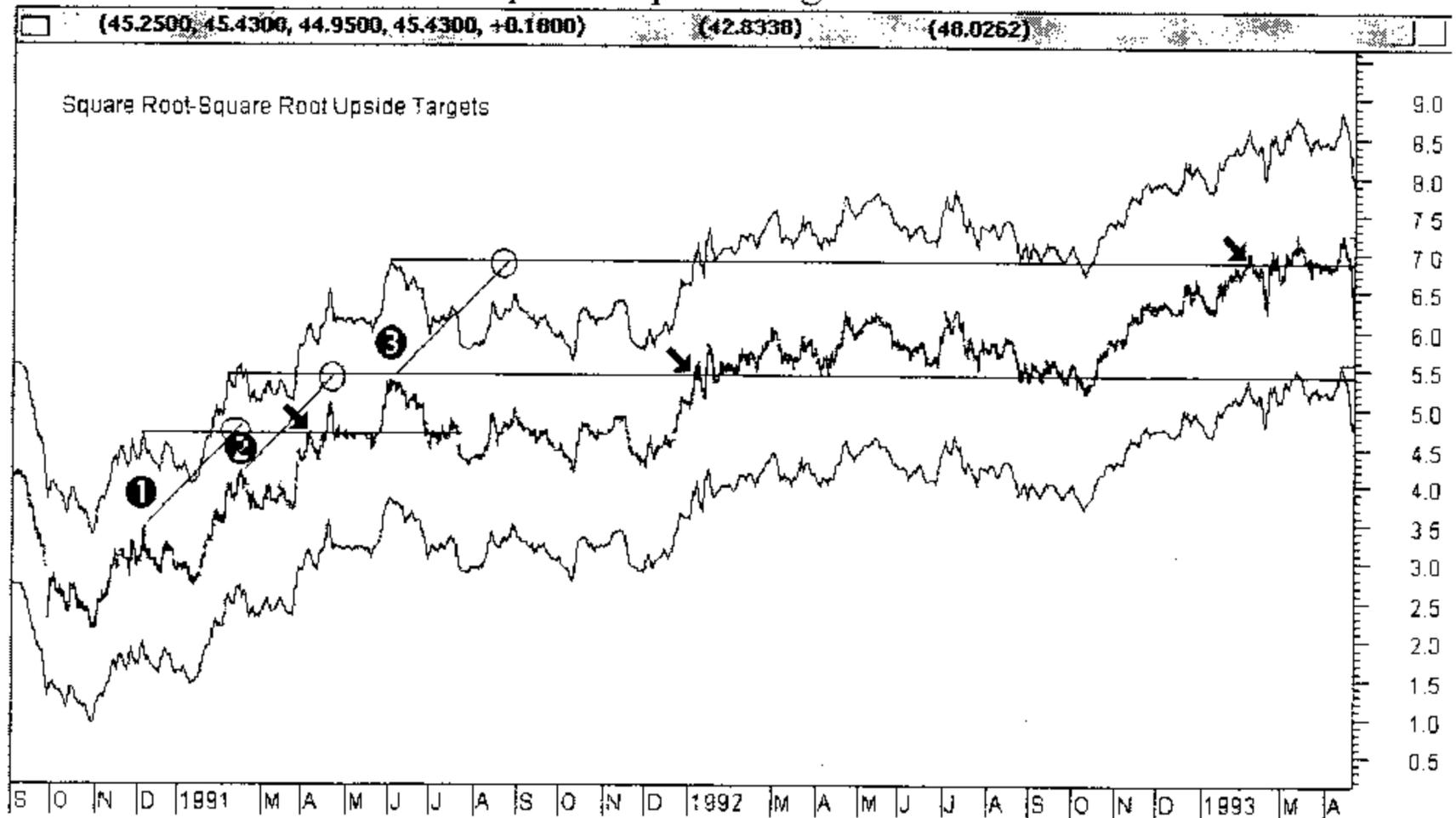
Here the uppermost line is the close plus the square root of the square root of the close. We start at a high like '1' and the horizontal line from the increment above that is our target line in price, later hit at the black arrow. The 45 degree ascending line is again used to square the range which is where the circle encompasses the timing line and the horizontal line and that is the place in time where the next top is to be found - in this first case its at '2'. Note the second black arrow. This is an example of 'old highs become future lows'. When this target is exceeded, a base forms there and we know at that point the line above '3' will eventually be hit and we see that at the far right hand side with the third black arrow. Please remember again what these 45-degree timing angles are doing. It is the same effect as taking that vertical distance between the close and the calculated high and turning that distance sideways. You could do the same with a circular arc around the prices but using the 45-degree angle makes a square so when it intersects the top the side will be the same as the vertical distance. This way we always know when time and price are balanced.

Here's one last chart to show you why you should have paid several thousand dollars for this book! It's the S&P chart with a full square root subtraction and a 45

degree timing angle to square the range of that square root in time. Each one is a perfect trade on the S&P! The black arrow is where the top that the root was calculated from, squares the distance of the square root in time. The lower straight line graph is the close minus the square root of the close.
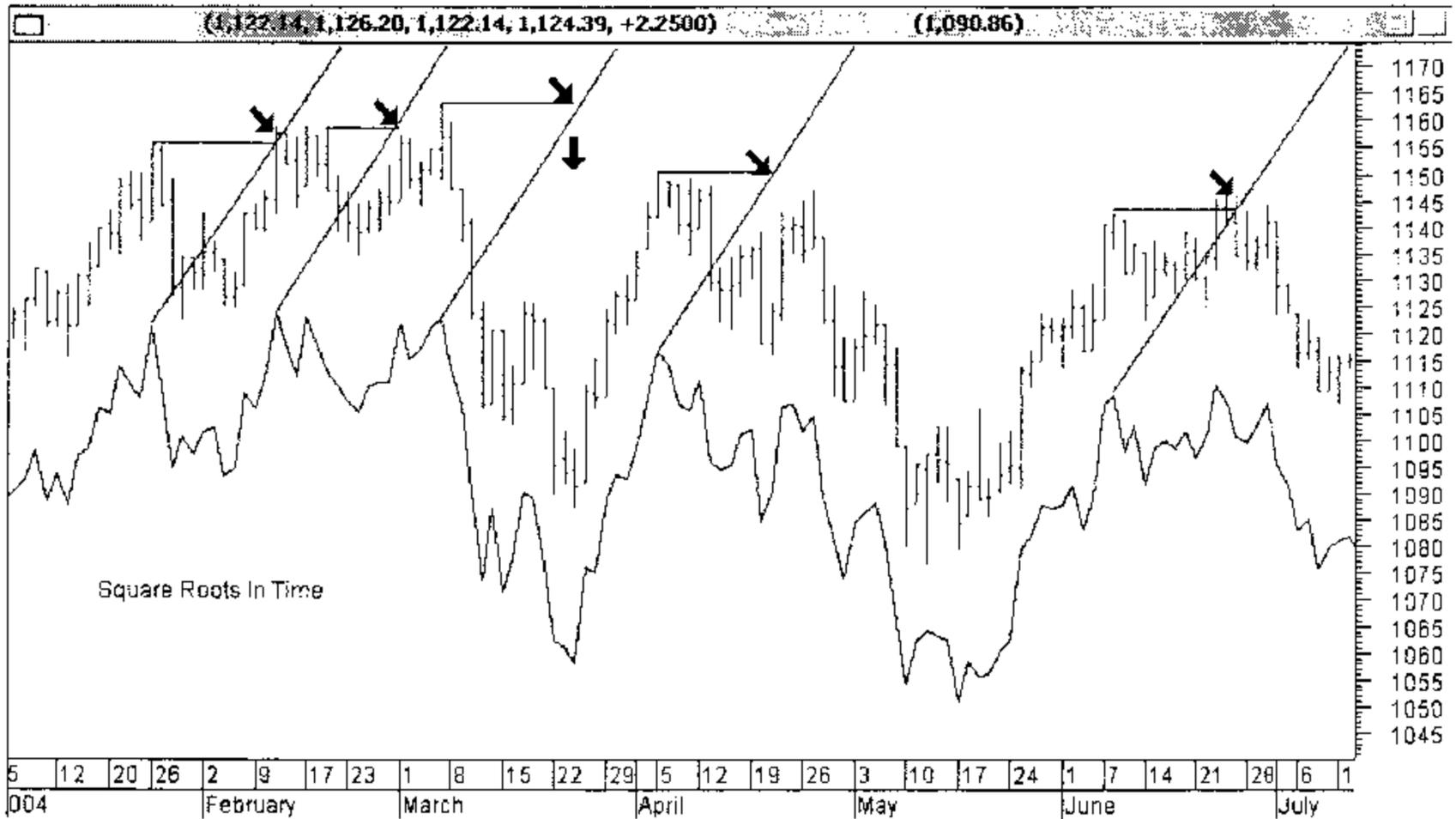
Now back to ratios. That last digression was necessary to again point out how 'fractals' or smaller identical units fit together to make up a pattern. If we are using the broad square root of two, 1.4142 as a basic building block, we will need to test it with smaller units along the way. A low at 1000 S&P may ultimately yield a top at 1.4142 x 1000 or 1414.20, but whose going to hold our hand on the trade while we wait months to get to that target? The answer is to start taking square root increments of our building block. The square root of the square root of 2 is 1.1892, and the square root of 1.1892 is 1.0905, and the square root of that is 1.04427. Now we can start with the smaller building blocks and like the musical scale frequency of 1.05946 we can multiply each of these smaller ratios to build up into the large one. Try it - multiply 1.04427 by itself any number of times and you will go up the scale of the square root of two. You will also discover ratio keys that are often overlooked as not being identified as typical but really are the square root of two. Now I can tell you why that 1.68179 Musical F# ratio is strong. The octave is eight and the square root of eight is 2.82843. Guess what the square root of the square root of 8 is? 1.68179! Any eight-fold division will have strong harmonics of

8, 2.82843, 1.68179, 1.29683, 1.13878, 1.06714…etc. Besides eight, nine is the basis of the square root of 3 starting this series: 9, 3, 1.732, 1.316, 1.1472, 1.071…etc. W.D. Gann loved the number 7 and perhaps this series tells why: 7, 2.6457, 1.6265, 1.2753, 1.1293, 1.0627 …etc. Those second and third square roots of 7 being 1.626 and 1.275 are very close to the Fibonacci ratios we use of 1.618 and its square root of 1.272. The key is to start with a high or low and try and find the ratio numerology. If a big top occurs 316 days from an S&P price of 1000 it could be the ratio 1.316 which falls under the square root of three, so the next 1.732 ratio (732 days) would be very important. You can take the ratios down as low as you like by taking consecutive square roots and seeing if price increments of days between highs and lows work to these ratios. Now these are universal ratios I've mentioned many times like the square roots of 2, 3, and 5, but if you like to get very specific you would start with the fundamental square root of the specific price, which in the end is the best way to go. Lets take the all time S&P high of 1552.87 and call it 1553. The square root of that is 39.408. I had great success just using a grid of 39.41 days and points for the two years from 2000 to 2002, watching for square outs when a multiple of 39.41 in days tied in with a close of 1553 minus a multiple of 39.41 price units. But to demonstrate the power of roots we will go further. The square root series is 1553, 39.408, 6.278, 2.505, 1.583, 1.258, 1.122, 1.059, and 1.0291. We now get our calendar day turns by dividing the price 1553 by these ratios like this: 1553 / 39.40 =39.40, 1553 / 6.2775 =247.39, 1553 / 2.505 =619.96, 1553 / 1.583 =982.91, 1553 / 1.258 =1234, 1553 / 1.1217 = 1384.50, 1553 / 1.059 =1466, and 1553 / 1.0291 =1509. These are calendar days from the date of the high March 24, 2000. These dates are 5/2/00, 11/26/00, 12/04/01, 12/02/02, 8/10/03, 1/07/04, 3/29/04, and 5/11/04. These are all very significant hits as shown on the chart below.

(1,122.14, 1,126.28, 1,122.14, 1,124.39, +2.2500)

Start 3/24/00

Calendar Day Counts
From 3/24/00 Price of 1553
And its Square Roots
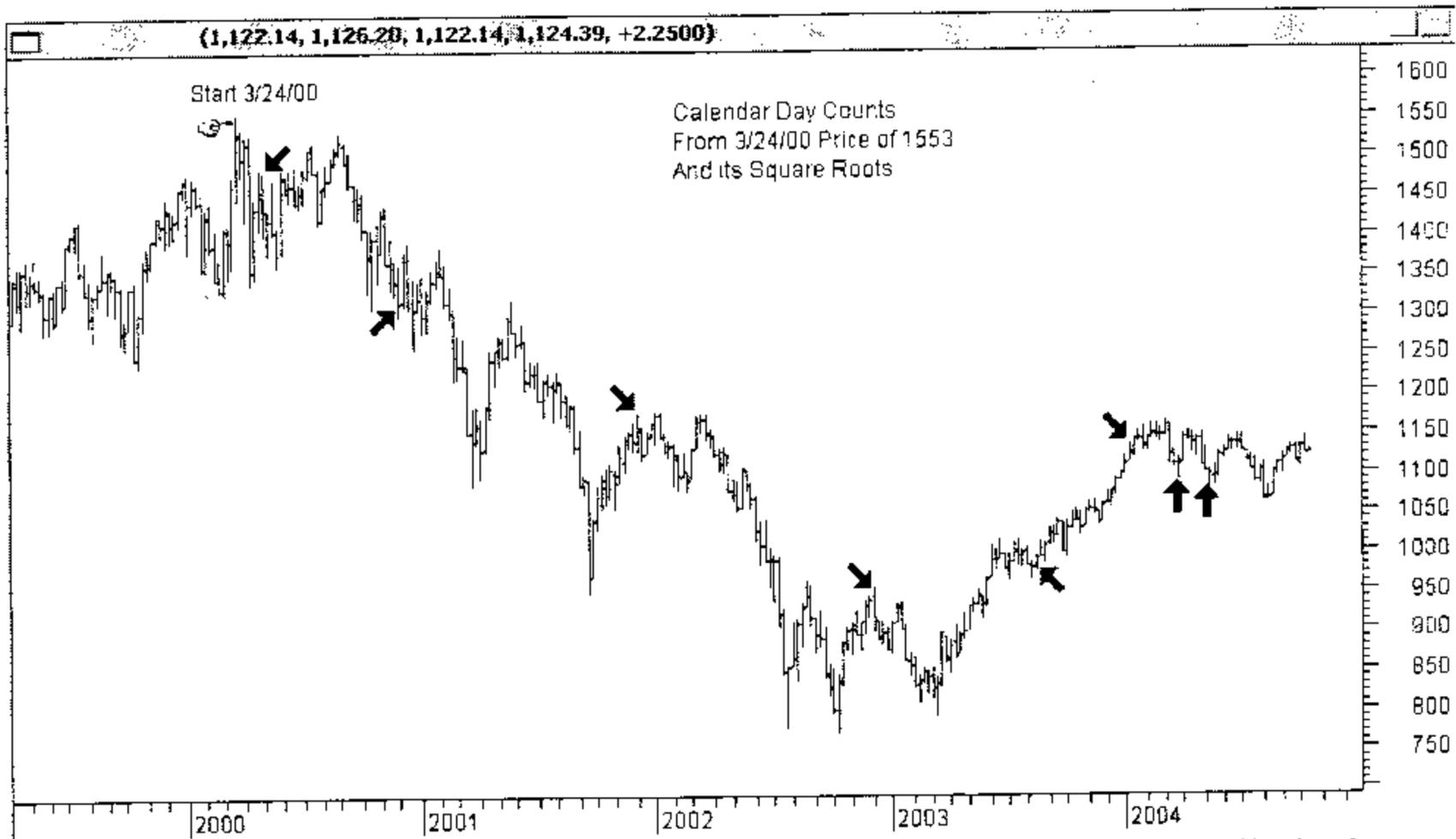
This is a weekly chart so the turns don't look so dramatic- they really look better on the dailies, but I couldn't get a complete four-year daily cycle on one page. Note how the cycles get smaller as we get to the very small ratios as the top's influence wanes. Always remember that we are looking for *both* a time and a price ratio on a given date to see a big turn. If you don't get that joint time and price ratio, the turn will just be a typical two to three day counter move within the ongoing long-term trend.

