ELLIOTT WAVES: A COMPREHENSIVE COURSE ON THE WAVE PRINCIPLE

Lesson 1: Introduction to the Wave Principle

In The Elliott Wave Principle — A Critical Appraisal, Hamilton Bolton made this opening statement:

As we have advanced through some of the most unpredictable economic climate imaginable, covering depression, major war, and postwar reconstruction and boom, I have noted how well Elliott's Wave Principle has fitted into the facts of life as they have developed, and have accordingly gained more confidence that this Principle has a good quotient of basic value.

"The Wave Principle" is Ralph Nelson Elliott's discovery that social, or crowd, behavior trends and reverses in recognizable patterns. Using stock market data as his main research tool, Elliott discovered that the ever-changing path of stock market prices reveals a structural design that in turn reflects a basic harmony found in nature. From this discovery, he developed a rational system of market analysis. Elliott isolated thirteen patterns of movement, or "waves," that recur in market price data and are repetitive in form, but are not necessarily repetitive in time or amplitude. He named, defined and illustrated the patterns. He then described how these structures link together to form larger versions of those same patterns, how they in turn link to form identical patterns of the next larger size, and so on. In a nutshell, then, the Wave Principle is a catalog of price patterns and an explanation of where these forms are likely to occur in the overall path of market development. Elliott's descriptions constitute a set of empirically derived rules and guidelines for interpreting market action. Elliott claimed predictive value for The Wave Principle, which now bears the name, "The Elliott Wave Principle." Although it is the best forecasting tool in existence, the Wave Principle is not primarily a forecasting tool; it is a detailed description of how markets behave. Nevertheless, that description does impart an immense amount of knowledge about the market's position within the behavioral continuum and therefore about its probable ensuing path. The primary value of the Wave Principle is that it provides a context for market analysis. This context provides both a basis for disciplined thinking and a perspective on the market's general position and outlook. At times, its accuracy in identifying, and even anticipating, changes in direction is almost unbelievable. Many areas of mass human activity follow the Wave Principle, but the stock market is where it is most popularly applied. Indeed, the stock market considered alone is far more important than it seems to casual observers. The level of aggregate stock prices is a direct and immediate measure of the popular valuation of man's total productive capability. That this valuation has form is a fact of profound implications that will ultimately revolutionize the social sciences. That, however, is a discussion for another time.

R.N. Elliott's genius consisted of a wonderfully disciplined mental process, suited to studying charts of the Dow Jones Industrial Average and its predecessors with such thoroughness and precision that he could construct a network of principles that covered all market action known to him up to the mid-1940s. At that time, with the Dow in the 100s, Elliott predicted a great bull market for the next several decades that would exceed all expectations at a time when most investors felt it impossible that the Dow could even better its 1929 peak. As we shall see, phenomenal stock market forecasts, some of pinpoint accuracy years in advance, have accompanied the history of the application of the Elliott Wave approach.

Elliott had theories regarding the origin and meaning of the patterns he discovered, which we will present and expand upon in Lessons 16-19. Until then, suffice it to say that the patterns described in Lessons 1-15 have stood the test of time.

Often one will hear several different interpretations of the market's Elliott Wave status, especially when cursory, off-the-cuff studies of the averages are made by latter day experts.

However, most uncertainties can be avoided by keeping charts on both arithmetic and semilogarithmic scale and by taking care to follow the rules and guidelines as laid down in this course. Welcome to the world of Elliott.

Basic Tenets

Under the Wave Principle, every market decision is both produced by meaningful information and produces meaningful information. Each transaction, while at once an effect, enters the fabric of the market and, by communicating transactional data to investors, joins the chain of causes of others' behavior. This feedback loop is governed by man's social nature, and since he has such a nature, the process generates forms. As the forms are repetitive, they have predictive value.

Sometimes the market appears to reflect outside conditions and events, but at other times it is entirely detached from what most people assume are causal conditions. The reason is that the market has a law of its own. It is not propelled by the linear causality to which one becomes accustomed in the everyday experiences of life. Nor is the market the cyclically rhythmic machine that some declare it to be. Nevertheless, its movement reflects a structured formal progression.

That progression unfolds in waves. Waves are patterns of directional movement. More specifically, a wave is any one of the patterns that naturally occur under the Wave Principle, as described in Lessons 1-9 of this course.

The Five Wave Pattern

In markets, progress ultimately takes the form of five waves of a specific structure. Three of these waves, which are labeled 1, 3 and 5, actually effect the directional movement. They are separated by two countertrend interruptions, which are labeled 2 and 4, as shown in Figure 1-1. The two interruptions are apparently a requisite for overall directional movement to occur.

R.N. Elliott did not specifically state that there is only one overriding form, the "five wave" pattern, but that is undeniably the case. At any time, the market may be identified as being somewhere in the basic five wave pattern at the largest degree of trend. Because the five wave pattern is the overriding form of market progress, all other patterns are subsumed by it.

Wave Mode

There are two modes of wave development: motive and corrective. Motive waves have a five wave structure, while corrective waves have a three wave structure or a variation thereof. Motive mode is employed by both the five wave pattern of Figure 1-1 and its same-directional components, i.e., waves 1, 3 and 5. Their structures are called

"motive" because they powerfully impel the market. Corrective mode is employed by all countertrend interruptions, which include waves 2 and 4 in Figure 1-1. Their structures are called "corrective" because they can accomplish only a partial retracement, or "correction," of the progress achieved by any preceding motive wave. Thus, the two modes are fundamentally different, both in their roles and in their construction, as will be detailed throughout this course.
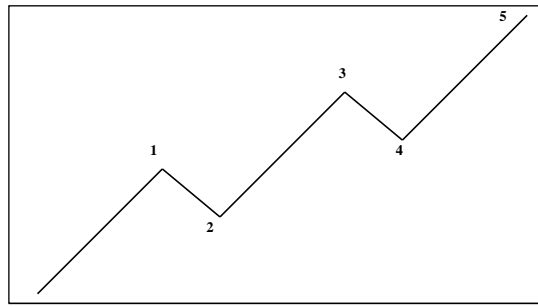

Figure 1-1

Lesson 2: Details of the Complete Cycle

In his 1938 book, The Wave Principle, and again in a series of articles published in 1939 by Financial World magazine, R.N. Elliott pointed out that the stock market unfolds according to a basic rhythm or pattern of five waves up and three waves down to form a complete cycle of eight waves. The pattern of five waves up followed by three waves down is depicted in Figure 1-2.
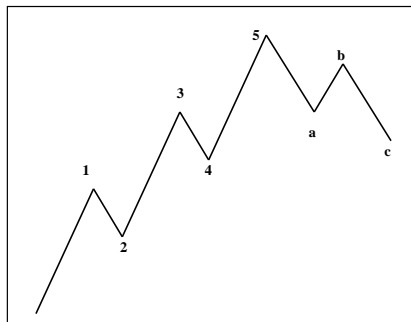

Figure 1-2

One complete cycle consisting of eight waves, then, is made up of two distinct phases, the motive phase (also called a "five"), whose subwaves are denoted by numbers, and the corrective phase (also called a "three"), whose subwaves are denoted by letters. The sequence a, b, c corrects the sequence 1, 2, 3, 4, 5 in Figure 1-2.

At the terminus of the eight-wave cycle shown in Figure 1-2 begins a second similar cycle of five upward waves followed by three downward waves.

A third advance then develops, also consisting of five waves up. This third advance completes a five wave movement of one degree larger than the waves of which it is composed. The result is as shown in Figure 1-3 up to the peak labeled (5).

At the peak of wave (5) begins a down movement of correspondingly larger degree, composed once again of three waves. These three larger waves down "correct" the entire movement of five larger waves up. The result is another complete, yet larger, cycle, as shown in Figure 1-3. As Figure 1-3 illustrates, then, each same-direction component of a motive wave, and each full-cycle component (i.e., waves 1 + 2, or waves 3 + 4) of a cycle, is a smaller version of itself.

It is crucial to understand an essential point: Figure 1-3 not only illustrates a larger version of Figure 1-2, it also illustrates Figure 1-2 itself, in greater detail. In Figure 1-2, each subwave 1, 3 and 5 is a motive wave that will subdivide into a "five," and each subwave 2 and 4 is a corrective wave that will subdivide into an a, b, c. Waves (1) and (2) in Figure 1-3, if examined under a "microscope," would take the same form as waves [1]* and [2]. All these figures illustrate the phenomenon of constant form within ever-changing degree.

The market's compound construction is such that two waves of a particular degree subdivide into eight waves of the next lower degree, and those eight waves subdivide in exactly the same manner into thirty-four waves of the next lower degree. The Wave Principle, then, reflects the fact that waves of any degree in any series always subdivide and re-subdivide into waves of lesser degree and simultaneously are components of waves of higher degree. Thus, we can use Figure 1-3 to illustrate two waves, eight waves or thirty-four waves, depending upon the degree to which we are referring.

The Essential Design

Now observe that within the corrective pattern illustrated as wave [2] in Figure 1-3, waves (a) and (c), which point downward, are composed of five waves: 1, 2, 3, 4 and 5. Similarly, wave (b), which points upward, is composed of three waves: a, b and c. This construction discloses a crucial point: that motive waves do not always point upward, and corrective waves do not always point downward. The mode of a wave is determined not by its absolute direction but primarily by its relative direction. Aside from four specific exceptions, which will be discussed later in this course, waves divide in motive mode (five waves) when trending in the same direction as the wave of one larger degree of which it is a part, and in corrective mode (three waves or a variation) when trending in the opposite direction. Waves (a) and (c) are motive, trending in the same direction as wave [2]. Wave (b) is corrective because it corrects wave (a) and is

countertrend to wave [2]. In summary, the essential underlying tendency of the Wave Principle is that action in the same direction as the one larger trend develops in five waves, while reaction against the one larger trend develops in three waves, at all degrees of trend.

Note: For this course, all Primary degree numbers and letters normally denoted by circles are shown with brackets.

[1] and [2] = 2 waves
(1), (2), (3), (4), (5), (a), (b), (c) = 8 waves
1, 2, 3, 4, 5, a, b, c, etc. = 34 waves
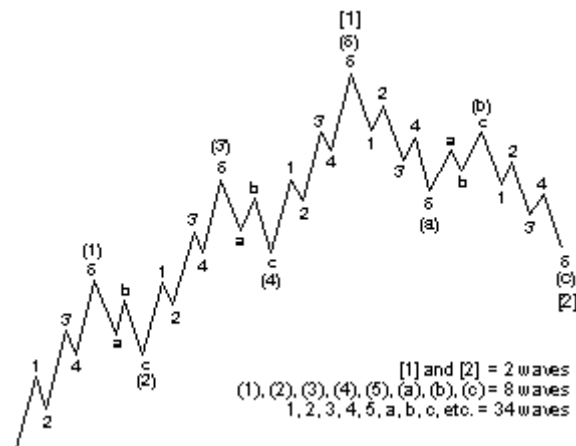
Figure 1-3

Lesson 3: Essential Concepts
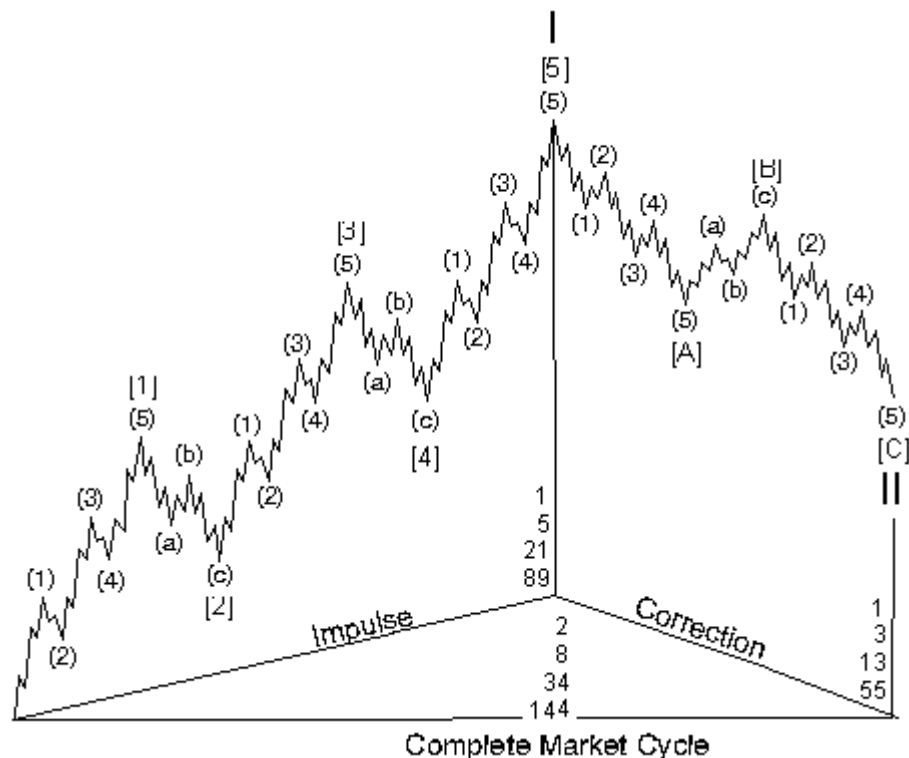
Figure 1-4

The phenomena of form, degree and relative direction are carried one step further in Figure 1-4. This illustration reflects the general principle that in any market cycle, waves will subdivide as shown in the following table.

Number of Waves at Each Degree

Impulse + Correction = Cycle

Largest waves	1	1	2
Largest subdivisions	5	3	8
Next subdivisions	21	13	34
Next subdivisions	89	55	144

As with Figures 1-2 and 1-3 in Lesson 2, neither does Figure 1-4 imply finality. As before, the termination of yet another eight wave movement (five up and three down) completes a cycle that automatically becomes two subdivisions of the wave of next higher degree. As long as progress continues, the process of building to greater degrees continues.

The reverse process of subdividing into lesser degrees apparently continues indefinitely as well. As far as we can determine, then, all waves both have and are component waves.

Elliott himself never speculated on why the market's essential form was five waves to progress and three waves to regress. He simply noted that that was what was happening. Does the essential form have to be five waves and three waves? Think about it and you will realize that this is the minimum requirement for, and therefore the most efficient method of, achieving both fluctuation and progress in linear movement.

One wave does not allow fluctuation. The fewest subdivisions to create fluctuation is three waves. Three waves in both directions does not allow progress. To progress in one direction despite periods of regress, movements in the main trend must be at least five waves, simply to cover more ground than the three waves and still contain fluctuation. While there could be more waves than that, the most efficient form of punctuated progress is 5-3, and nature typically follows the most efficient path.

Variations on the Basic Theme

The Wave Principle would be simple to apply if the basic theme described above were the complete description of market behavior.

However, the real world, fortunately or unfortunately, is not so simple. From here through Lesson 15, we will fill out the description of how the market behaves in reality. That's what Elliott set out to describe, and he succeeded in doing so.

Detailed Analytics

WAVE DEGREE

All waves may be categorized by relative size, or degree. Elliott discerned nine degrees of waves, from the smallest wiggle on an hourly chart to the largest wave he could assume existed from the data then available. He chose the names listed below to label these degrees, from largest to smallest:

— Grand Supercycle
— Supercycle
— Cycle
— Primary
— Intermediate
— Minor
— Minute
— Minuette
— Subminuette

It is important to understand that these labels refer to specifically identifiable degrees of waves. For instance, when we refer to the U.S. stock market's rise from 1932, we speak of it as a Supercycle with subdivisions as follows:

— 1932-1937 the first wave of Cycle degree
— 1937-1942 the second wave of Cycle degree
— 1942-1966 the third wave of Cycle degree
— 1966-1974 the fourth wave of Cycle degree
— 1974-19?? the fifth wave of Cycle degree

Cycle waves subdivide into Primary waves that subdivide into Intermediate waves that in turn subdivide into Minor and sub-Minor waves. By using this nomenclature, the analyst can identify precisely the position of a wave in the overall progression of the market, much as longitude and latitude are used to identify a geographical location. To say, "the Dow Jones Industrial Average is in Minute wave v of Minor wave 1 of Intermediate wave (3) of Primary wave [5] of Cycle wave I of Supercycle wave (V) of the current Grand Supercycle" is to identify a specific point along the progression of market history.

When numbering and lettering waves, some scheme such as the one shown below is recommended to differentiate the degrees of waves in the stock market's progression:

Wave Degree	5s With the Trend	3s Against the Trend
Supercycle	(I) (II) (III) (IV) (V)	(A) (B) (C)
Cycle	I II III IV V	A B C
Primary	[1] [2] [3] [4] [5]	[A] [B] [C]
Intermediate	(1) (2) (3) (4) (5)	(a) (b) (c)
Minor	1 2 3 4 5	A B C
Minute	i ii iii iv v	a b c
Minuette	1 2 3 4 5	a b c

The above labels preserve most closely Elliott's notations and are traditional, but a list such as that shown below provides a more orderly use of symbols:

Grand Supercycle	[I] [II] [III] [IV] [V] [A] [B] [C]
Supercycle	(I) (II) (III) (IV) (V) (A) (B) (C)
Cycle	I II III IV V A B C
Primary	I II III IV V A B C
Intermediate	[1] [2] [3] [4] [5] [a] [b] [c]
Minor	(1) (2) (3) (4) (5) (a) (b) (c)
Minute	1 2 3 4 5 a b c
Minuette	1 2 3 4 5 a b c

The most desirable form for a scientist is usually something like 11, 12, 13, 14, 15, etc., with subscripts denoting degree, but it's a nightmare to read such notations on a chart. The above tables provide for rapid visual orientation. Charts may also use color as an effective device for differentiating degree.

In Elliott's suggested terminology, the term "Cycle" is used as a name denoting a specific degree of wave and is not intended to imply a cycle in the typical sense. The same is true of the term "Primary," which in the past has been used loosely by Dow Theorists in phrases such as "primary swing" or "primary bull market." The specific terminology is not critical to the identification of relative degrees, and the authors have no argument with amending the terms, although out of habit we have become comfortable with Elliott's nomenclature.

The precise identification of wave degree in "current time" application is occasionally one of the difficult aspects of the Wave Principle.

Particularly at the start of a new wave, it can be difficult to decide what degree the initial smaller subdivisions are. The main reason for the difficulty is that wave degree is not based upon specific price or time lengths. Waves are dependent upon form, which is a function of both price and time. The degree of a form is determined by its size and position relative to component, adjacent and encompassing waves.

This relativity is one of the aspects of the Wave Principle that make real time interpretation an intellectual challenge. Fortunately, the precise degree is usually irrelevant to successful forecasting since it is relative degree that matters most. Another challenging aspect of the Wave Principle is the variability of forms, as described through Lesson 9 of this course.