Chapter 11

LET THE MARKET TELL YOU

We have seen throughout this book that time and price are often interchangeable and patterns always incorporate time cycles and number schemes that can both tell the past and the future of the chart. You can go to elaborate lengths to try and figure out the number sequence the market is following but many times the chart itself will give you all the calculated results with little work on your part. Since we saw how an initial vector impulse wave can generate future highs and lows and how square root increments give most of the price targets, we should then be able to project lines off of highs and lows and get future chart points. The key is the idea that points in space are *sensitive* to time and price numbers, and angles from chart numbers project into space other places of extreme resistance. Some examples will make this clear.

Sensitized Points In Time & Price
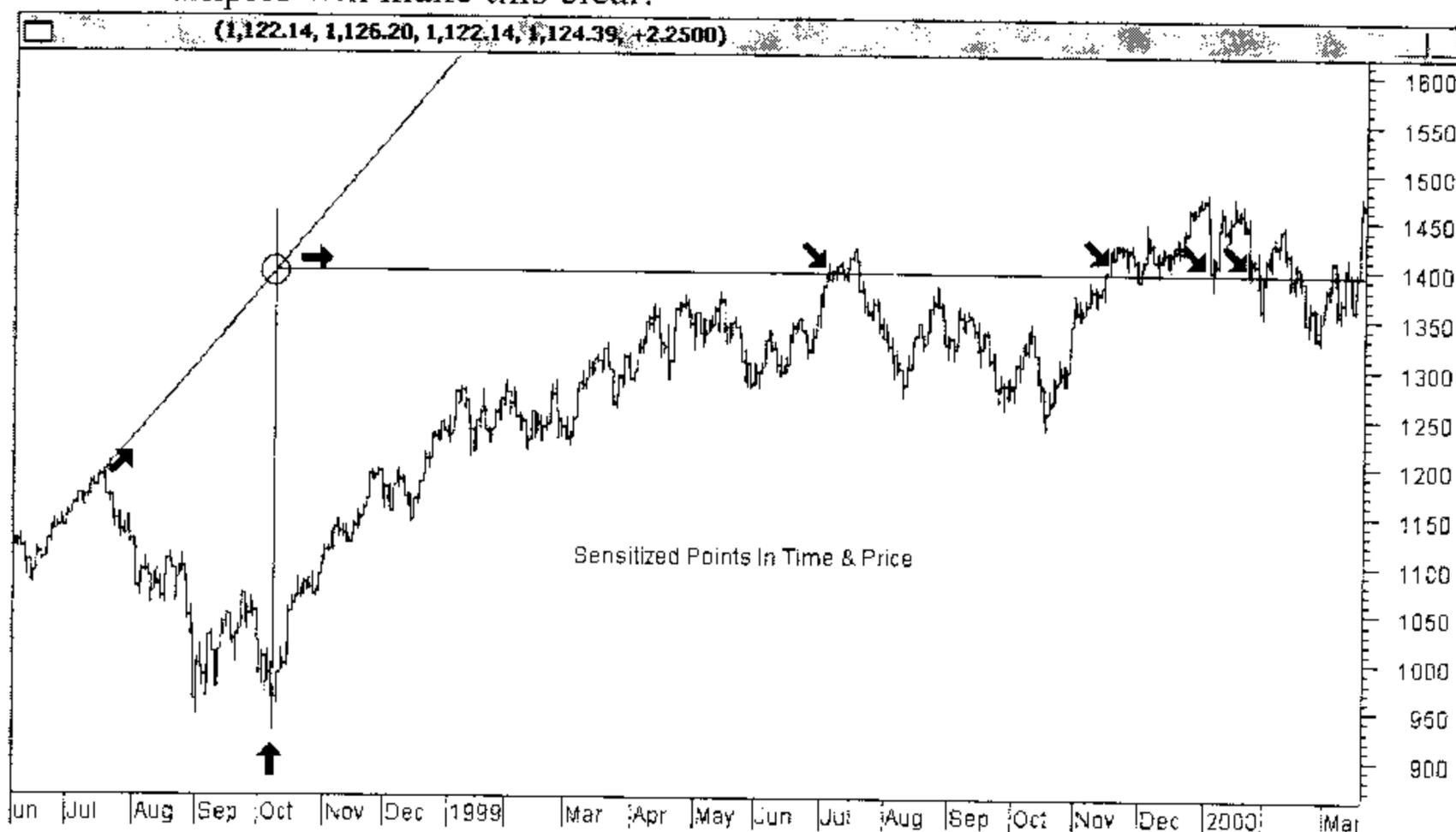
This chart shows how a 45 degree angle climbing up from a prior top hits the vertical line over the next low creating a level point in space that will be major future resistance. Not shown on this chart, but please note yourself, is the fact that the vertical distance from the low to the circled high, when laid sideways to the right at the circled high, pinpoints the top. Sometimes the length of the vector from the prior top up to the circled area can likewise be laid sideways to get that point.

The principle is that the vectors leading to the sensitized space points are harmonic.

Here's the same technique for finding a low. In this case it's the 1987 crash and even with that tremendous momentum the lines worked perfectly. Note the two prior bottoms giving rise to a dual level trading range bottom.

'Tree Points'

(1,122.14, 1,126.20, 1,145.77, 1,121.84, -0.3000)
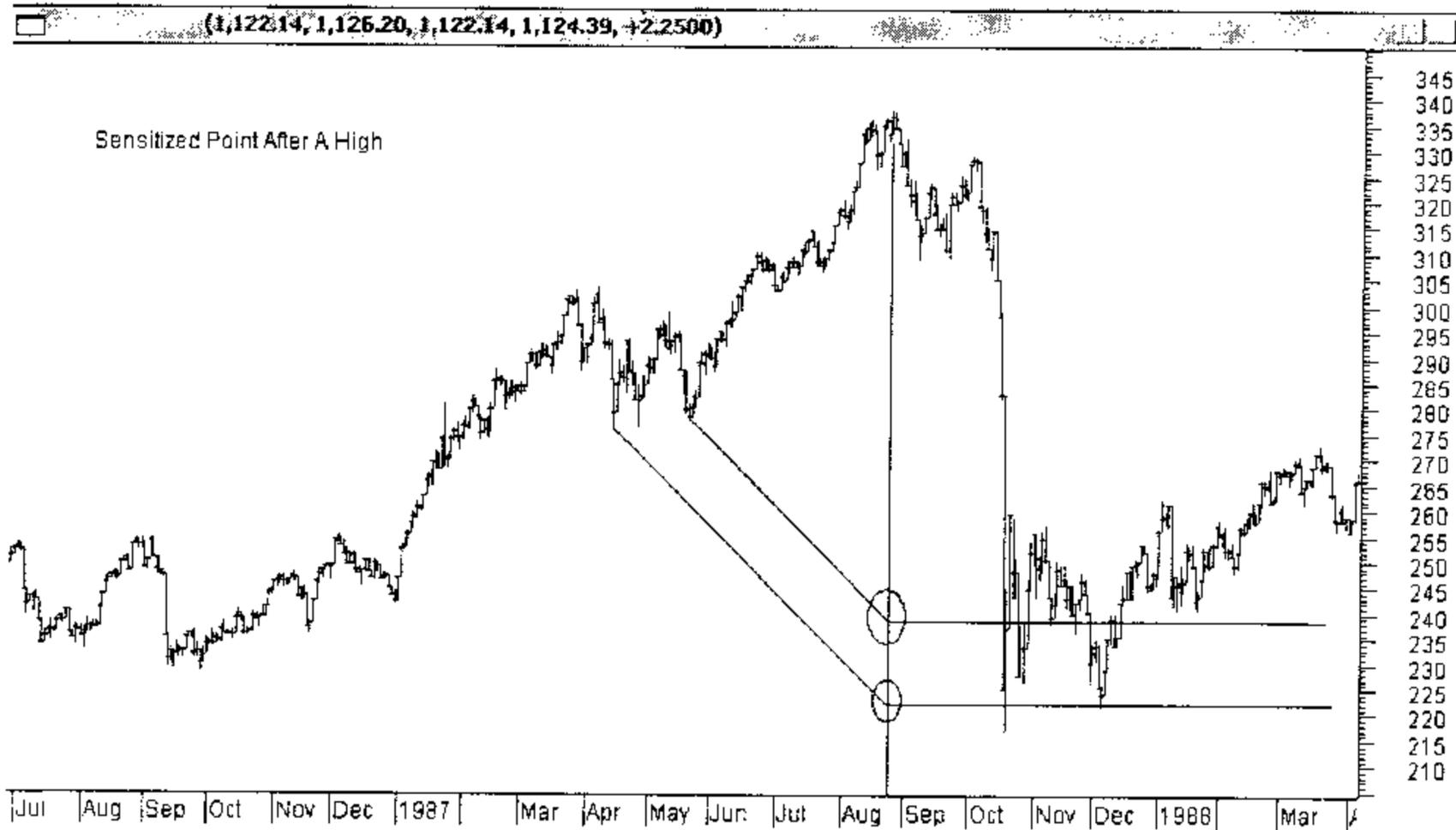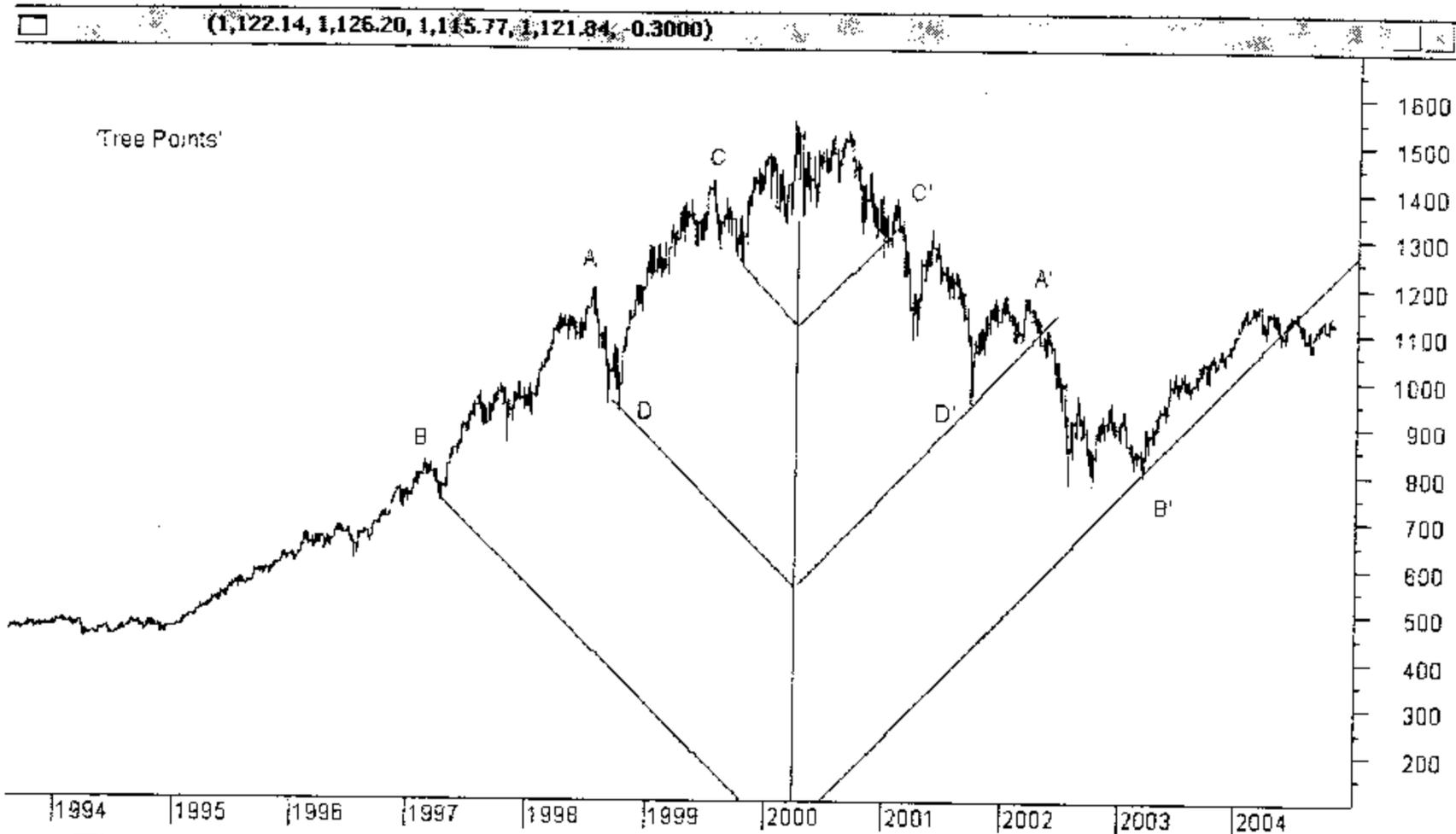
The 'Tree' structure above not only shows potential sensitized points horizontally but is a useful tool to find potential 'mirror image foldback' points that I have talked so much about in my prior books. Here we see the patterns on the left half generating the same vector moves on the right half and allowing us to get a good idea of the approximate vector length of the move coming up. Foldbacks don't foldback forever, however, so at B' it looks like we are folding back up towards the high between C and C'. That doesn't mean back to those highs in price but the pattern could give another year of rallying attempt before folding back down the left side in a long bear market for a decade.

These trendline and sensitive point projections will only give potential target areas and the key is to use several differing angles from two or more tops that will all intersect at the same approximate time and price point in the future. The chart on the next page shows the approach. Usually 30, 60 and 45-degree angles work the best.