Wave Function

Every wave serves one of two functions: action or reaction. Specifically, a wave may either advance the cause of the wave of one larger degree or interrupt it. The function of a wave is determined by its relative direction. An actionary or trend wave is any wave that trends in the same direction as the wave of one larger degree of which it is a part. A reactionary or countertrend wave is any wave that trends in the direction opposite to that of the wave of one larger degree of which it is part. Actionary waves are labeled with odd numbers and letters.

Reactionary waves are labeled with even numbers and letters.

All reactionary waves develop in corrective mode. If all actionary waves developed in motive mode, then there would be no need for different terms. Indeed, most actionary waves do subdivide into five waves. However, as the following sections reveal, a few actionary waves develop in corrective mode, i.e., they subdivide into three waves or a variation thereof. A detailed knowledge of pattern construction is required before one can draw the distinction between actionary function and motive mode, which in the underlying model introduced so far are indistinct. A thorough understanding of the forms detailed in the next five lessons will clarify why we have introduced these terms to the Elliott Wave lexicon.

Lesson 4: Motive Waves

Motive waves subdivide into five waves with certain characteristics and always move in the same direction as the trend of one larger degree. They are straightforward and relatively easy to recognize and interpret.

Within motive waves, wave 2 never retraces more than 100% of wave 1, and wave 4 never retraces more than 100% of wave 3. Wave 3, moreover, always travels beyond the end of wave 1. The goal of a motive wave is to make progress, and these rules of formation assure that it will.

Elliott further discovered that in price terms, wave 3 is often the longest and never the shortest among the three actionary waves (1, 3 and 5) of a motive wave. As long as wave 3 undergoes a greater percentage movement than either wave 1 or 5, this rule is satisfied. It almost always holds on an arithmetic basis as well. There are two types of motive waves: impulses and diagonal triangles.

Impulse

The most common motive wave is an impulse. In an impulse, wave 4 does not enter the territory of (i.e., "overlap") wave 1. This rule holds for all non-leveraged "cash" markets. Futures markets, with their extreme leverage, can induce short term price extremes that would not occur in cash markets. Even so, overlapping is usually confined to daily and intraday price fluctuations and even then is extremely rare. In addition, the actionary subwaves (1, 3 and 5) of an impulse are themselves motive, and subwave 3 is specifically an impulse. Figures 1-2 and 1-3 in Lesson 2 and 1-4 in Lesson 3 all depict impulses in the 1, 3, 5, A and C wave positions.

As detailed in the preceding three paragraphs, there are only a few simple rules for interpreting impulses properly. A rule is so called because it governs all waves to which it applies. Typical, yet not inevitable, characteristics of waves are called guidelines. Guidelines of impulse formation, including extension, truncation, alternation, equality, channeling, personality and ratio relationships are discussed below and through Lesson 24 of this course. A rule should never be disregarded. In many years of practice with countless patterns, the authors have found but one instance above Subminuette degree when all other rules and guidelines combined to suggest that a rule was broken.

Analysts who routinely break any of the rules detailed in this section are practicing some form of analysis other than that guided by the Wave Principle. These rules have great practical utility in correct counting, which we will explore further in discussing extensions.

Extension

Most impulses contain what Elliott called an extension. Extensions are elongated impulses with exaggerated subdivisions. The vast majority of impulse waves do contain an extension in one and only one of their three actionary subwaves. At times, the subdivisions of an extended wave are nearly the same amplitude and duration as the other four waves of the larger impulse, giving a total count of nine waves of similar size rather than the normal count of "five" for the sequence. In a nine-wave sequence, it is occasionally difficult to say which wave extended. However, it is usually irrelevant anyway, since under the Elliott system, a count of nine and a count of five have the same technical significance. The diagrams in Figure 1-5, illustrating extensions, will clarify this point.
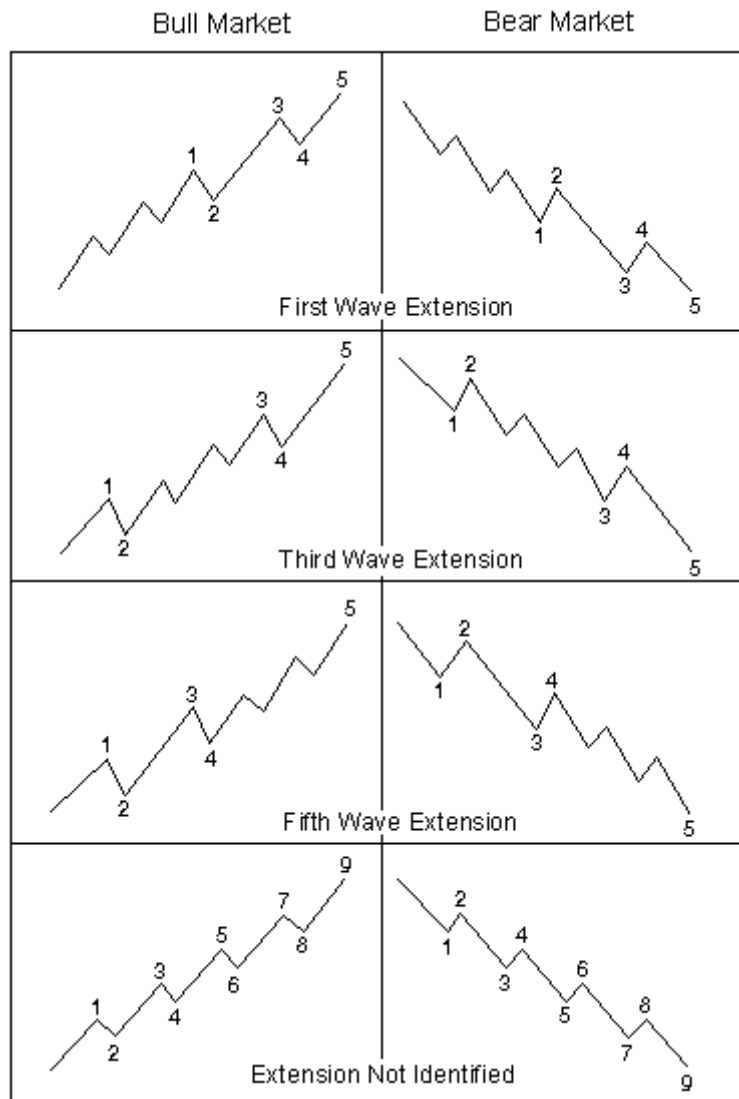
Figure 5

The fact that extensions typically occur in only one actionary subwave provides a useful guide to the expected lengths of upcoming waves.

For instance, if the first and third waves are of about equal length, the fifth wave will likely be a protracted surge. (In waves below Primary degree, a developing fifth wave extension will be confirmed by new high volume, as described in Lesson 13 under "Volume.") Conversely, if wave three extends, the fifth should be simply constructed and resemble wave one.

In the stock market, the most commonly extended wave is wave 3. This fact is of particular importance to real time wave interpretation when considered in conjunction with two of the rules of impulse waves: that wave 3 is never the shortest actionary wave, and that wave 4 may not overlap wave 1. To clarify, let us assume two situations involving an improper middle wave, as illustrated in Figures 1-6 and 1-7.

In Figure 1-6, wave 4 overlaps the top of wave 1. In Figure 1-7, wave 3 is shorter than wave 1 and shorter than wave 5. According to the rules, neither is an acceptable labeling. Once the apparent wave 3 is proved unacceptable, it must be relabeled in some way that is acceptable. In fact, it is almost always to be labeled as shown in Figure 1-8, implying an extended wave (3) in the making. Do not hesitate to get into the habit of labeling the early stages of a third wave extension. The exercise will prove highly rewarding, as you will understand from the discussion under Wave Personality in Lesson 14. Figure 1-8 is perhaps the single most useful guide to real time impulse wave counting in this course.

Extensions may also occur within extensions. In the stock market, the third wave of an extended third wave is typically an extension as well, producing a profile such as shown in Figure 1-9. Figure 1-10 illustrates a fifth wave extension of a fifth wave extension. Extended fifths are fairly uncommon except in bull markets in commodities covered in Lesson 28.

Truncation

Elliott used the word "failure" to describe a situation in which the fifth wave does not move beyond the end of the third. We prefer the less connotative term, "truncation," or "truncated fifth." A truncation can usually be verified by noting that the presumed fifth wave contains the necessary five subwaves, as illustrated in Figures 1-11 and 1-12. Truncation often occurs following an extensively strong third wave.
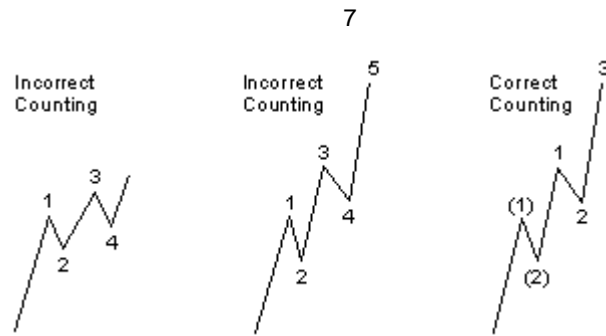
Figure 1-6   Figure 1-7   Figure 1-8

Figure 1-9   Figure 1-10
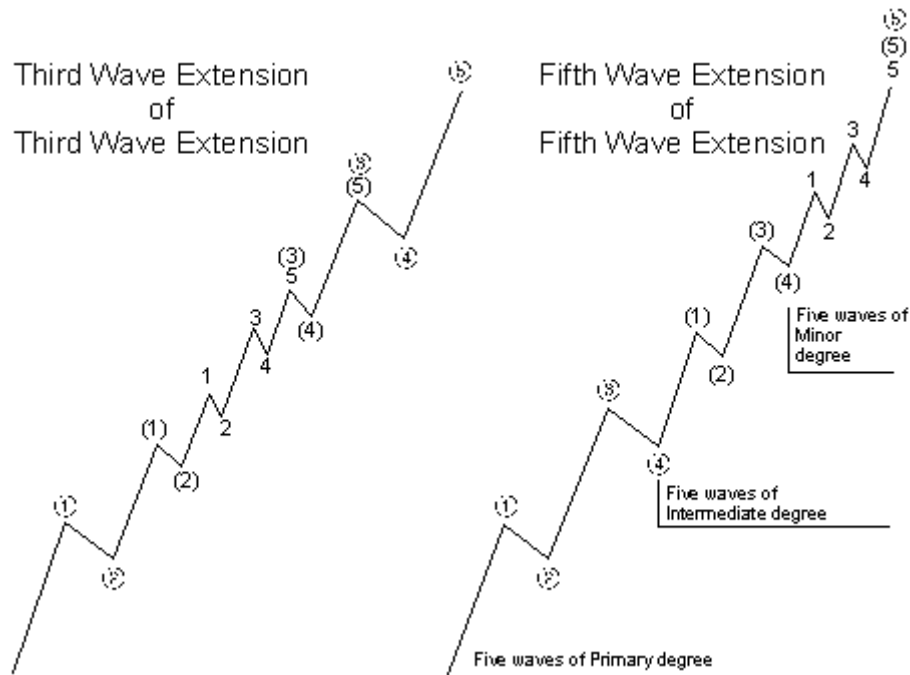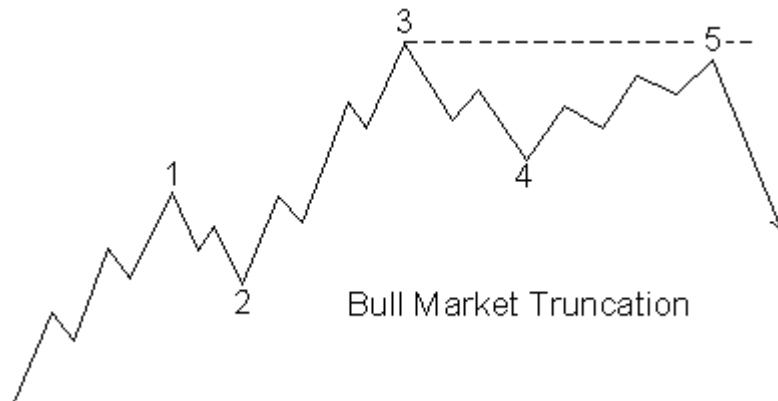

Figure 1-11

The U.S. stock market provides two examples of major degree truncated fifths since 1932. The first occurred in October 1962 at the time of the Cuban crisis (see Figure 1-13). It followed the crash that occurred as wave 3. The second occurred at year-end in 1976 (see Figure 1-14). It followed the soaring and broad wave (3) that took place from October 1975 to March 1976.

Bear Market Truncation
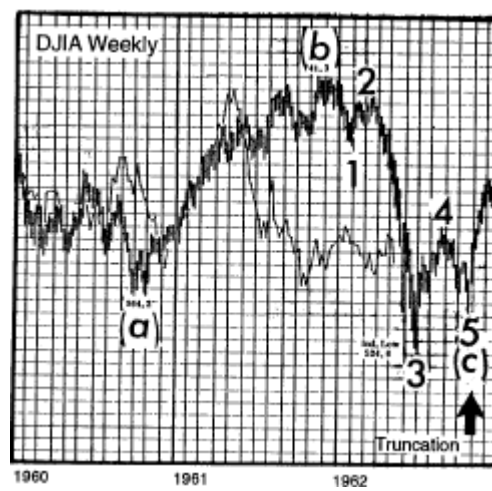
Figure 1-12

Figure 1-13

Figure 1-14

Lesson 5: Diagonal Triangles

A diagonal triangle is a motive pattern yet not an impulse, as it has one or two corrective characteristics. Diagonal triangles substitute for impulses at specific locations in the wave structure. As with impulses, no reactionary subwave fully retraces the preceding actionary subwave, and the third subwave is never the shortest. However, diagonal triangles are the only five-wave structures in the direction of the main trend within which wave four almost always moves into the price territory of (i.e., overlaps) wave one. On rare occasions, a diagonal triangle may end in a truncation, although in our experience such truncations occur only by the slimmest of margins.

Ending Diagonal

An ending diagonal is a special type of wave that occurs primarily in the fifth wave position at times when the preceding move has gone "too far too fast," as Elliott put it. A very small percentage of ending diagonals appear in the C wave position of A-B-C formations. In double or triple threes (to be covered in Lesson 9), they appear only as the final "C" wave. In all cases, they are found at the termination points of larger patterns, indicating exhaustion of the larger movement.

Ending diagonals take a wedge shape within two converging lines, with each subwave, including waves 1, 3 and 5, subdividing into a "three," which is otherwise a corrective wave phenomenon. The ending diagonal is illustrated in Figures 1-15 and 1-16 and shown in its typical position in larger impulse waves.

We have found one case in which the pattern's boundary lines diverged, creating an expanding wedge rather than a contracting one. However, it is unsatisfying analytically in that its third wave was the shortest actionary wave, the entire

formation was larger than normal, and another interpretation was possible, if not attractive. For these reasons, we do not include it as a valid variation.
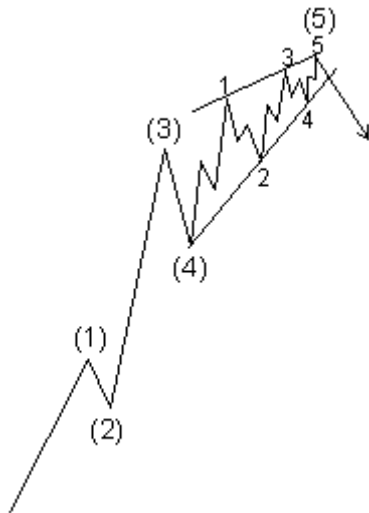
Figure 1-15
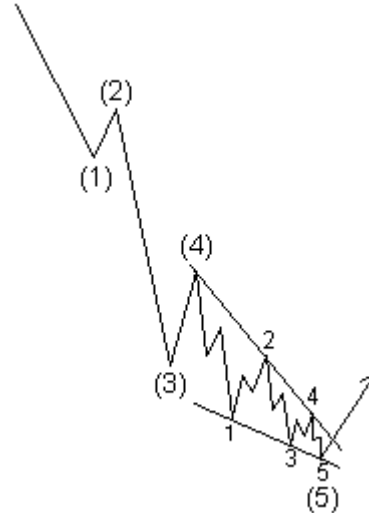
Figure 1-16

Ending diagonals have occurred recently in Minor degree as in early 1978, in Minute degree as in February-March 1976, and in Subminuette degree as in June 1976. Figures 1-17 and 1-18 show two of these periods, illustrating one upward and one downward "real-life" formation. Figure 1-19 shows our real-life possible expanding diagonal triangle. Notice that in each case, an important change of direction followed.
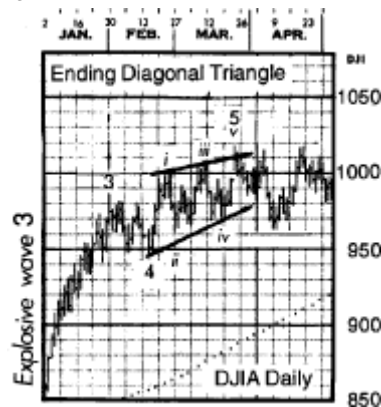
Figure 1-17

Figure 1-18

Although not so illustrated in Figures 1-15 and 1-16, fifth waves of diagonal triangles often end in a "throw-over," i.e., a brief break of the trendline connecting the end points of waves one and three. Figures 1-17 and 1-19 show real life examples. While volume tends to diminish as a diagonal triangle of small degree progresses, the pattern always ends with a spike of relatively high volume when a throw-over occurs. On rare occasions, the fifth subwave will fall short of its resistance trendline.

A rising diagonal is bearish and is usually followed by a sharp decline retracing at least back to the level where it began. A falling diagonal by the same token is bullish, usually giving rise to an upward thrust.

Fifth wave extensions, truncated fifths and ending diagonal triangles all imply the same thing: dramatic reversal ahead. At some turning points, two of these phenomena have occurred together at different degrees, compounding the violence of the next move in the opposite direction.
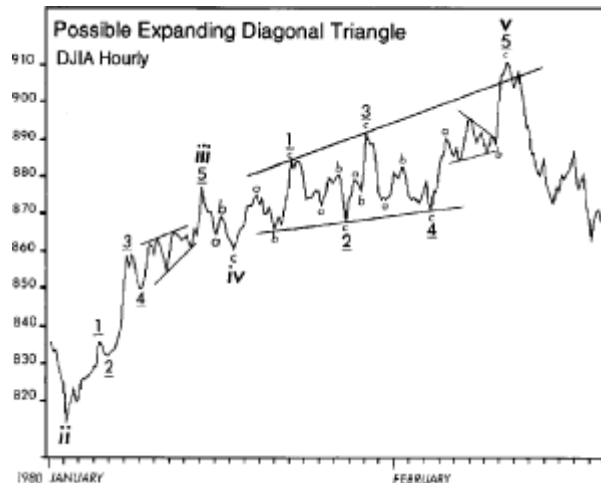
Figure 1-19

Leading Diagonal

When diagonal triangles occur in the wave 5 or C position, they take the 3-3-3-3-3 shape that Elliott described. However, it has recently come to light that a variation on this pattern occasionally appears in the wave 1 position of impulses and in the wave A position of zigzags. The characteristic overlapping of waves 1 and 4 and the convergence of boundary lines into a wedge shape remain as in the ending diagonal triangle.