(1,122.94, 1,124.23, 1,115.77, 1,121.84, -2.5500)

Forecasting With Angles

90 Degree Angle From 1 to 2

❷

❶

❸

30 Degree Offset from 1 to 2

Intersection is Target Zone
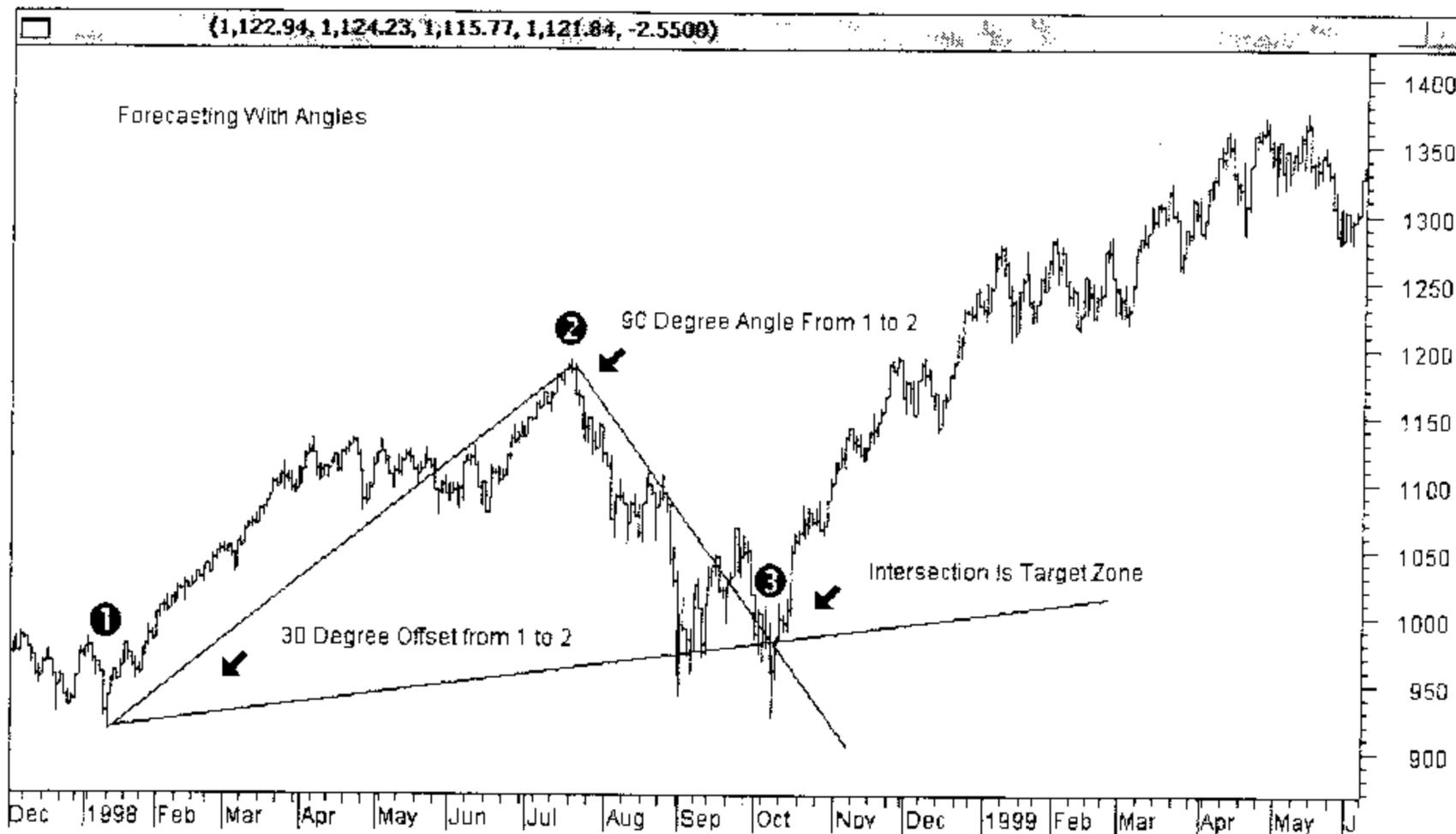
Angles can often give you the target area, but before you can rely on them you must do the calculations to see if the time and price objectives are reasonable. A great many techniques have been given in this book to do that including various shape expansions, square roots, and range squaring. This next chart shows how price ratio expansion can be used successfully to project future market legs.

In this next chart of the S&P from the March 2003 low, the first impulse wave from the low near 789 to the very first top near 895 is used to get our 'fractal' frequency. This ratio is 895 / 789 =1.1343. If you remember our musical scale frequency exercise you will see why we now can take this ratio and keep multiplying it to get future prices. Here the next two projections are 1015, and 1151.

Natural Impulse Ratio Expansion

3rd Top s/b 1151 i.e. 1.1343 x 1015

2nd Top 1015
=1.1343 x 895

1st Top 895, 895/789=1.1343

Low 789
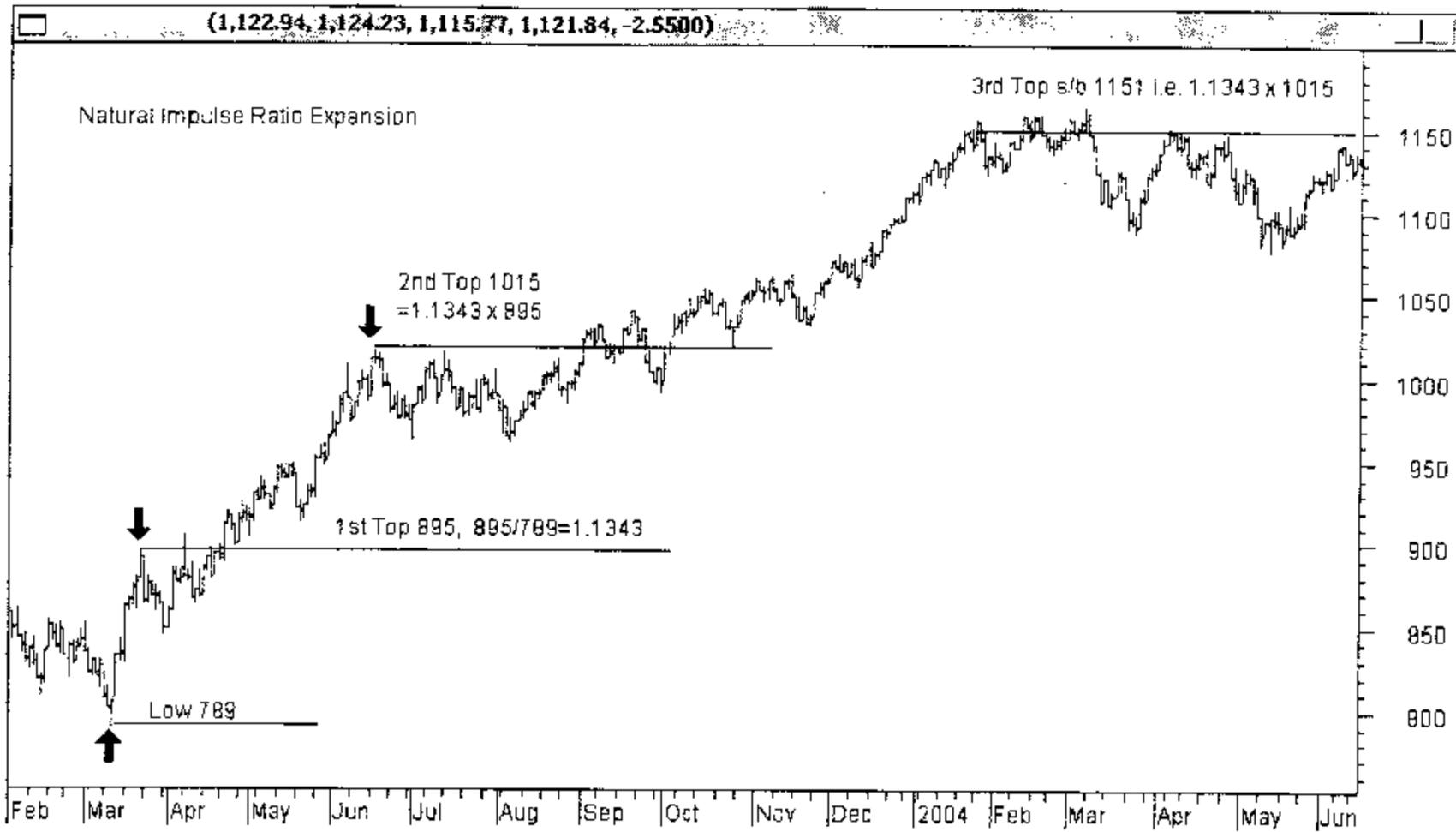
Not pointed out on the chart but should be noted is the 'deep' correction from the final top at the right hand side of the chart. This correction low was near 1080. This target is a half unit of our expansion ratio or .1343 / 2 =0.06715. Multiply 1.06715 x 1015 and you get 1083 as the midpoint. This next chart shows how the

1151   (1015 x 1.1343)

Time & Price Target

1015   (895 x 1.1343

895   1.1343   (895 / 789)

Key Pivot For Forecasted Trend Line

789
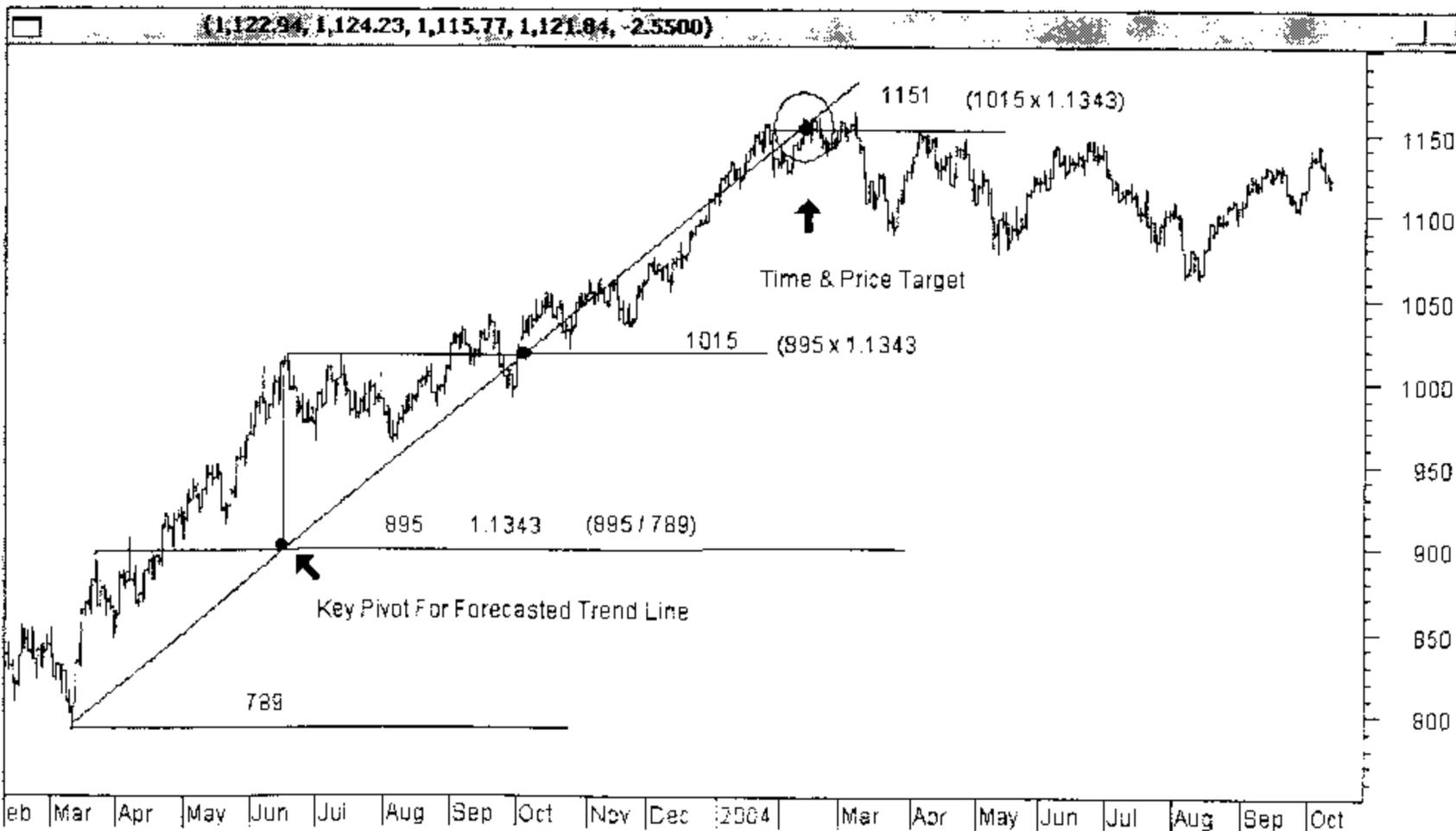
first and second tops create a sensitized point (first black dot) which is used for drawing a trend line through it, which projects the final top location. This is an important point so be sure and study it.

If we get another leg up you would try two things. The first is multiply the correction of 1083 by 1.1343=1228, or use one almost infallible principle. This is that impulse waves almost never exceed PHI cubed (1.618^3=4.236). The first impulse is 895-789=106 x 4.236=449 + 789 =1238. These two prices would create our target zone.

The next chart below shows the proper way to set up channels or parallel lines based on the chart's own corrections. After a big impulse wave up, the corrections are usually shallow and parallel channels from the final low rarely work. It's better to place them at the first top and then the first bottom (dark circles 1 and 2). After a major top is made (1) you use the 'square the range' technique and use the baseline from the origin as a sort of 'zero angle' to keep squaring the ranges as you go up. That's the first dark arrow on the chart. The second arrow shows how that trendline was justified and also is near the square out of the first big top and when a change was due- either another leg up, or a reversal down (just past '2'). Of note in this chart are those numbers 1, 2, 3, which are near the highs. This is the same technique in the prior exhibit of the price ratio expansion by a factor of 1.1343 only this time it is applied to TIME. The distance in calendar days from the origin to point 1 is multiplied by 1.1343 to get point 2. The distance from the origin to point 2 in time is then expanded by 1.1343 to get point 3. Just like the three projected price tops, we now have three projected time tops.


Channel Analysis
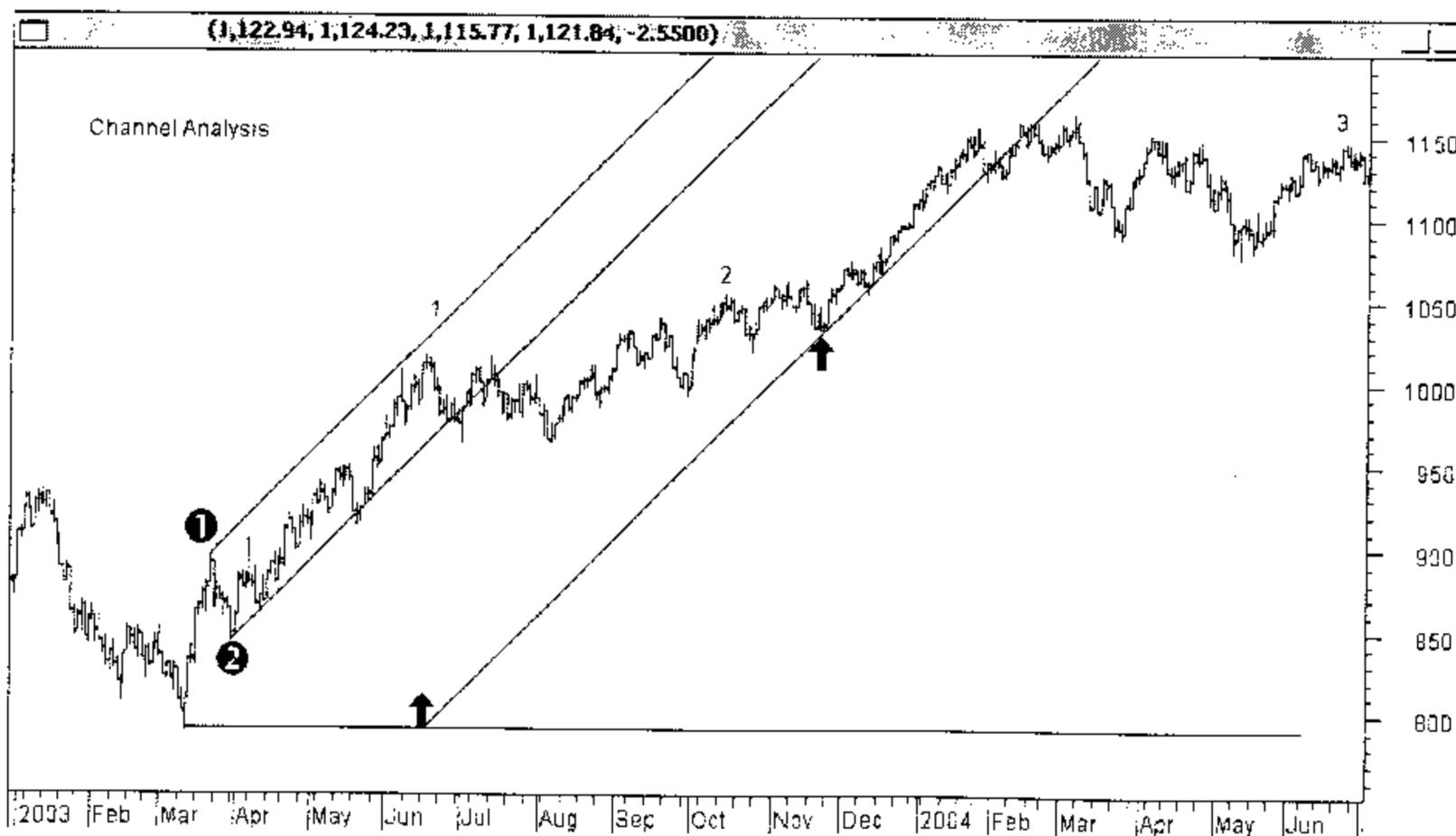
One additional observation is to be made on this chart. When using parallel channels it implies that when the price hits a parallel channel it should do something similar to the last time it hit that line. If you note the dark circled 1 at the very first top, and measure along that trendline to the first top at 1, you will find that vector length is the same as the 2nd dark arrow to the final high, also indicating that the sideways action from 1 to 2 is being repeated from that final high to point 3.

The angles above are 45-degree angles drawn automatically by the software and this brings about an opportunity to discuss the most confusing topic in all of technical analysis - scaling. All technicians know that you need to balance time and price and a one to one correspondence is ideal. The problem comes about when you try to graph the Dow Jones which could move 100 points in one hour and your one point to one time grid chart needs to be eight feet tall! Using fixed plastic triangles of 45 degrees doesn't fix the problem nor do the usual translations of one point per day or hour, or week. These work for forecasts but since 99% of traders use computer software there is still a problem setting all the scales. In reality a 'distorted' chart is actually quite accurate over long time horizons since the distortion is uniformly distorted. What I mean by that is that if you draw an angle on a distorted time and price chart, the angle will be uniformly distorted and can still be used as a timing angle. The simple solution is to note the fact that a true 45 degree angle is the diagonal of a square. If you need to use a distorted chart, you first need to construct a distorted square. For instance, suppose you want to square a top of $50 with 50 calendar days. You would just go over the 50 days from the top and make that, the top right hand corner of a square, but in this case it will invariably be a rectangle, since it is distorted. You then make diagonals from zero under the $50 price going up (and down from the high) to the right to your 50-day point. You will now have a rectangle with a 'scissor' inside it. Bisecting this rectangle will give you your distorted 1 x 1, 1 x 2, 1 x 4 angles and various ¼, ½, or ¾ points. Using these appropriately distorted points will allow you to trade off that chart pattern. This next chart of Intel shows this method. The top was $25.50 and rather than use a very small 25-day square I expanded it to a 25.50 week square. Note how all these 'distorted' trendlines worked fine and the breakpoints in the rectangle were good support and resistance.

(20.3200, 20.5200, 20.2200, 20.2800, -0.3300)

Start $25.50 x 7= weeks=@179 days

Day 179

Parallel Angle

2 x 1 From Bisected Square

Diagonal 1x1
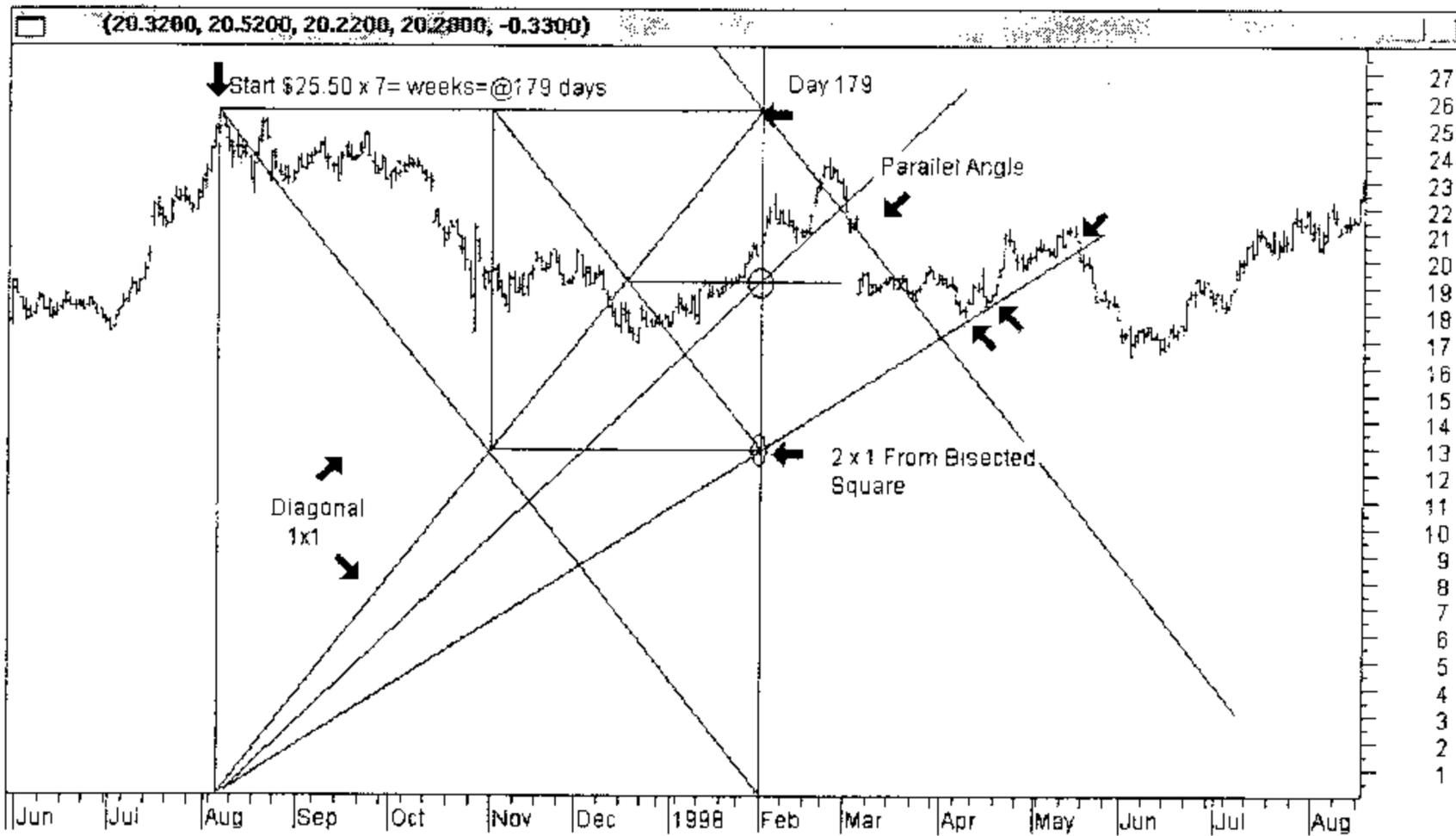
If you don't like to use distorted charts you merely have to make your 'square' square. This next chart shows a low on IBM and you start by dropping a vertical line down to 'zero' and also draw a horizontal at that low. Coming up from the zero point you now draw a true 45-degree angle that will intersect the low base line creating the corner of an exact square. Most charting software packages have a 'cycle lines' feature where you can set equal distances and here I have just done that with the origin point as a start and the upper right hand corner of the square as the width of the cycle.

(86.7700, 87.2000, 85.5800, 86.0000, -0.7100)

Fixed Cycle Lines

Origin Low

Zero Angle

Point That Defines A Square
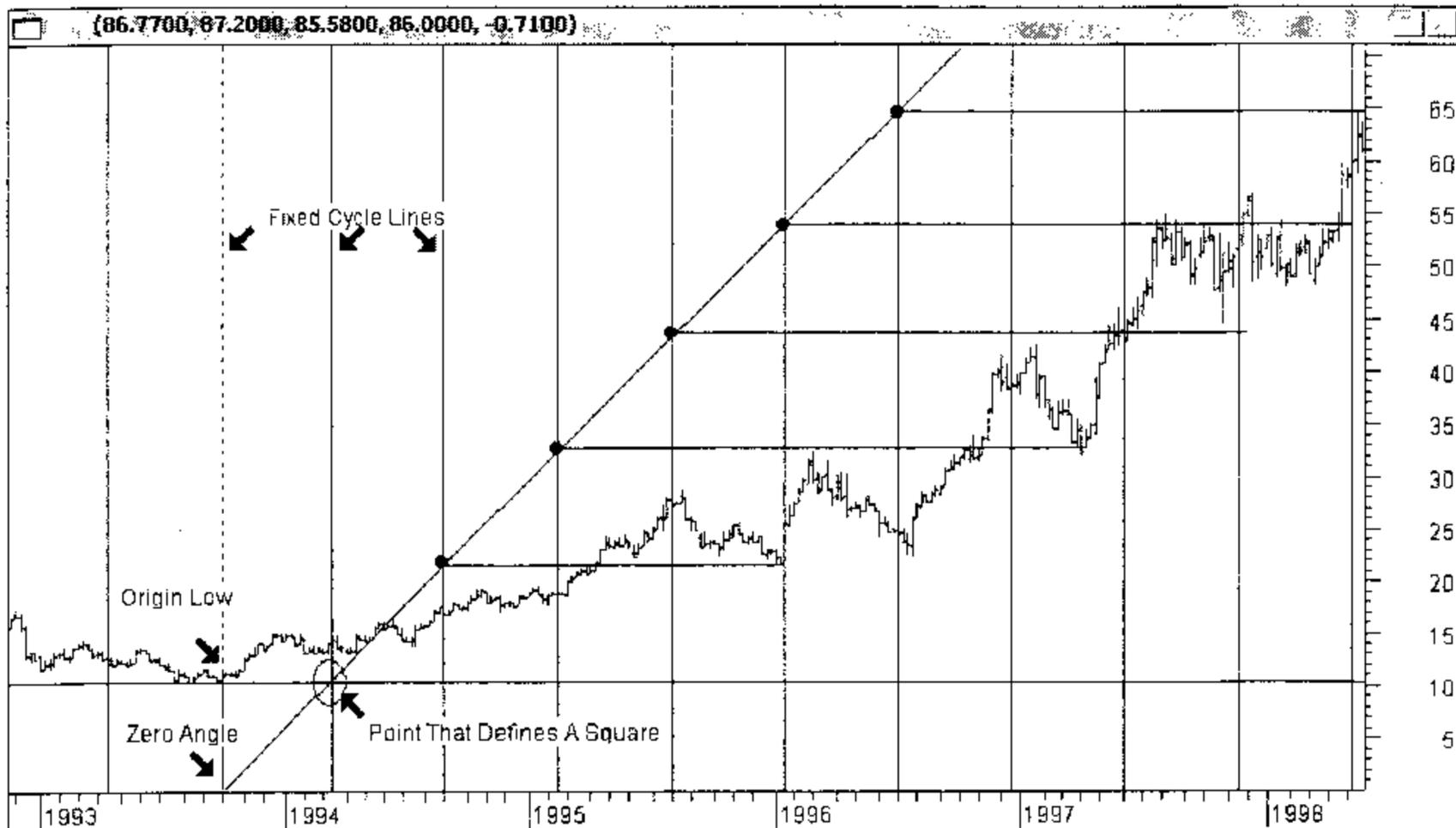
The visible 'squares' confirm that we have created time and price units as equal. Note how cyclic turns were very close to all the vertical lines, and the horizontal lines gave rise to support and resistance areas. If you want to set your computer scale you can now count how many points are in each box and how many days wide and set that for the X and Y axis.

You may have noticed that throughout this book I have never referred to using moving averages or oscillators, or overbought/oversold indicators. These are standard technical indicators, which are mostly useless. The underlying principles of time and price analysis are made a mockery of if averaged into some kind of moving average. Time and price are exact and precise. Occasionally, however, if you want to do a very quick examination of lots of data as a very basic filter to choose issues to which you will do detailed work, then averages can sometimes be used. When using averages, however, always remember what it is they are describing. The attempt is to make them indicate trends but in reality they are indicators of cycles. Highs and lows at rhythmic intervals like 50 days or 200 days are in reality cycles that are repeating in the data. We can use this idea to our benefit in trying to find our ideal 'vector length'. Very early in this book I said that the very first thing we do with a chart is examine the extremes over long periods of time to get a feel for our 'measured moves'. Moving averages can do this, especially an envelope type analysis. Based on the assumption that a stock can only do in the future what it has done in the past, we can note the extremes of variance from a moving average and predict that when that extreme is seen again it

will reverse the market. This next chart shows a 50-day moving average and an extreme price point above the average was used to make a set of 'cloned' duplicates of the exact length. I then put the duplicates on the chart and you can see how the past and future extremes MEASURED from the MOVING AVERAGE can lead to reversal forecasts. Since time and price are interchangeable, I also turned these bars sideways to get an equivalent time extreme and you can see how those measured highs to highs and lows to lows, proves the point. One bar at the extreme right was too short, but when greater extremes are found they are always a multiple of the fundamental unit. Here the run over was either 1.5 or 2 fundamental units.
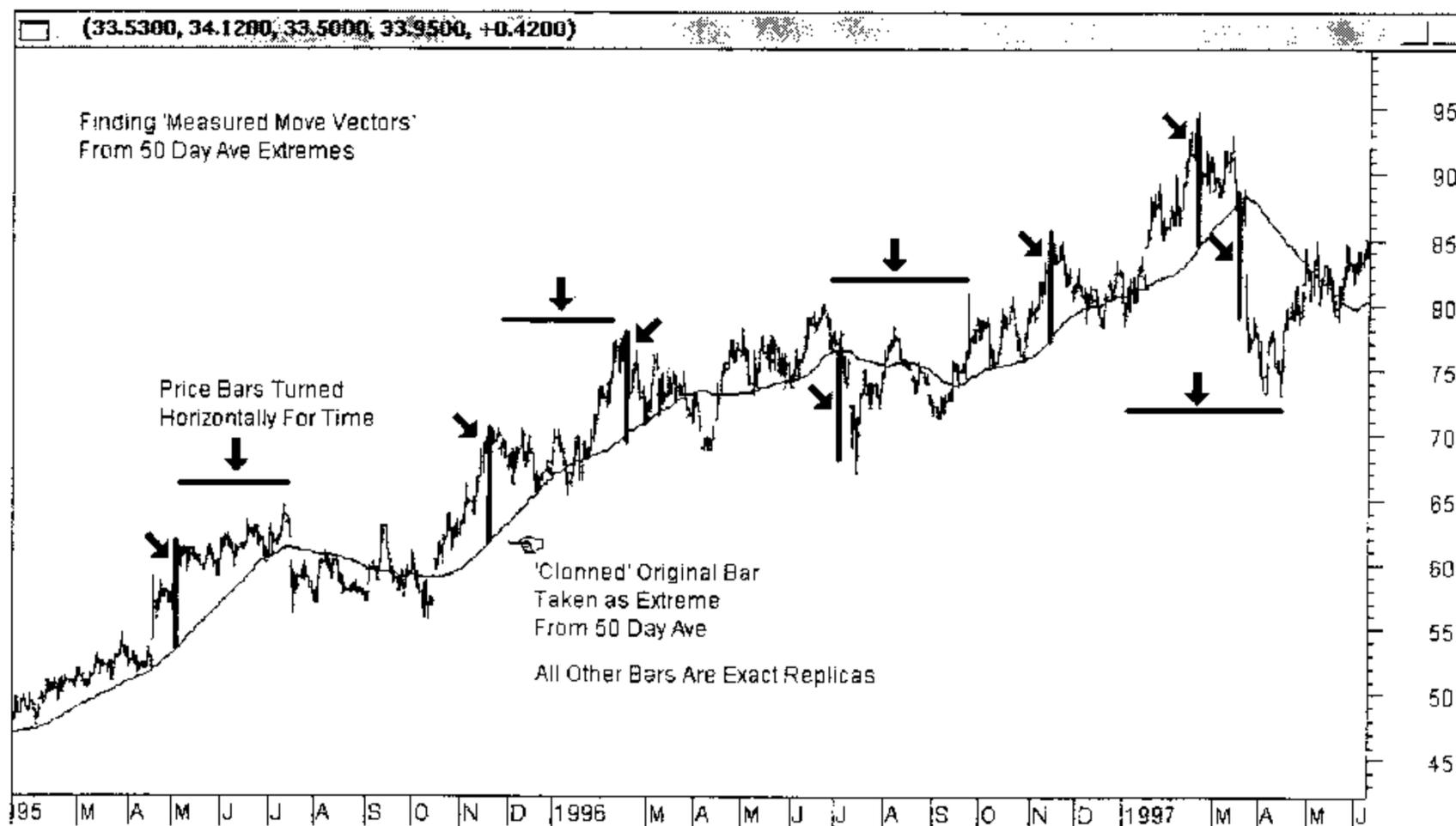
Sometimes I get comments from traders that if you trade on this average measured move, and it runs over, you lose money. This kind of comment shows lack of insight into trading practice. We don't necessarily buy into a downtrend, but rather forecast the probable magnitude of the downtrend and cover shorts, or at the predicted low, *wait for a buy signal* reversal. 99% of all money from trading is made in the middle of a trend and catching the extreme high or low tick is a losing proposition. The tools in this book will forecast with very high probability where to expect reversals, but a good trader *will wait* for the actual reversal and then go with the new trend. You often don't have to wait long, because a reversal on a 5-minute chart will lead to a reversal on a 15-minute chart and then an hourly and finally a daily. The 'higher bottoms' up trend pattern on a 5 minute or 15 minute

chart can be quite reliable to use as an entry when you see these big measured moves on the dailies.