However, the subdivisions are different, tracing out a 5-3-5-3-5 pattern. The structure of this formation (see Figure 1-20) fits the spirit of the Wave Principle in that the five-wave subdivisions in the direction of the larger trend communicate a "continuation" message as opposed to the "termination" implication of the three-wave subdivisions in the ending diagonal. Analysts must be aware of this pattern to avoid mistaking it for a far more common development, a series of first and second waves. The main key to recognizing this pattern is the decided slowing of price change in the fifth subwave relative to the third. By contrast, in developing first and second waves, short term speed typically increases, and breadth (i.e., the number of stocks or subindexes participating) often expands.
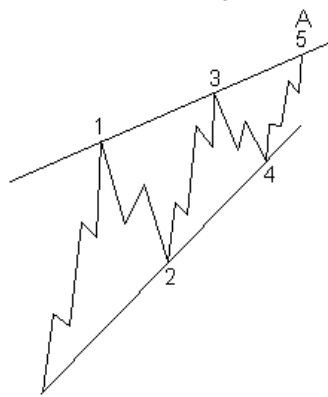
Figure 1-20

Figure 1-21 shows a real life example of a leading diagonal triangle. This pattern was not originally discovered by R.N. Elliott but has appeared enough times and over a long enough period that we are convinced of its validity.

Figure 1-21

Lesson 6: Zigzags

Corrective Waves

Markets move against the trend of one greater degree only with a seeming struggle. Resistance from the larger trend appears to prevent a correction from developing a full motive structure. This struggle between the two oppositely trending degrees generally makes corrective waves less clearly identifiable than motive waves, which always flow with comparative ease in the direction of the one larger trend. As another result of this conflict between trends, corrective waves are quite a bit more varied than motive waves. Further, they occasionally increase or decrease in complexity as they unfold so that what are technically subwaves of the same degree can by their complexity or time length appear to be of different degree. For all these reasons, it can be difficult at times to fit corrective waves into recognizable patterns until they are completed and behind us. As the terminations of corrective waves are less predictable than those for motive waves, the Elliott analyst must exercise more caution in his analysis when the market is in a meandering corrective mood than when prices are in a persistently motive trend.

The single most important rule that can be gleaned from a study of the various corrective patterns is that corrections are never fives. Only motive waves are fives. For this reason, an initial five wave movement against the larger trend is never the end of a correction, only part of it. The figures that follow through Lesson 9 of this course should serve to illustrate this point.

Corrective processes come in two styles. Sharp corrections angle steeply against the larger trend. Sideways corrections, while always producing a net retracement of the preceding wave, typically contain a movement that carries back to or beyond its starting level, thus producing an overall sideways appearance. The discussion of the guideline of alternation in Lesson 10 will explain the reason for noting these two styles.

Specific corrective patterns fall into four main categories:

— Zigzags (5-3-5; includes three types: single, double, and triple);
— Flats (3-3-5; includes three types: regular, expanded, and running);
— Triangles (3-3-3-3-3; four types: three of the contracting variety (ascending, descending, and symmetrical) and one of the expanding variety (reverse symmetrical);
— Double threes and triple threes (combined structures).

Zigzags (5-3-5)

A single zigzag in a bull market is a simple three-wave declining pattern labeled A-B-C. The subwave sequence is 5-3-5, and the top of wave B is noticeably lower than the start of wave A, as illustrated in Figures 1-22 and 1-23.
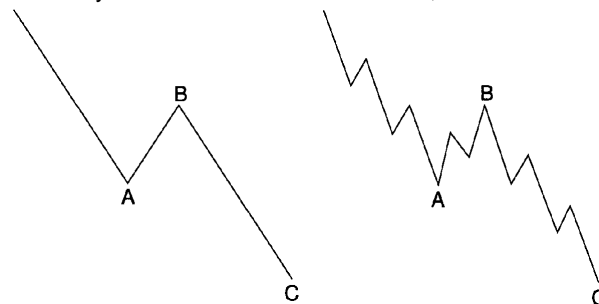
Figure 1-22   **Figure 1-23**

In a bear market, a zigzag correction takes place in the opposite direction, as shown in Figures 1-24 and 1-25. For this reason, a zigzag in a bear market is often referred to as an inverted zigzag.
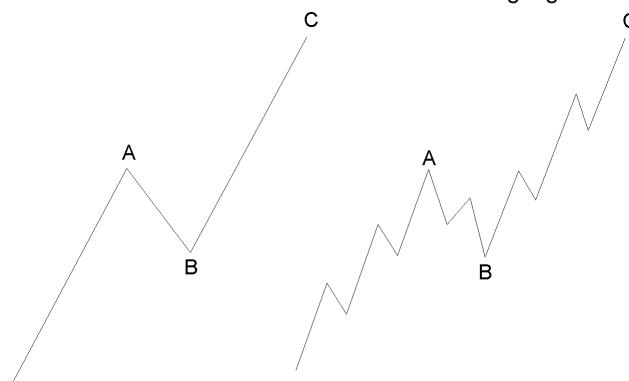
Figure 1-24   **Figure 1-25**

Occasionally zigzags will occur twice, or at most, three times in succession, particularly when the first zigzag falls short of a normal target. In these cases, each zigzag is separated by an intervening "three," producing what is called a double zigzag (see Figure 1-26) or triple zigzag.

These formations are analogous to the extension of an impulse wave but are less common.

The correction in the Standard and Poor's 500 stock index from January 1977 to March 1978 (see Figure 1-27) can be labeled as a double zigzag, as can the correction in the Dow from July to October 1975 (see Figure 1-28). Within impulses, second waves frequently sport zigzags, while fourth waves rarely do.
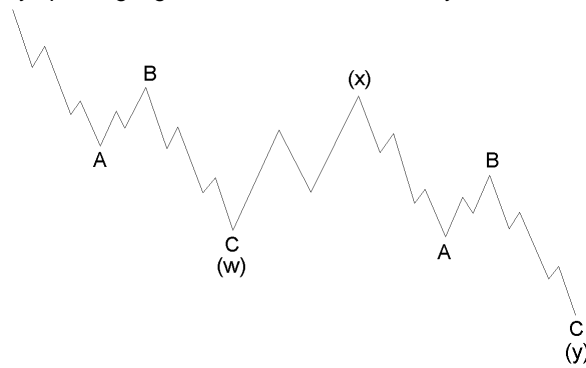
Figure 1-26
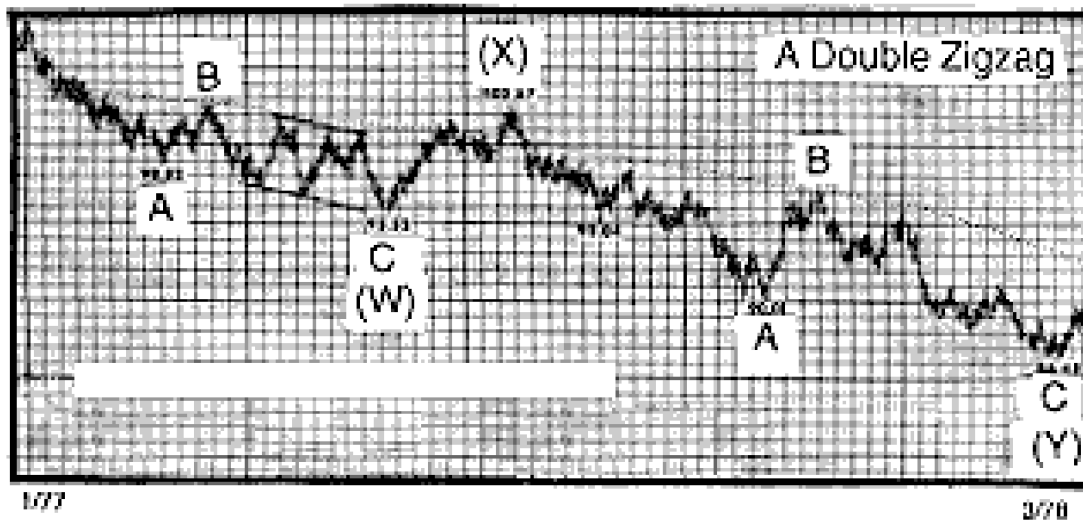
Figure 1-27

DJIA Hourly 1975 — July 14 through October 1
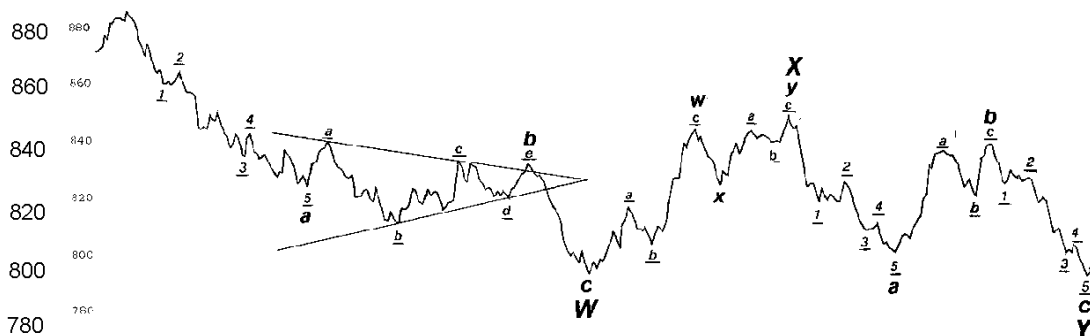
Figure 1-28

R.N. Elliott's original labeling of double and triple zigzags and double and triple threes (see later section) was a quick shorthand. He denoted the intervening movements as wave X, so that double corrections were labeled A-B-C-X-A-B-C. Unfortunately, this notation improperly indicated the degree of the actionary subwaves of each simple pattern. They were labeled as being only one degree less than the entire correction when in fact, they are two degrees smaller. We have eliminated this problem by introducing a useful notational device: labeling the successive actionary components of double and triple corrections as waves W, Y, and Z, so that the entire pattern is counted "W-X-Y (-X-Z)." The letter "W" now denotes the first corrective pattern in a double or triple correction, Y the second, and Z the third of a triple. Each subwave thereof (A, B or C, as well as D or E of a triangle — see later section) is now properly seen as two degrees smaller than the entire correction. Each wave X is a reactionary wave and thus always a corrective wave, typically another zigzag.