In this book I have not mentioned time cycles as much as my other works which cover the subject extensively, but obviously you can't be too good a forecaster if you don't take into account the time factor. Although any particular stock or commodity can generate cycles based on its specific price, most 'natural' cycles are based on standard time keeping methods like hours, days, week, or months. The basic starting point is the universal fixed definition of time cycles as a 360-degree rotation back to a beginning point. The 180-degree point is usually as far from the origin you go, and the 90-degree quadrants are also very important. If we use calendar time the 360-degree hourly chart has 15 days of 24 hours. This 15-calendar day harmonic reinforces the Monthly count being one half of the 30 day month. The month is further reinforced with the Moon's orbit of approximately 29.5 days. You will find that most big turns in the market come when a number of cycles that have common harmonics come together.

Historical precedence has shown that longer term cycles often fall at 10 year intervals and most forecasters use composite patterns of 5, 10, 20, 50, 60, and 100 years. Others like 1 and 4 years also work along with 7 year, 15 and 90 years, but the most common are the decennial patterns. The search for a "Master" goes on but many have used the 60-year and the 100 as good starting points, along with 500, 1,000, and 2,000 civilization cycles. The 60-year cycle is the common denominator of the first 7 planets the days of the week are named after. The ancients knew that all 7 planets returned to approximately their same locations every 60 years and so they used harmonics of 15, 20, and 30 years with this master cycle (1/4, 1/3 & ½). A simple composite cycle of these lengths can give a good approximation of the outlook for the coming year. 100 years is also very good and if you recall my $1/24^{th}$ rule of 15 degree harmonics, we note that $1/24^{th}$ of 100 is 4.166 years accounting for that cycle and perhaps part of the Presidential Election year strength. That $1/24^{th}$ or 4.1667 years is 1522 calendar days and of course that 1522 number was very close to the all time S&P high at 1553 and the September lower top at 1530. Remember time and price are interchangeable quantities so the time cycle of 1530 can also be a literal price. There are cycles within cycles so we always want to start big and work our way down. The $1/24^{th}$ of 100 years is 1522 days and the $1/24^{th}$ of that is 63.42 days. If you run a list of 63.42 days from 3/24/00 you will see how closely these sub harmonics came out. We can take the same approach with our 60-year cycle and get $1/24^{th}$ as 2.5 years and $1/24^{th}$ of that as 38 calendar days.

The real secret to forecasting a trend, however, is to be able to convert a time cycle and a price target into the same number. We saw that earlier when I

S&P 500 CASH [INDX] - 1 Week Bar Chart

Low 10/08/98=923
923-360=563
563-360=203
Each Vertical Line is 203
Solar Degrees
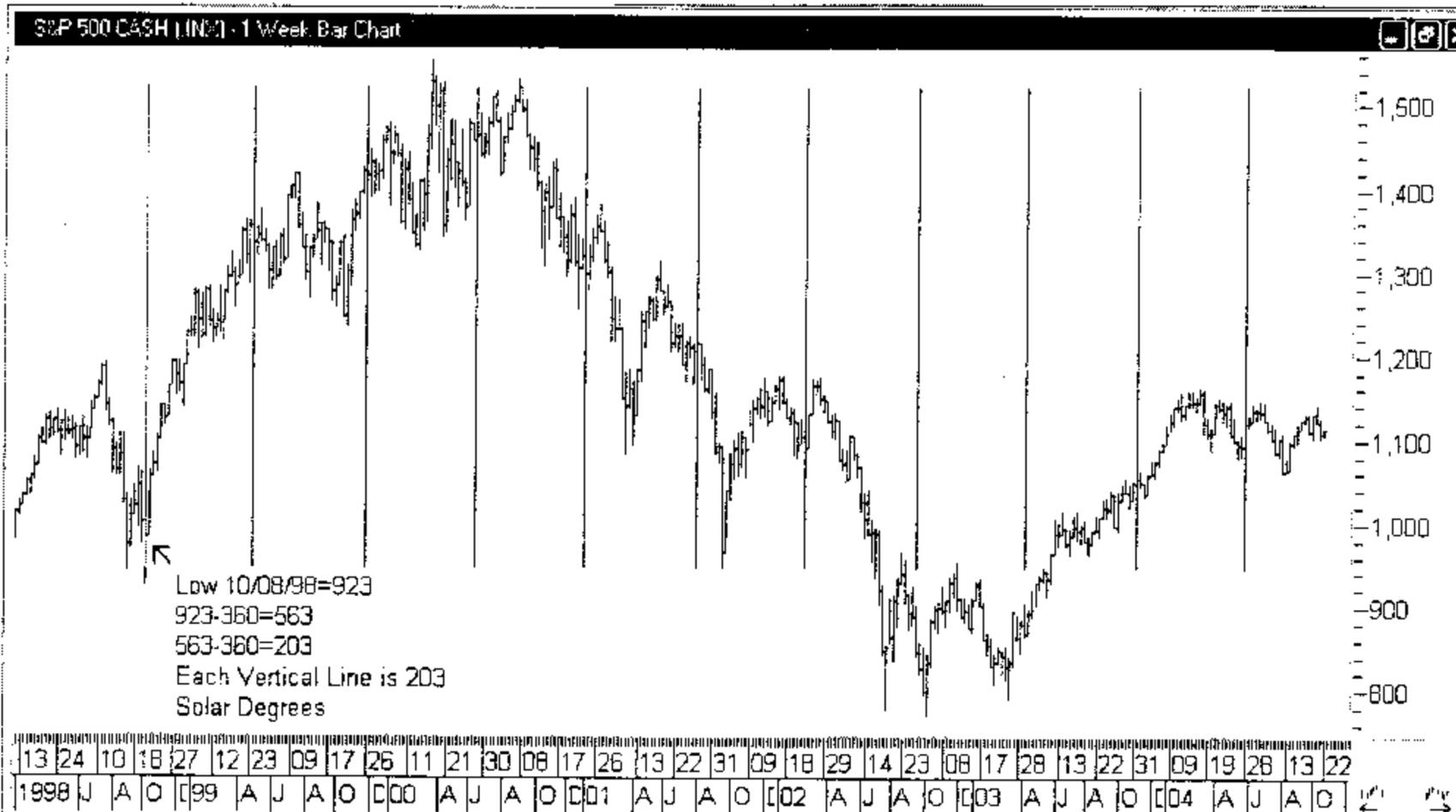
demonstrated how the square root of the square root of a price on a stock made a time cycle that often forced the stock to sell at that price on that cycle date. Getting these time price translations is difficult but once they are found they work for years. The Gann Square of Nine is one method of translating time into compatible numbers. Other number 'wheels' can be used and the basic approach is to divide the number into a 360-degree base. If a stock tops out at $58 you could do this: 360/58=6.21, and 6.21 would be a price increment translation. Earlier we took the 770 low in 1982 and subtracted multiples of 360 from it to get 50 as a working number. Here's another example (above). The 10/08/98 low of 923 when subtracted by multiples of 360 leaves 203 left over as a working number. This 203 number can be used in a number of ways but the first is to try time in calendar days. The above chart shows those vertical lines as 203 Solar Degree multiples from that origin date. This is a weekly chart so the details can't be seen as easily as on a daily chart but if you pay close attention you will see big weekly turns very close to these fundamental harmonics spun out from that '98 panic low. Please note the *third* line over near the all time high in 2000. If we take 3 x 203=609, and add that to our low we get 923 + 609=1532 the high number, for a time and price match up using the 203 'leftover' working number. Note too, how 4 cycles over from the top, subtracted from the top got you to the bottom number on the date indicated.

Conversions to 360 degrees are the typical way to find time and price equalities, but in my experience I have come to the conclusion that there are *TWO*

different methods of measuring time. The first measure is the 360-degree unit but the second is the unit of 100. Almost all of our measuring systems are based on a 1 or 100 unit and percentages are always expressed in 100%. Because of this I have started the habit of ALWAYS starting time analysis with $1/10^{th}$ units, since these are the easiest to do and results will be seen immediately if that unit is valid. Most Market Indexes can be shown to exhibit cycles of 10% of their highs and low prices. Look at this next example of the S&P 500 with day cycles of $1/10^{th}$ the all time high of 1553 or 155.3 day cycles. In this chart I used Solar Degrees but calendar days won't be substantially off. If you had just waited for these dates you could have had quite a few great trades! Also note the midpoints of 5%.

As a routine practice I set up a 'tickler file' each January and just run out these $1/10^{th}$ cycles from the prior year or two, tops and bottoms. If you do this you will be quite satisfied.

When we start any analysis of a stock or commodity we are looking for obvious time cycles and price harmonics that may affect the issue. The previously mentioned method of dividing any price by a fundamental $1/24^{th}$ works, but more basic is 1/8ths and as just mentioned, $1/10^{th}$. On my website (www.StockCyclesForecast.com) I have a 'free' program that will calculate to the minute most daily turns in the market. This simple program has made a lot of money for me and most people won't take the time to look within the day to see it work, not believing just how precise the markets movements are. It is based on the principle that the trading in the U.S. goes from 9:30 AM to 4:00 PM, some 6.5

hours or 390 minutes. This being a basic 'day' it can be divided into eighths and tenths. One tenth is 39 minutes and one eighth is 48.75 minutes. These cycles of 39 and 48.75 minutes will appear regularly throughout the day and account for many well known observed phenomena. For example, each day the market either tops just after 10 AM or has a major low at 10:20 AM most of the time. Well, 39 minutes from the 9:30 AM start is 10:09, and 48.75 minutes into the day is approximately 10:19 AM. If you refine the process by starting these counts from the first major swing high or low of the day in the first hour, and then start the count, you will get very reliable cyclic turns throughout the day usually to the minute! It's a fact. Prove it to yourself. Another corollary of this process is that there is a common denominator to the numbers 39 and 48.75. 4 x 48.75=195, and 5 x 39=195. This means that both cycles come together from the start of the day about 195 minutes later, or about 12:45 PM. If the first big low was 10:20 AM then the common period would be approximately 1:35 PM. This accounts for why we often get a mid day reversal near 1:00 PM each day.

This same division of time can be used on monthly, and yearly cycles to good effect, but let's not forget that the real fundamental frequency is the square root of a number. This basic time increment can always be used for days, weeks, months, and certainly for precise work with minutes and hours (take any square root of the S&P, and count minutes and hours!). The next chart on the following page shows a one square root monthly cycle from a high and a low. This is the most basic building block of time. Monthly cycles are very important and often overlooked since traders want to focus on trades everyday and monthly cycles by definition come infrequently. When they do, however, they are usually big turns and often the final high or low is made at that time. By the way if you look near that 'gap' up near the 1st of July on this chart – that's where 6.76 *weeks* came out. Note the similarity of the weekly and monthly fractals.
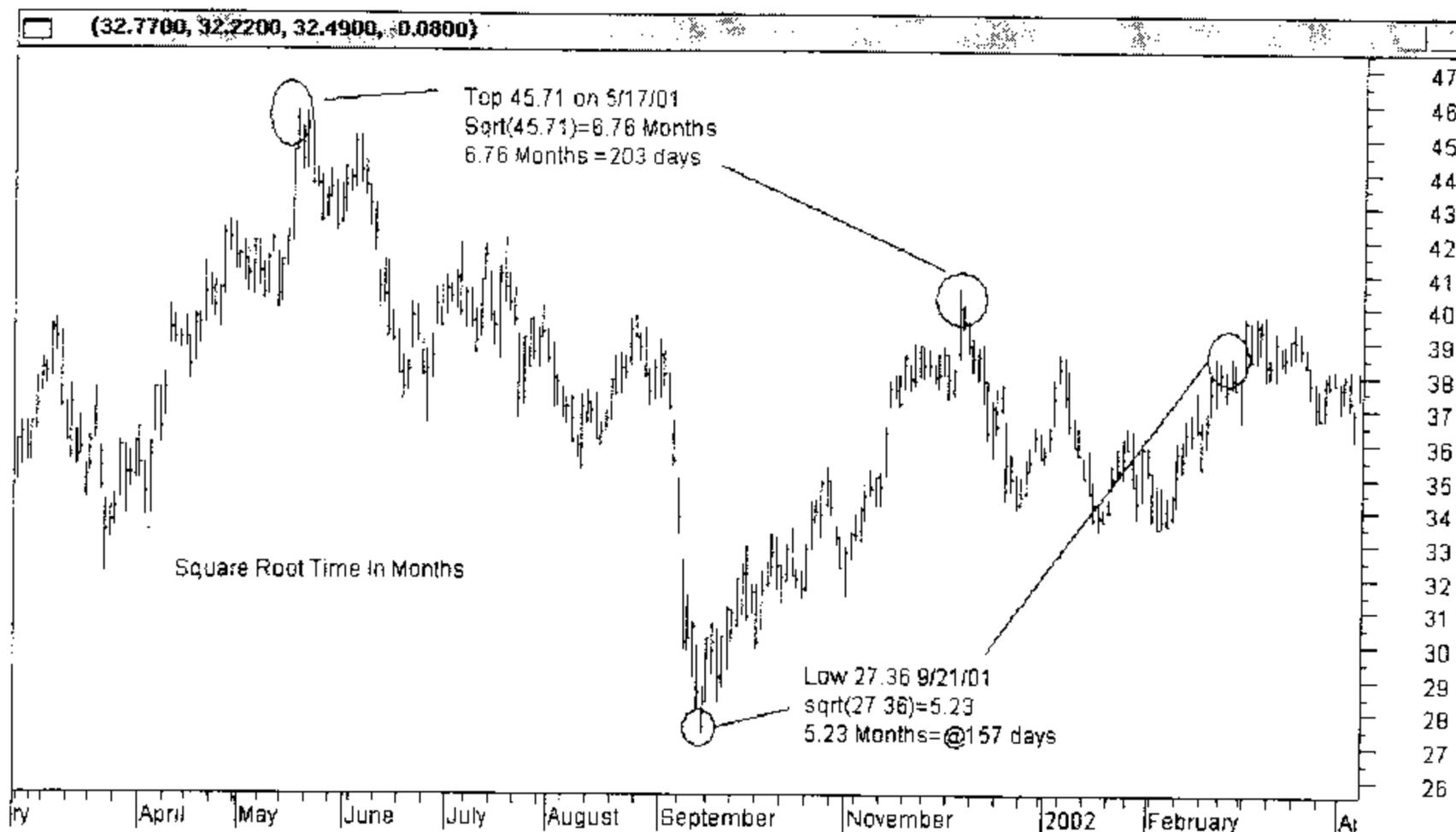
The chart above is a simple monthly square root increment, but Gann Square of Nine techniques work just fine with monthly data. Remember that once around the wheel is the square root of a number plus 2, re-squared. This next chart below, shows the Dow Jones 1932 low incremented by the square root plus 2, giving the next major bottom almost to the day and to the dollar!