Lesson 7: Flats (3-3-5)

A flat correction differs from a zigzag in that the subwave sequence is 3-3-5, as shown in Figures 1-29 and 1-30. Since the first actionary wave, wave A, lacks sufficient downward force to unfold into a full five waves as it does in a zigzag, the B wave reaction, not surprisingly, seems to inherit this lack of countertrend pressure and terminates near the start of wave A. Wave C, in turn, generally terminates just slightly beyond the end of wave A rather than significantly beyond as in zigzags.
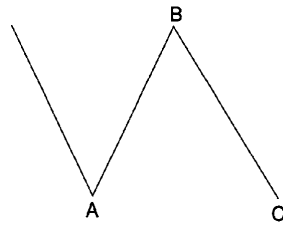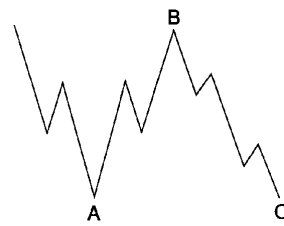
Figure 1-29　　　**Figure 1-30**

In a bear market, the pattern is the same but inverted, as shown in Figures 1-31 and 1-32.
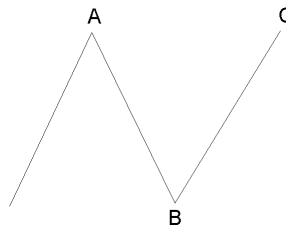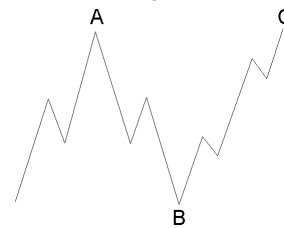
Figure 1-31　　　**Figure 1-32**

Flat corrections usually retrace less of preceding impulse waves than do zigzags. They participate in periods involving a strong larger trend and thus virtually always precede or follow extensions. The more powerful the underlying trend, the briefer the flat tends to be. Within impulses, fourth waves frequently sport flats, while second waves do so less commonly.

What might be called "double flats" do occur. However, Elliott categorized such formations as "double threes," a term we discuss in Lesson 9.

The word "flat" is used as a catchall name for any A-B-C correction that subdivides into a 3-3-5. In Elliott literature, however, three types of 3-3-5 corrections have been identified by differences in their overall shape. In a regular flat correction, wave B terminates about at the level of the beginning of wave A, and wave C terminates a slight bit past the end of wave A, as we have shown in Figures 1-29 through 1-32. Far more common, however, is the variety called an expanded flat, which contains a price extreme beyond that of the preceding impulse wave. Elliott called this variation an "irregular" flat, although the word is inappropriate as they are actually far more common than "regular" flats.

In expanded flats, wave B of the 3-3-5 pattern terminates beyond the starting level of wave A, and wave C ends more substantially beyond the ending level of wave A, as shown for bull markets in Figures 1-33 and 1-34 and bear markets in Figures 1-35 and 1-36. The formation in the DJIA from August to November 1973 was an expanded flat correction of this type in a bear market, or an "inverted expanded flat" (see Figure 1-37).
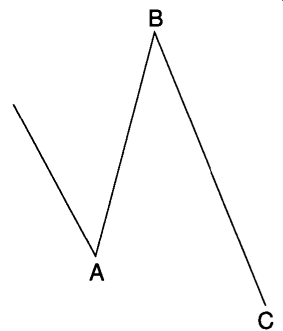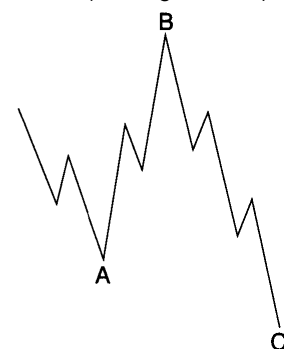
Figure 1-33　　　**Figure 1-34**

In a rare variation on the 3-3-5 pattern, which we call a running flat, wave B terminates well beyond the beginning of wave A as in an expanded flat, but wave C fails to travel its full distance, falling short of the level at which wave A ended, as in Figures 1-38 through 1-41. Apparently in this case, the forces in the direction of the larger trend are so powerful that the pattern becomes skewed in that direction. It is always important, but particularly when concluding that a running flat has taken place, that the internal subdivisions adhere to Elliott's rules. If the supposed B wave, for instance, breaks down into five waves rather than three, it is more likely the first wave up of the impulse of next higher degree. The power of adjacent impulse waves is important in recognizing running corrections, which tend to occur only in strong and fast markets. We must issue a warning, however. There are hardly any examples of this type of correction in the price record. Never label a correction prematurely this way, or you'll find yourself wrong nine times out of ten. Running triangles, in contrast, are much more common, as we'll see in Lesson 8.

Figure 1-35   Figure 1-36

An Expanded Flat (inverted)
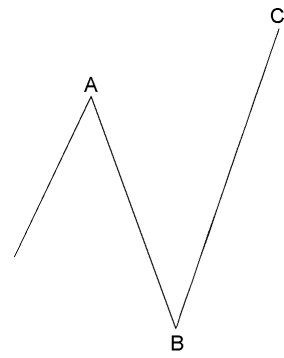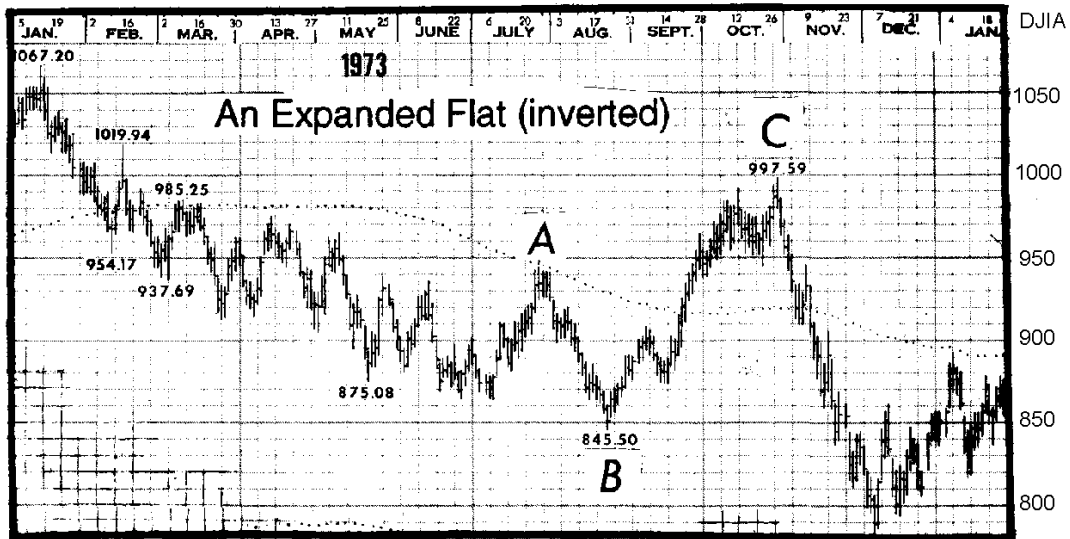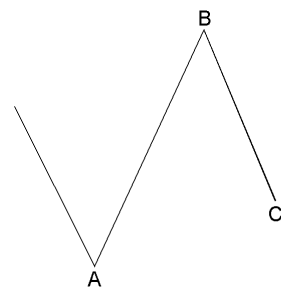
Figure 1-37
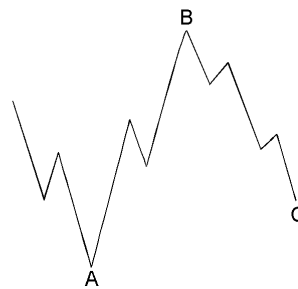
Figure 1-38   Figure 1-39
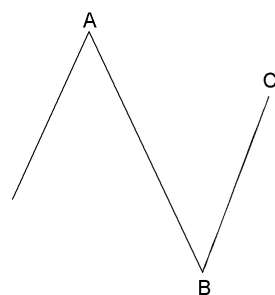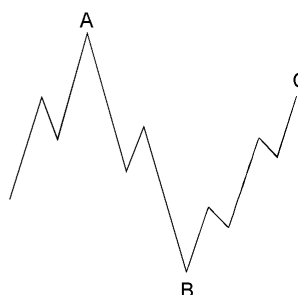
Figure 1-40   Figure 1-41

Lesson 8: Triangles

Triangles appear to reflect a balance of forces, causing a sideways movement that is usually associated with decreasing volume and volatility.

Triangles contain five overlapping waves that subdivide 3-3-3-3-3 and are labeled a-b-c-d-e. A triangle is delineated by connecting the termination points of waves a and c, and b and d. Wave e can undershoot or overshoot the a-c line, and in fact, our experience tells us that it happens more often than not.

There are two varieties of triangles: contracting and expanding. Within the contracting variety, there are three types: symmetrical, ascending, and descending, as illustrated in Figure 1-42. There are no variations on the rarer expanding triangle. It always appears as depicted in Figure 1-42, which is why Elliott termed it a "reverse symmetrical" triangle.
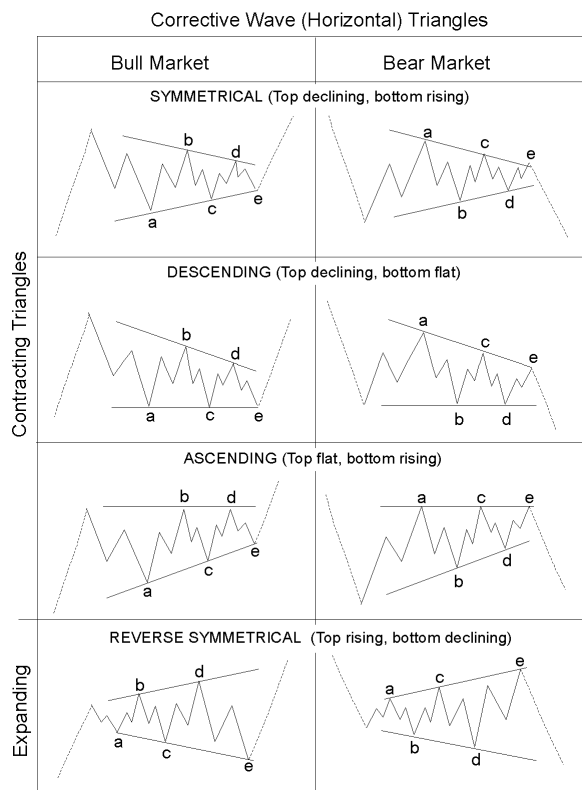
Figure 1-42

Figure 1-42 depicts contracting triangles as taking place within the area of preceding price action, in what may be termed regular triangles.

However, it is extremely common for wave b of a contracting triangle to exceed the start of wave a in what may be termed a running triangle, as shown in Figure 1-43. Despite their sideways appearance, all triangles, including running triangles, effect a net retracement of the preceding wave at wave's end.
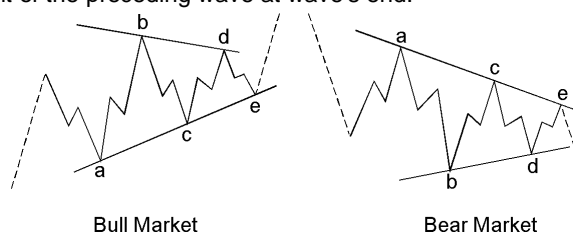
Figure 1-43

There are several real life examples of triangles in the charts in this course. As you will notice, most of the subwaves in a triangle are zigzags, but sometimes one of the subwaves (usually wave c) is more complex than the others and can take the shape of a regular or expanded flat or multiple zigzag. In rare cases, one of the sub-waves (usually wave e) is itself a triangle, so that the entire pattern protracts into nine waves.

Thus, triangles, like zigzags, occasionally display a development that is analogous to an extension. One example occurred in silver from 1973 through 1977 (see Figure 1-44).

Although upon extremely rare occasions a second wave in an impulse appears to take the form of a triangle, triangles nearly always occur in positions prior to the final actionary wave in the pattern of one larger degree, i.e., as wave four in an impulse, wave B in an A-B-C, or the final wave X in a double or triple zig-zag or combination (to be shown in Lesson 9). A triangle may also occur as the final actionary pattern in a corrective combination, as discussed in Lesson 9, although even then it always precedes the final actionary wave in the pattern of one larger degree than the corrective combination.
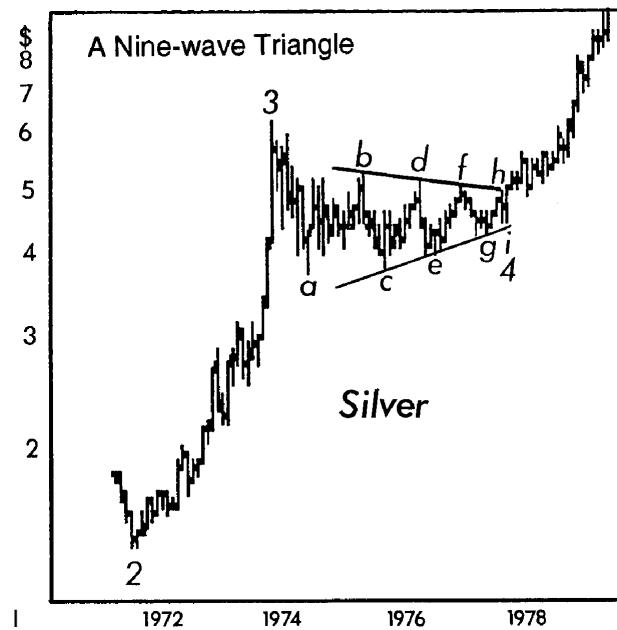
Figure 1-44

     n the stock market, when a triangle occurs in the fourth wave position, wave five is sometimes swift and travels approximately the distance of the widest part of the triangle. Elliott used the word "thrust" in referring to this swift, short motive wave following a triangle. The thrust is usually an impulse but can be an ending diagonal. In powerful markets, there is no thrust, but instead a prolonged fifth wave. So if a fifth wave following a triangle pushes past a normal thrust measurement, it is signaling a likely protracted wave. Post-triangle advancing impulses in commodities at degrees above Intermediate are usually the longest wave in the sequence, as explained in Lesson 29.

     On the basis of our experience with triangles, as the example in Figure 3-15 illustrates, we propose that often the time at which the boundary lines of a contracting triangle reach an apex coincides exactly with a turning point in the market. Perhaps the frequency of this occurrence would justify its inclusion among the guidelines associated with the Wave Principle.

     The term "horizontal" as applied to triangles refers to these corrective triangles in general, as opposed to the term "diagonal," which refers to those motive triangular formations discussed in Lesson 5. Thus, the terms "horizontal triangle" and "diagonal triangle" denote these specific forms under the Wave Principle. The simpler terms "triangle" and "wedge" may be substituted, but keep in mind that technical chart readers have long used these terms to communicate less specifically subdivided forms defined only by overall shape. Having separate terms can be useful.

Lesson 9: Corrective Combinations

Double and Triple Threes

     Elliott called sideways combinations of corrective patterns "double threes" and "triple threes." While a single three is any zigzag or flat, a triangle is an allowable final component of such combinations and in this context is called a "three." A double or triple three, then, is a combination of simpler types of corrections, including the various types of zigzags, flats and triangles. Their occurrence appears to be the flat correction's way of extending sideways action. As with double and triple zigzags, each simple corrective pattern is labeled W, Y and Z. The reactionary waves, labeled X, can take the shape of any corrective pattern but are most commonly zigzags.

     Combinations of threes were labeled differently by Elliott at different times, although the illustrative pattern always took the shape of two or three juxtaposed flats, as shown in Figures 1-45 and 1-46. However, the component patterns more commonly alternate in form. For example, a flat followed by a triangle is a more typical type of double three, as illustrated in Figure 1-47.
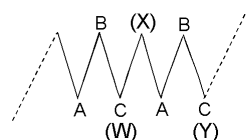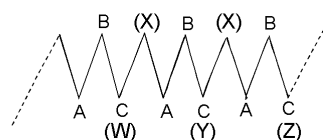
Figure 1-45   **Figure 1-46**

     A flat followed by a zigzag is another example, as shown in Figure 1-48. Naturally, since the figures in this section depict corrections in bull markets, they need only be inverted to observe them as upward corrections in bear markets.

     For the most part, double threes and triple threes are horizontal in character. Elliott indicated that the entire formations could slant against the larger trend, although we have never found this to be the case. One reason is that there never appears to be more than one zigzag in a combination.

     Neither is there more than one triangle. Recall that triangles occurring alone precede the final movement of a larger trend. Combinations appear to recognize this character and sport triangles only as the final wave in a double or triple three.
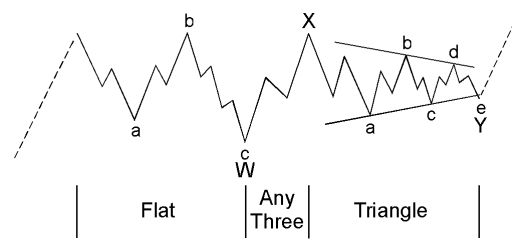
Figure 1-47
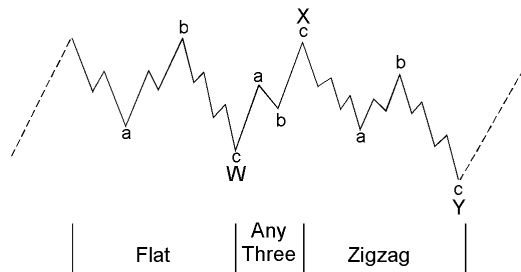
Figure 1-48

Although different in that their angle of trend is sharper than the sideways trend of combinations, double and triple zigzags can be characterized as non-horizontal combinations, as Elliott seemed to suggest in Nature's Law. However, double and triple threes are different from double and triple zigzags, not only in their angle but in their goal. In a double or triple zigzag, the first zigzag is rarely large enough to constitute an adequate price correction of the preceding wave. The doubling or tripling of the initial form is typically necessary to create an adequately sized price retracement. In a combination, however, the first simple pattern often constitutes an adequate price correction. The doubling or tripling appears to occur mainly to extend the duration of the corrective process after price targets have been substantially met. Sometimes additional time is needed to reach a channel line or achieve a stronger kinship with the other correction in an impulse wave. As the consolidation continues, the attendant psychology and fundamentals extend their trends accordingly.