Monthly Square Outs

7/08/32 low @41
(Sqrt(41)+2)^2=70.61 Months.

5/27/38=70.61
Months from 7/08/32
Close was 111
41+70.61=111.61

| 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 |
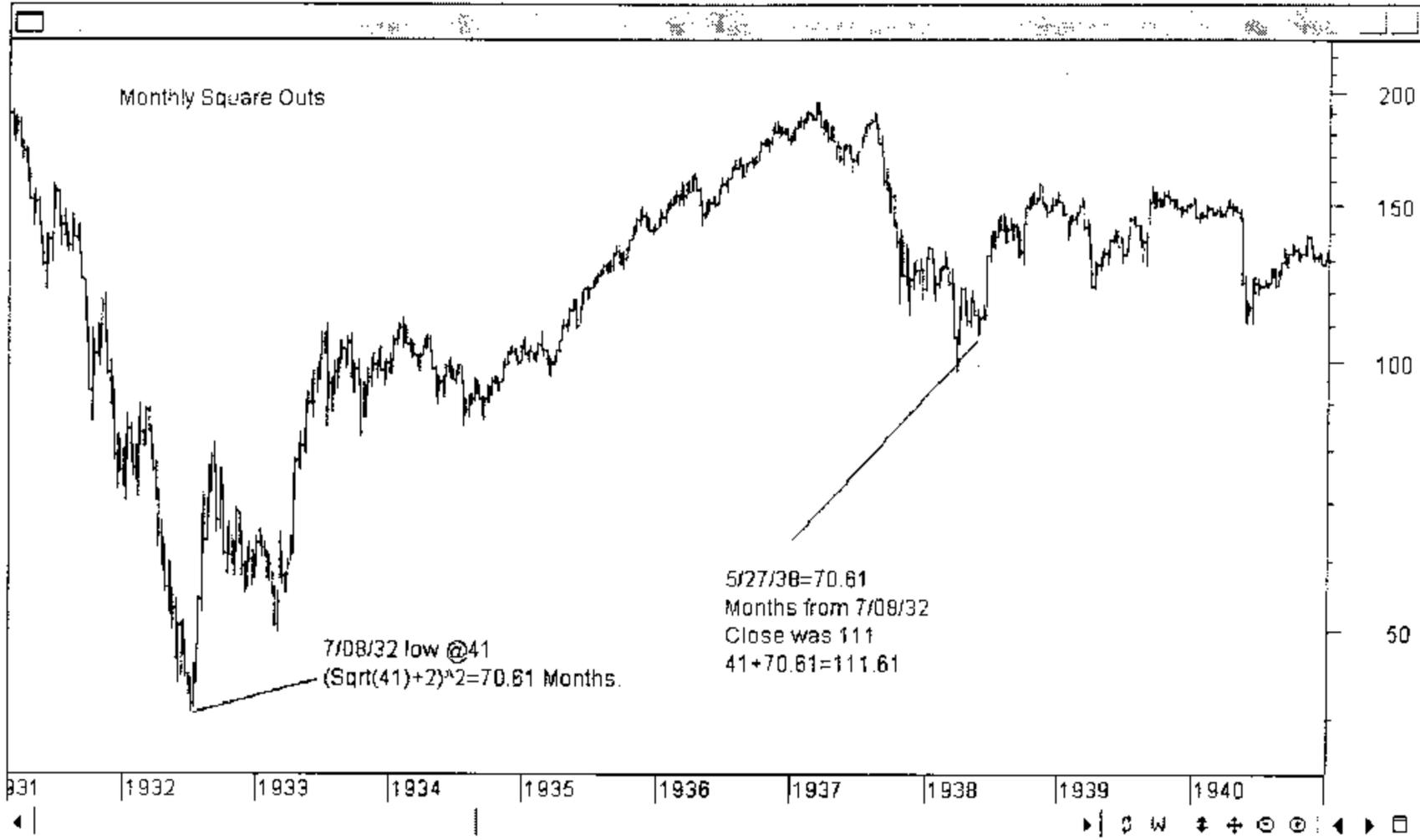
Chapter 12

WORKING EXAMPLES

In this chapter I will jump around a bit and try and show various techniques discussed in the book in an effort to analyze chart patterns frequently seen.

Our basic approach is to identify an impulse wave and convert it to a number or universal vector like a circle. In this first chart which is an intra-day 15-minute one so you can see how precise the turns are, we have an initial impulse vector and I drew an arc around it. I then drew an arc twice the size, and then four times the size, each by just moving the compass point to the top of the prior arc and drawing up from the starting point.
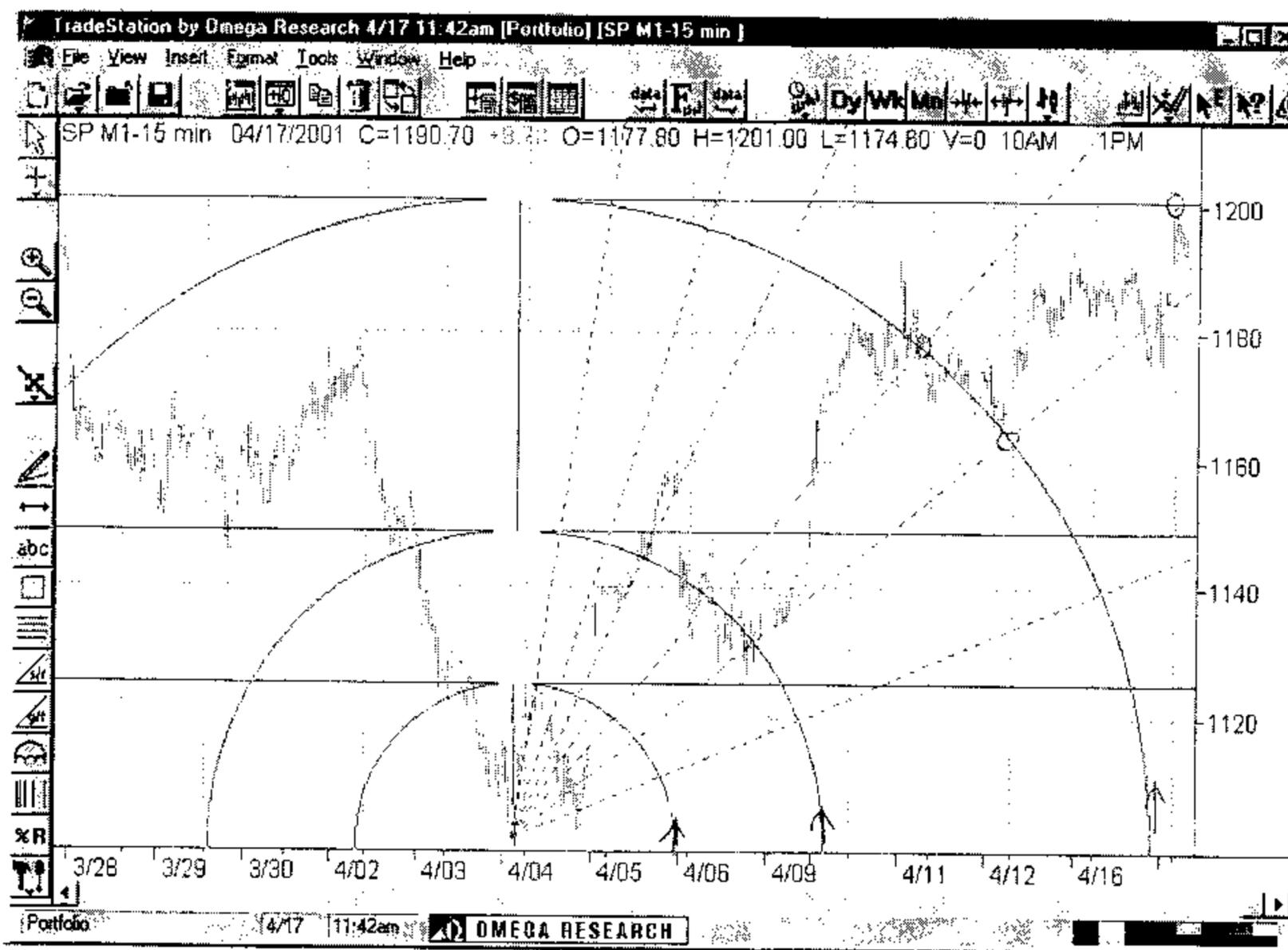
Note that when the arcs go down to the vertical, a low or high price is established. The horizontal levels from the arc tops become support and resistance and the fan angles intersecting the arcs create cyclic turning points. Note how the

top most arc and its horizontal resistance line caught the high tick at the exact moment that the arc was going maximum vertical down. Charts like this can be expanded indefinitely. I have used daily ones like this with all the arcs working and expanding for periods of two to three years with accuracy to an hour. Also remember to use ratio scale expansions especially the square root of two numbers i.e. 2, 1.4142, 1.1892, 1.0905, 1.04427, 1.02189...etc. These are applied to the initial impulse vector and then you make your boxes or arcs.

There is always a debate as to whether one should use trading days or calendar days in this work. Calendar days seem more normal since a natural system that might be governed by biological clocks or planetary energies or even weather, would naturally respond better to calendar days and the longer weekend movements of time. This is not the case, however, and once again I must confess to believing that there are *TWO* distinct processes as work - natural, and pure numbers. I have proven to myself innumerable times that specific number counts on both calendar day charts and trading day charts do indeed both come out to the precise minute. A philosopher might infer that God made the universe mathematically and set out 360-day cycles (the Earths orbit) but mechanical slippage has made the system off slightly. Likewise cycles expand and contract in the stock market but on the key turning point days the precise logarithms of numbers decades ago always come out to the day. Hourly charts are another example that can't be explained except through pure numerology. With 6.5 hour trading days and an hourly chart not showing time after hours or on weekends, how is it possible for the market to turn precisely to the hour 1,000 or 5,000 trading hours after an event? The facts are they do and we must take account of it to be successful and leave the causation theory to others.

My other books put great emphasis on drawing charts by hand to keep track of these time periods but with modern computer spreadsheets it's not too hard to computerize it. The difficulty arises when we get unexpected early closings or '9/11' type trading suspensions. Nevertheless a simple approach is to make a text 'dump' of your data into a spreadsheet and work from that. This way you can just circle with a pencil or highlight on the computer the dates and prices of highs and lows and start expanding your time counts and square roots into the future. The figure on the next page shows such a typical data dump for daily data and since on a spreadsheet each item has a numbered row, it is a very simple process to add and subtract row numbers to do trading day math. Finding cycles like 15, 30, 45, 60...days is easy, as is taking a square root of a high or low and adding that number to the row number to get the next row the answer will be found in. Finding the difference between highs and lows (squaring the range) is a simple process of

adding the difference to the row number to get the next date. I showed a lot of squaring the range examples in early chapters but I did not show examples of trading days. Believe me, they work just as well.

|	A	B	C	D	E	F
4606	3/20/2000	0:00:00	1467.96	1470.23	1448.43	1456.63
4607	3/21/2000	0:00:00	1456.63	1493.93	1446.04	1493.87
4608	3/22/2000	0:00:00	1495.39	1505.04	1487.4	1500.64
4609	3/23/2000	0:00:00	1501.03	1532.13	1493.76	1527.35
4610	3/24/2000	0:00:00	1527.35	1553.11	1516.85	1527.46
4611	3/27/2000	0:00:00	1528.7	1534.66	1518.62	1523.86
4612	3/28/2000	0:00:00	1521.06	1527.2	1507.2	1507.73
4613	3/29/2000	0:00:00	1509.07	1521.36	1497.32	1508.52
4614	3/30/2000	0:00:00	1508.52	1517.43	1474.63	1487.92
4615	3/31/2000			1519.77	1484.53	1498.58
4616	4/3/2000			1507.19	1486.96	1505.97
4617	4/4/2000		**4610 + 15**	1526.22	1417.22	1494.73
4618	4/5/2000		**=4625**	1506.55	1478.06	1487.37
4619	4/6/2000			1511.76	1487.37	1501.34
4620	4/7/2000	0:00:00	1503.84	1518.48	1501.34	1516.35
4621	4/10/2000	0:00:00	1516.85	1527.11	1503.02	1504.46
4622	4/11/2000	0:00:00	1499.18	1512.8	1486.84	1500.59
4623	4/12/2000	0:00:00	1500.67	1510.59	1466.15	1467.17
4624	4/13/2000	0:00:00	1471.67	1477.36	1440.34	1440.51
4625	4/14/2000	0:00:00	1436.67	1440.51	1339.4	1356.56
4626	4/17/2000	0:00:00	1356.56	1401.48	1346.68	1401.44
4627	4/18/2000	0:00:00	1402.48	1441.61	1397.61	1441.61
4628	4/19/2000	0:00:00	1442.16	1447.69	1425.26	1427.47

Note in the above spreadsheet how a simple 15 day addition to the high date row number, gave the row number of the low showing the utility of the 15 unit ($1/24^{th}$) series. It's just as easy to cycle these 15 day counts to 360, or to take $1/8^{th}$ and $1/4^{th}$ divisions of the highs and lows. Hourly chart spreadsheets work particularly well with the full square root increments and if you look at recent S&P data near the 1100- 1150 range you will see this 33-34 hour rhythm. I like to set up one minute sheets for each day based on my "Minute" program of 39 and 48.75 minutes and look for the two to three big probabilities for daily reversals during the day.

Natural chart ratio expansions are something you want to try as soon as you have any difficulty using standard methods of 360 harmonics or normal square root intervals. Sometimes a chart will just have a non-typical time cycle and it may come from a top made decades ago, or be the result of stock splits or spin offs generating oddball fractional cycles. After stock splits the numbers will usually

merge into a common denominator cycle and a normal cycle will develop, but you can get strange fractions for many months.

NEM (NEM) - 1 Day Bar Chart

'Arrows' ↘ indicate square outs
at trendline and impulse ratio prices
Note reversals at those points

"Dot" under 2nd high
at level of 1st high used
to draw trendline

Initial Impulse $24.48 to $26.99
ratio 1.1025
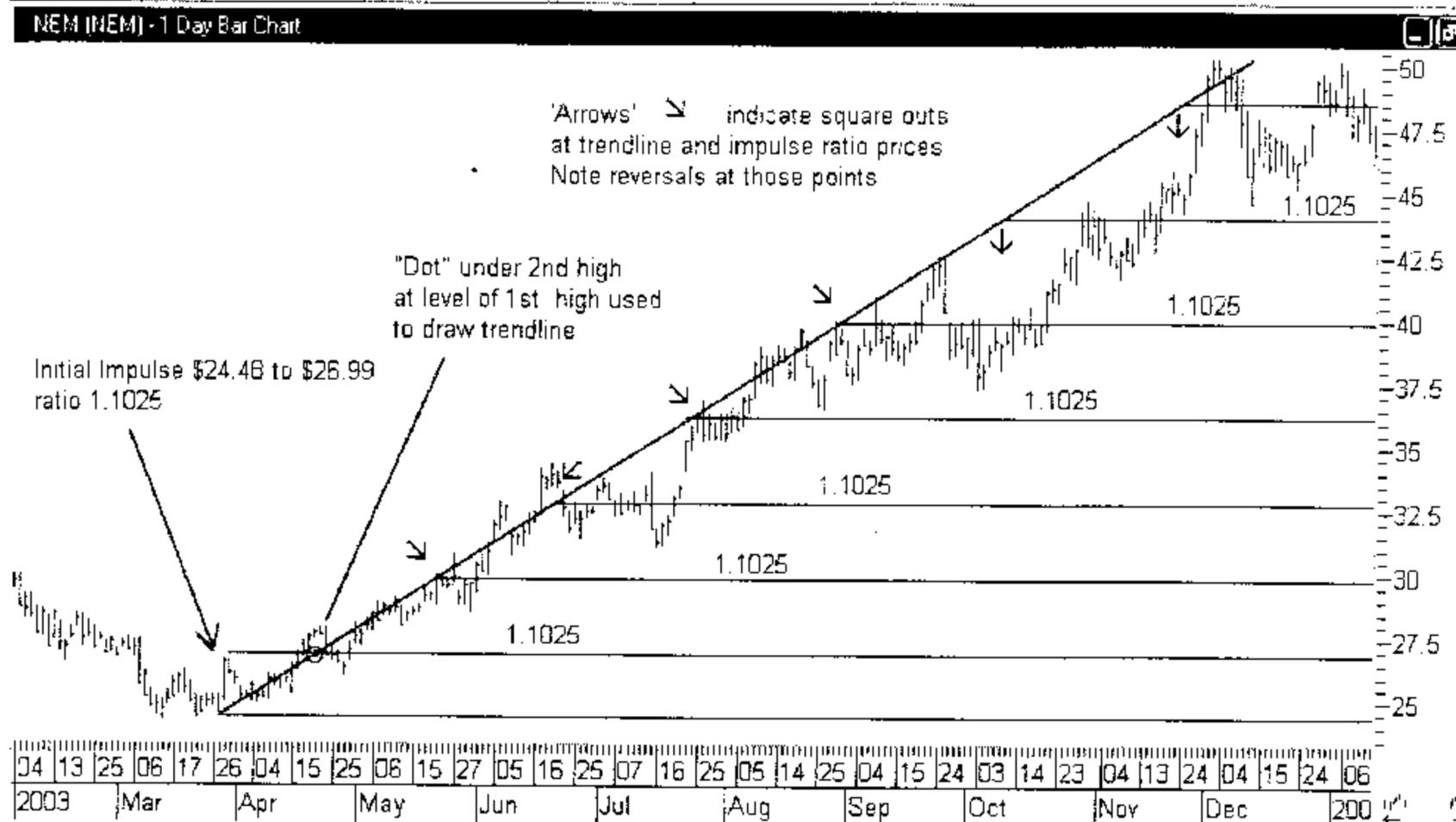
This chart of Newmont Mining is constructed solely from the one initial impulse up from the low, which resulted in a ratio of 1.1025 for that first advance. Those horizontal lines are each subsequent expansion of 1.1025 from the prior price and you can see they formed natural support and resistance barriers. The trendline is constructed by drawing a line through that 'dot' under the 2nd top at the level of the first top as explained previously. Note how that specific trendline was a 'square out' trendline when touched. Not shown on this chart as to not clutter it up too much, is the conversion to TIME CYCLES, which could be done by turning those 1.1025 ratio lines sideways, or using a zig zag timing line.

Since time and price are always interchangeable, you should always try and find timing methods that incorporate the two in some direct fashion. Angles and trendlines do that with so many points per time period and ratio trendlines often work better. Logarithms, however, keep precise time and price growth rates over long periods of time and you should get in the habit of finding logarithmic trendlines that fit your stock. Fan angles of 1, 2, or 4 units of logarithmic time and price can be used as well as using log bases incremented by fractions and then converted to get target prices. This next chart shows some log fan angles of small rates of .001, .0015, and .002 log points per day, but going up from a low and coming down from a high. Note especially what happens when these angles cross each other. The change in the price at that point confirms their efficacy.

Natural Log Fan Lines
of .001, .0015, .002
LN Points Per Day.
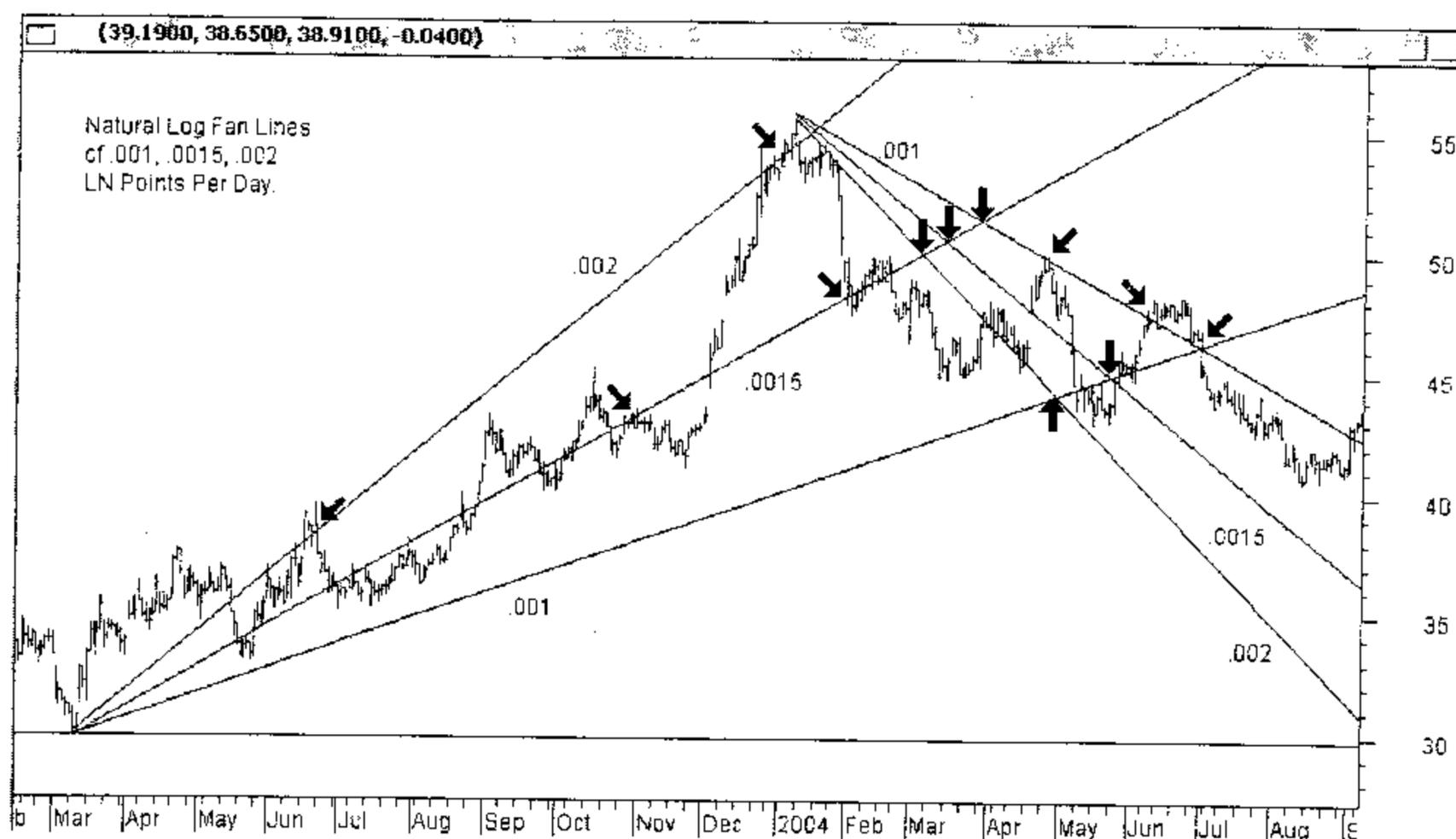
Not shown on this chart is the support and resistance numbers generated by taking a low and adding log fractions and then converting back with the anti-log function. The General Motors top at $55 was exactly equal to the log of the low plus .625. The other increments along the way such as .125, .25, .333, and .50 all were major and obvious 'stair steps' on this chart.

Logs can be used in many ways including our 'Squaring the Range' technique. This next chart is a very long-term monthly chart from 1929 through 1994. It had to be scaled semi-log just to fit on the page. Remember a semi-log chart has a price scale that shows equal price distances as equal percentages gained, so a 10 to 20 double takes the same space as a 40 to 80 double. If you take the midpoint of a swing on a log chart remember that you must take the 'geometric mean' by multiplying the top number by the bottom number and taking the square root of that. Just adding the high and low and dividing by two won't work. That geometric mean number on this chart is the black circled '2'. The interesting point of this chart is the converging trendlines at point '4'. This was effectively the end of a generational bull market and started a period of 12-13 years of bear market liquidation. The converging of the trendlines is a function of the different rates of change brought about by the starting point different prices. Two of these are 45-degree trendlines, so they are one unit of price per time period but the price period scale is semi-log so the smaller numbers have steeper angles. The bottom angle, however, is a fitted trendline to the first two lows. There are several interesting observations on this chart. First is the long term duration of the trendline from the

final low and how it defined the entire advance for nearly 40 years! The line from the midpoint caught the first major top and the intersection of all three is a variation of squaring the range of the high to low and the midpoint. The three
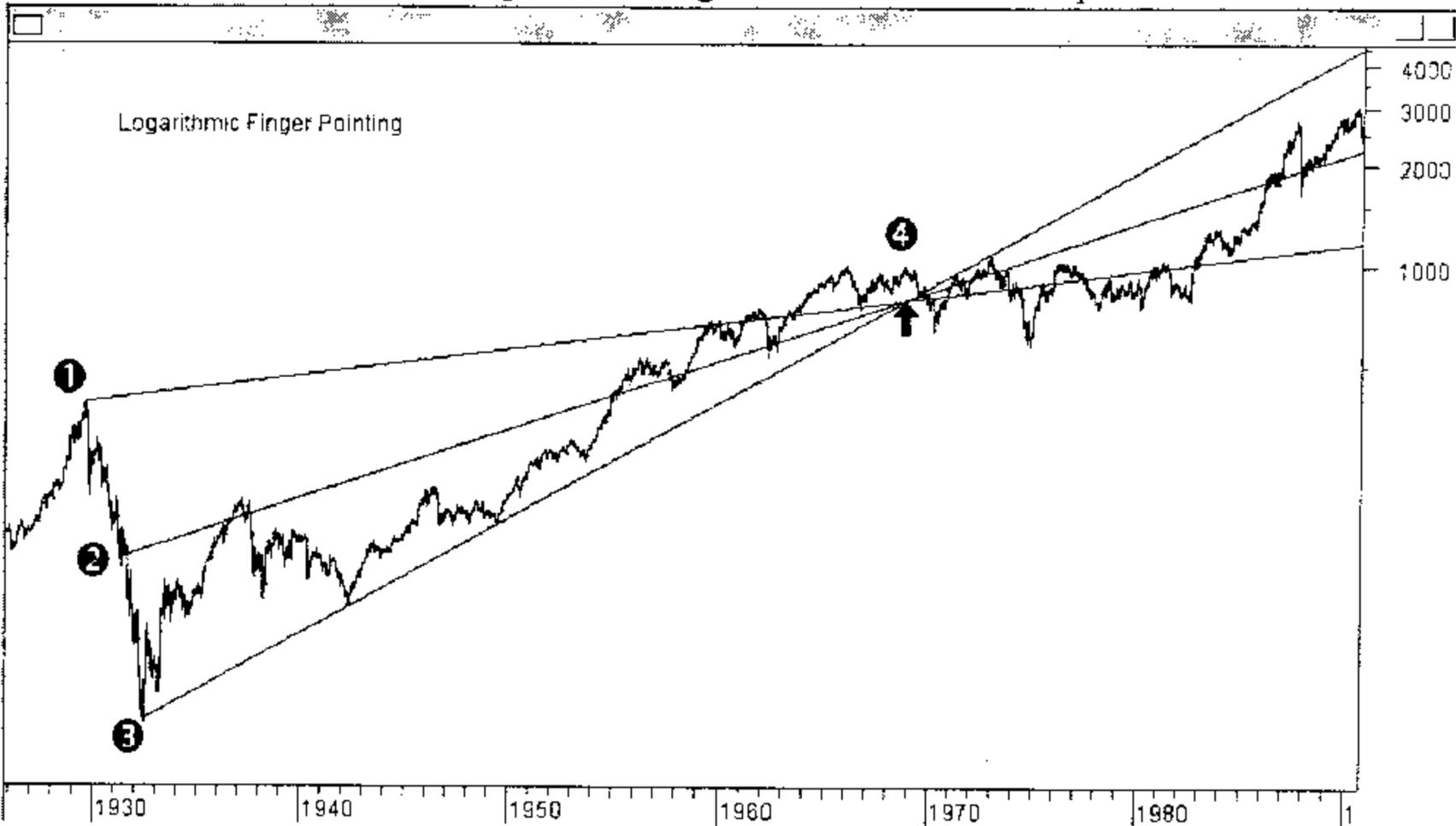
points 1, 2, 3, should always be used on any chart on any scale as their harmonics
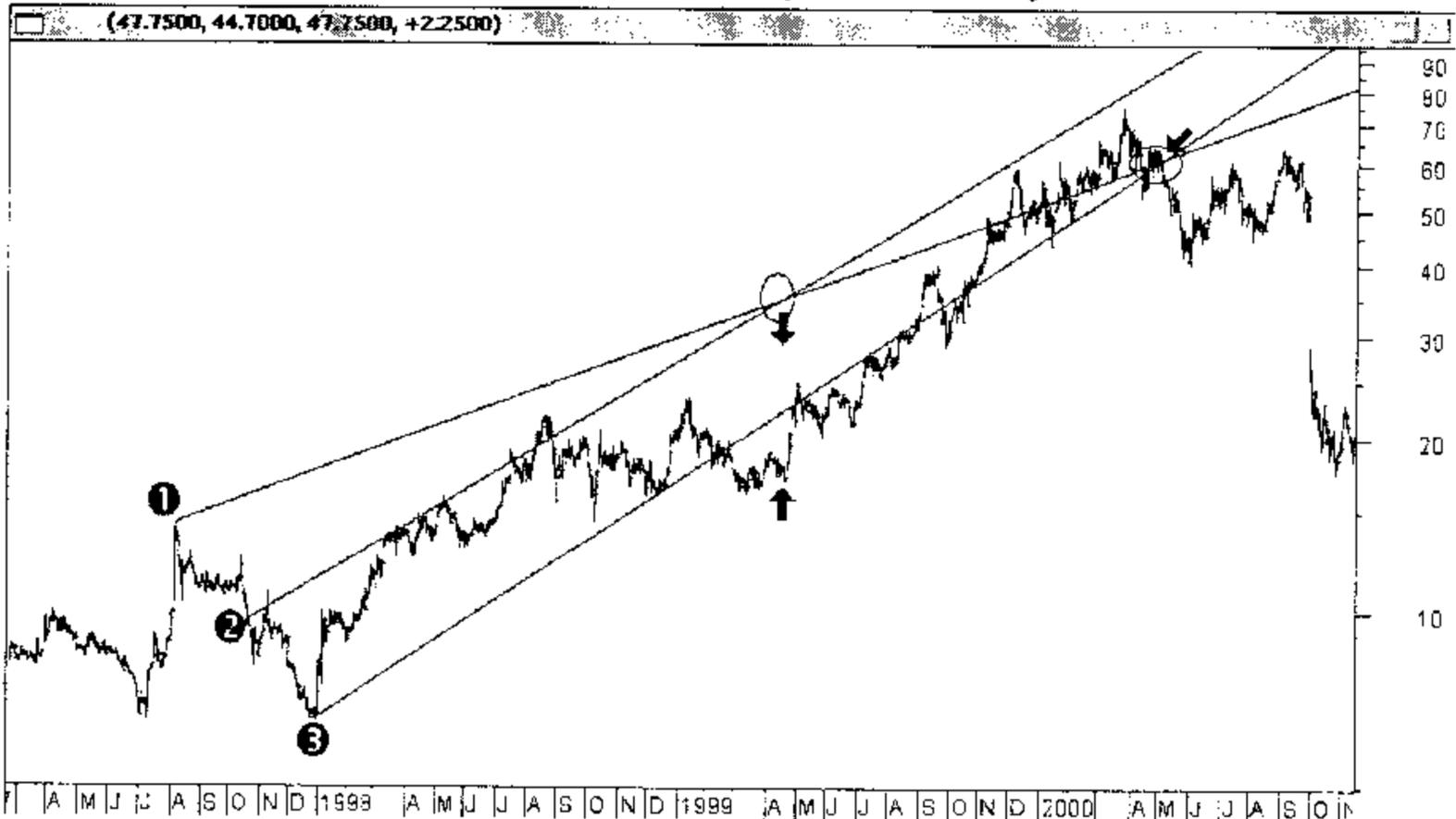
are the most important for future price movement. The second chart of Apple Computer shows the same technique but this time we got two square outs of the different ranges. Both were great trades but note how the bottom 'fitted' angle

squared the top 45-degree angle and started *a new bear market* trend. This is the goal of forecasting - finding major reversals.

Initial impulse waves starting a new bull market can also 'square out' that initial range with log 45-degree angles. This next chart shows how two 45-degree semi-log angles cross at the top for IBM and ends the bull move. These are the kinds of trades you want to take note of.


I will be the first to admit that when using these computer drawn charts you will run into scaling problems and you may not get exactly the same turns on your machine as these charts show but usually when that is the case the distorted scale problem is consistently distorted on your particular scale, so the method can still be used. If you calculate by hand these dates and use fixed day, week, and month time periods you will have success.

I'll finish the book now with a technique we started with that is a major advance in technical analysis - the Jenkins True Trend Line. Only this time I will slightly modify it and draw it on a semi-log scale. Since the line is logarithmic to begin with it changes only slightly, but what does change is the highs and lows in the chart for square out purposes. Now when you draw a horizontal line across highs and lows to intersect the JTTL you get fantastic turns! Look at this next chart - it is a beautiful sight. Think of what it would be like to always trade on the date those black arrows point to.

(81.0100, 81.1600, 80.1500, 81.1300, +0.0400)

Jenkins True Trend Line
With Semi-Log Scale

Jenkins True Trend Line
Low 10/09/02 33 75
$(Sqrt(33\ 75)+2^2)=61$

Jul | Aug | Sep | Oct | Nov | Dec | 2003 | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec

(40.0000, 40.6900, 39.4300, 40.6800, +0.4500)

Jenkins True Trend Lines
Squaring The Range
Semi-Log Scale

Sep | Oct | Nov | Dec | 2003 | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | 2004 | Feb | Mar
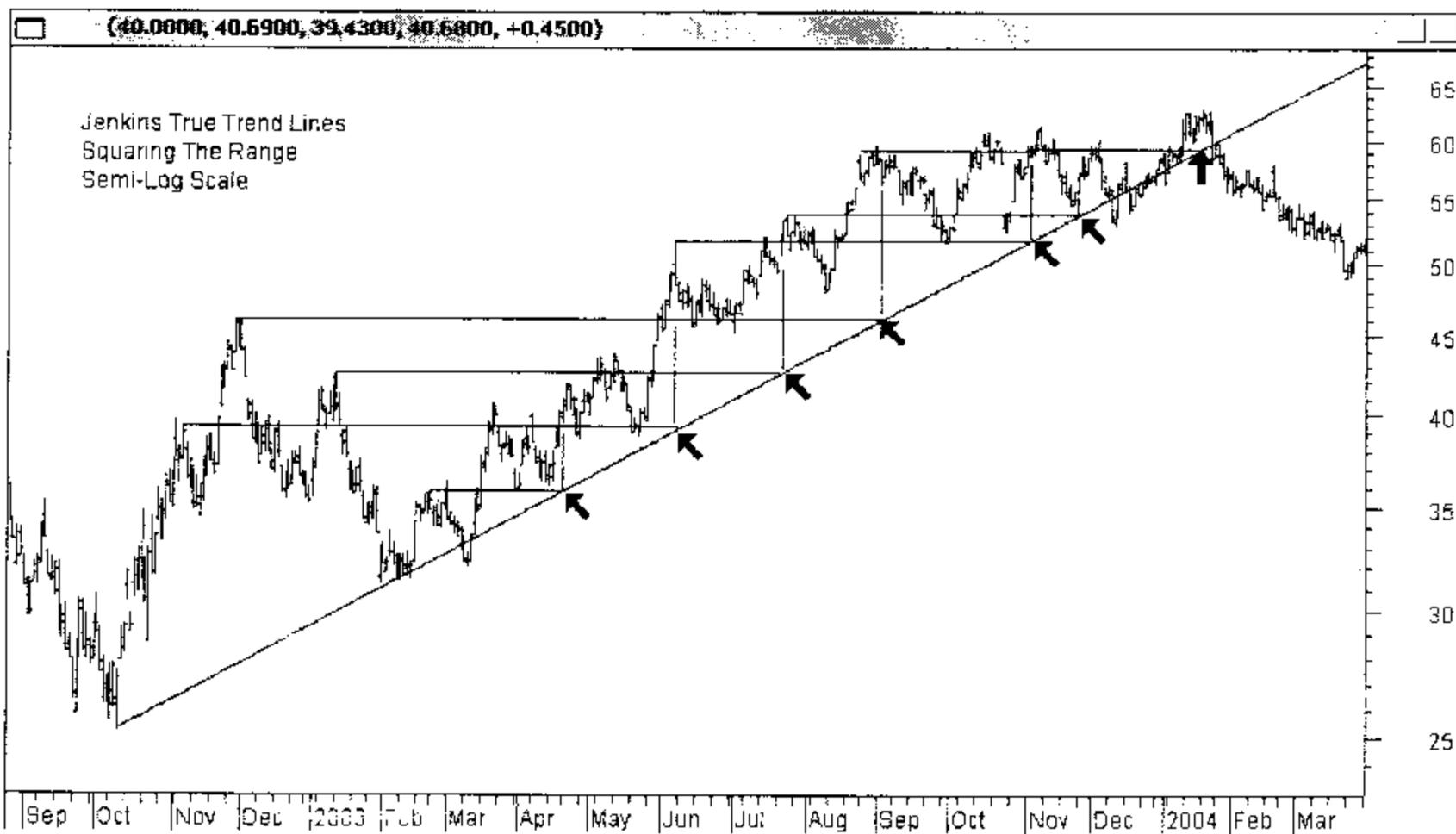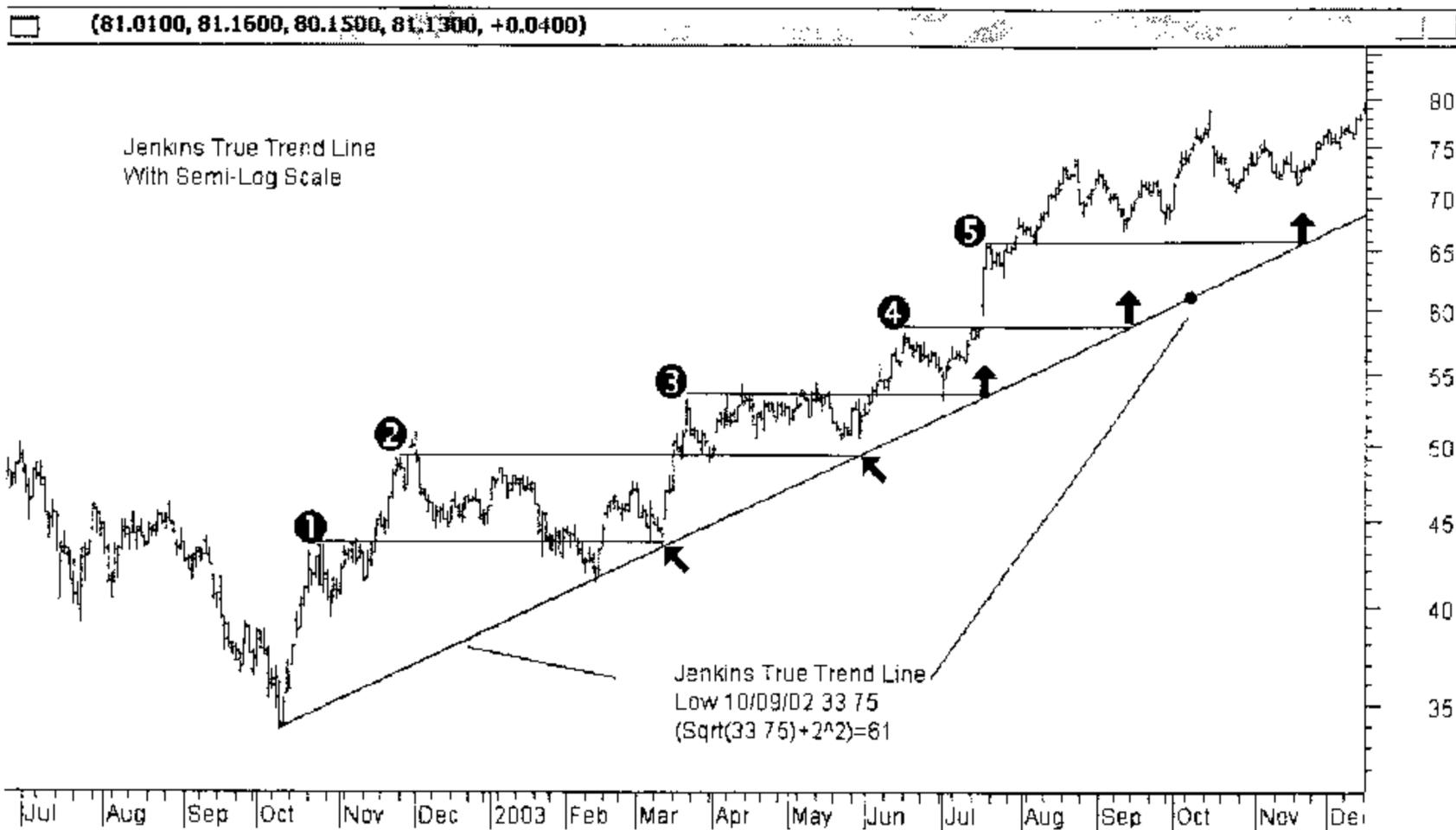
Finally here is an example on a market average. This is the Dow Jones from the start of the August 1982 bull market. Note that all tops and bottoms squared out almost to the day!

1982 Dow Jones and JTTL
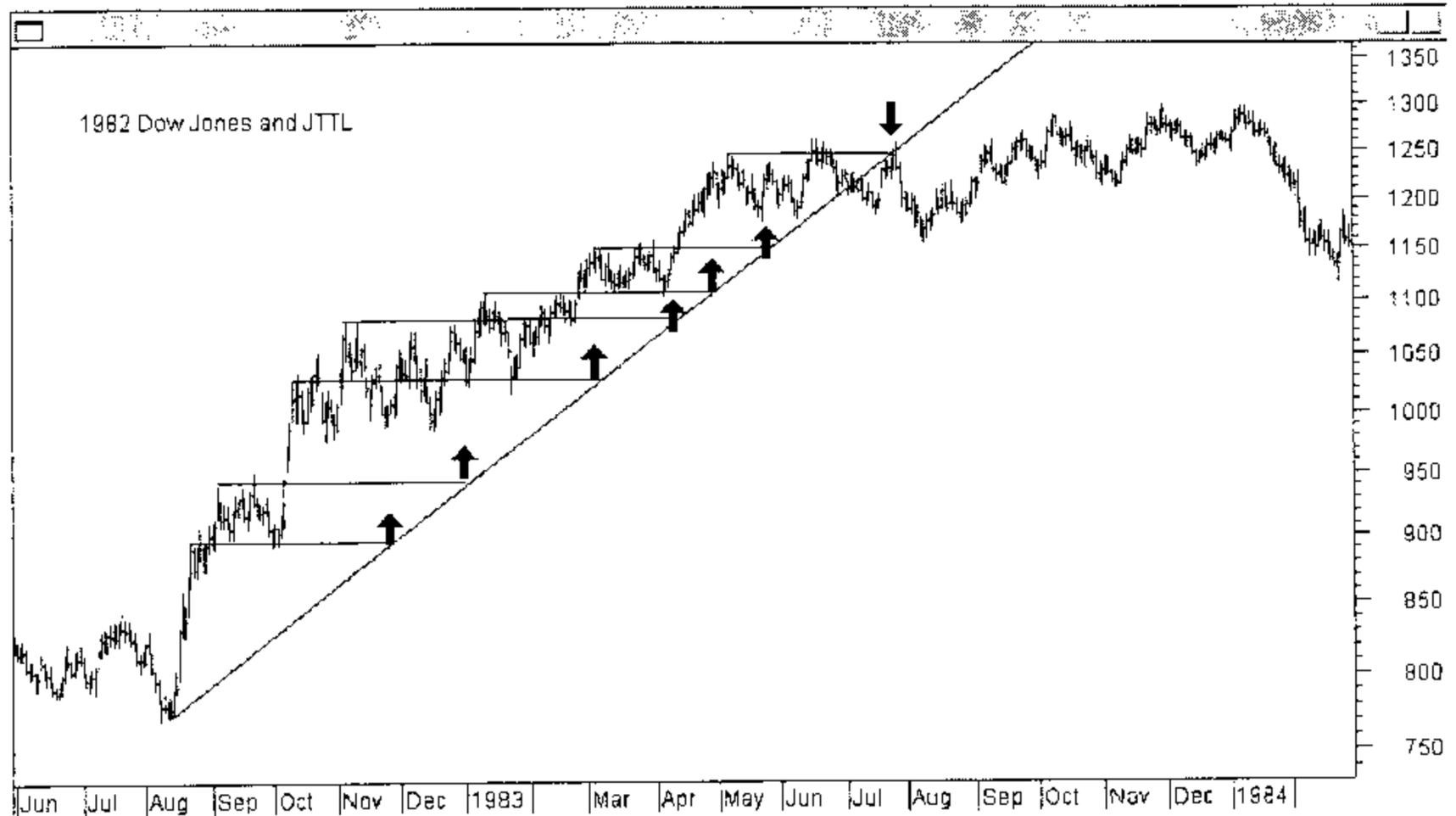
Conclusions

What all these methods show is that the price structure seen in the charts of stocks and commodities that were always said to be random are not at all random in the least. Mathematically precise trendlines, or square roots, or logarithms, that reverse the price patterns consistently cannot be the result of random news items or earnings releases. These patterns stretch over decades and beyond and we are faced with the inescapable conclusion that the emotional buying and selling behavior of man is a mathematically determined outcome. This of course implies that man's free will may not be so free as he thinks. Better yet, he may not be thinking at all!

Are not two sparrows sold for a penny? Yet not one of them will fall to the ground apart from the will of your Father. And even the very hairs of your head are all numbered. Matthew 10:29