As this section makes clear, there is a qualitative difference between the number series 3 + 4 + 4 + 4, etc., and the series 5 + 4 + 4 + 4, etc.

Notice that while impulse waves have a total count of 5, with extensions leading to 9, 13 or 17 waves, and so on, corrective waves have a count of 3, with combinations leading to 7 or 11 waves, and so on. Triangles appear to be an exception, although they can be counted as one would a triple three, totaling 11 waves. Thus, if an internal count is unclear, the analyst can sometimes reach a reasonable conclusion merely by counting waves.

A count of 9, 13 or 17 with few overlaps, for instance, is likely motive, while a count of 7, 11 or 15 with numerous overlaps is likely corrective. The main exceptions are diagonal triangles of both types, which are hybrids of motive and corrective forces.

Orthodox Tops and Bottoms

Sometimes a pattern's end differs from the associated price extreme. In such cases, the end of the pattern is called the "orthodox" top or bottom in order to differentiate it from the actual price high or low that occurs intra-pattern. For example, in Figure 1-11, the end of wave 5 is the orthodox top despite the fact that wave 3 registered a higher price. In Figure 1-12, the end of wave 5 is the orthodox bottom. In Figures 1-33 and 1-34, the starting point of wave A is the orthodox top of the preceding bull market despite the higher high of wave B. In Figure 1-47, the end of wave Y is the orthodox bottom of the bear market even though the price low occurs at the end of wave W.

This concept is important primarily because a successful analysis always depends upon a proper labeling of the patterns. Assuming falsely that a particular price extreme is the correct starting point for wave labeling can throw analysis off for some time, while being aware of the requirements of wave form will keep you on track. Further, when applying the forecasting concepts that will be introduced in Lessons 20 through 25, the length and duration of a wave are typically determined by measuring from and projecting orthodox ending points.

Reconciling Function and Mode

In Lessons 3 and 4, we described the two functions waves may perform (action and reaction), as well as the two modes of structural development (motive and corrective) that they undergo. Now that we have reviewed all types of waves, we can summarize their labels as follows:

— The labels for actionary waves are 1, 3, 5, A, C, E, W, Y and Z.
— The labels for reactionary waves are 2, 4, B, D and X.

As stated earlier, all reactionary waves develop in corrective mode, and most actionary waves develop in motive mode. The preceding sections have described which actionary waves develop in corrective mode. They are:

— waves 1, 3 and 5 in an ending diagonal,
— wave A in a flat correction,
— waves A, C and E in a triangle,
— waves W and Y in double zigzags and double corrections,
— wave Z in triple zigzags and triple corrections.

Because the waves listed above are actionary in relative direction yet develop in corrective mode, we term them "actionary corrective" waves.

As far as we know, we have listed all wave formations that can occur in the price movement of the broad stock market averages. Under the Wave Principle, no other formations than those listed here will occur. Indeed, since the hourly readings are a nearly perfectly matched filter for detailing waves of Subminuette degree, the authors can find no examples of waves above the Subminuette degree that cannot be counted satisfactorily by the Elliott method. In fact, Elliott Waves of much smaller degree than Subminuette are revealed by computer generated charts of minute-by-minute transactions. Even the few data points (transactions) per unit of time at this low a degree are enough to reflect accurately the Wave Principle of human behavior by recording the rapid shifts in psychology occurring in the "pits" and on the exchange floor. All rules (which were covered in Lessons 1 through 9) and guidelines (which are covered in Lessons 1 through 15) fundamentally apply to actual market mood, not its recording per se or lack thereof. Its clear manifestation requires free market pricing. When prices are fixed by government edict, such as those for gold and silver for half of the twentieth century, waves restricted by the edict are not allowed to register. When the available price record differs from what might have existed in a free market, rules and guidelines must be considered in that light. In the long run, of course, markets always win out over edicts, and edict enforcement is only possible if the mood of the market allows it. All rules and guidelines presented in this course presume that your price record is accurate. Now that we have presented the rules and rudiments of wave formation, we can move on to some of the guidelines for successful analysis under the Wave Principle.

Lesson 10: The guideline of alternation

The guidelines presented in Lessons 10-15 are discussed and illustrated in the context of a bull market. Except where specifically excluded, they apply equally in bear markets, in which context the illustrations and implications would be inverted.

Alternation

The guideline of alternation is very broad in its application and warns the analyst always to expect a difference in the next expression of a similar wave. Hamilton Bolton said, The writer is not convinced that alternation is inevitable in types of waves in larger formations, but there are frequent enough cases to suggest that one should look for it rather than the contrary.

Although alternation does not say precisely what is going to happen, it gives valuable notice of what not to expect and is therefore useful to keep in mind when analyzing wave formations and assessing future possibilities. It primarily instructs the analyst not to assume, as most people tend to do, that because the last market cycle behaved in a certain manner, this one is sure to be the same. As "contrarians" never cease to point out, the day that most investors "catch on" to an apparent habit of the market is the day it will change to one completely different. However, Elliott went further in stating that, in fact, alternation was virtually a law of markets.

Alternation Within Impulses

If wave two of an impulse is a sharp correction, expect wave four to be a sideways correction, and vice versa. Figure 2-1 shows the most characteristic breakdowns of impulse waves, both up and down, as suggested by the guideline of alternation. Sharp corrections never include a new price extreme, i.e., one that lies beyond the orthodox end of the preceding impulse wave. They are almost always zigzags (single, double or triple); occasionally they are double threes that begin with a zigzag. Sideways corrections include flats, triangles, and double and triple corrections. They usually include a new price extreme, i.e., one that lies beyond the orthodox end of the preceding impulse wave. In rare cases, a regular triangle (one that does not include a new price extreme) in the fourth wave position will take the place of a sharp correction and alternate with another type of sideways pattern in the second wave position. The idea of alternation within impulses can be summarized by saying that one of the two corrective processes will contain a move back to or beyond the end of the preceding impulse, and the other will not.
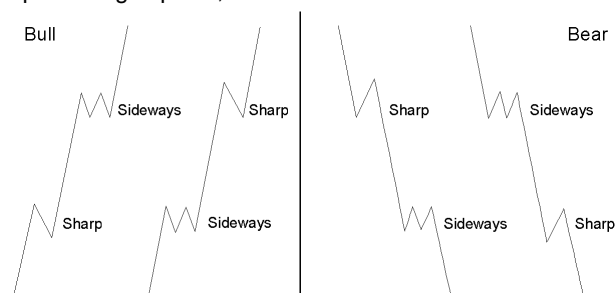
Figure 2-1

Diagonal triangles do not display alternation between subwaves 2 and 4. Typically they are both zigzags. Extensions are an expression of alternation, as the motive waves alternate their lengths. Typically the first is short, the third is extended, and the fifth is short again. Extensions, which normally occur in wave 3, sometimes occur in wave 1 or 5, another manifestation of alternation.

Alternation Within Corrective Waves

If a large correction begins with a flat a-b-c construction for wave A, expect a zigzag a-b-c formation for wave B (see Figure 2-2), and vice versa (see Figure 2-3). With a moment's thought, it is obvious that this occurrence is sensible, since the first illustration reflects an upward bias in both subwaves while the second reflects a downward bias.

Quite often, if a large correction begins with a simple a-b-c zigzag for wave A, wave B will stretch out into a more intricately subdivided a-b-c zigzag to achieve a type of alternation, as in Figure 2-4. Sometimes wave C will be yet more complex, as in Figure 2-5. The reverse order of complexity is somewhat less common.
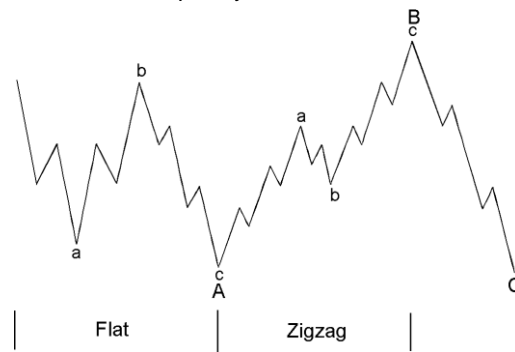
Figure 2-2
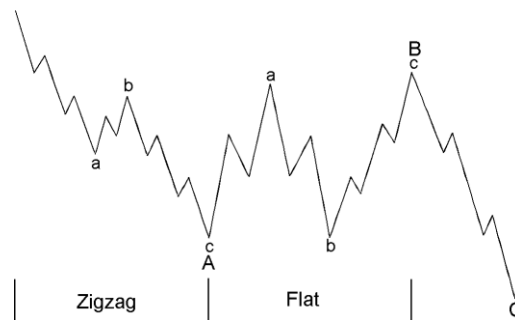
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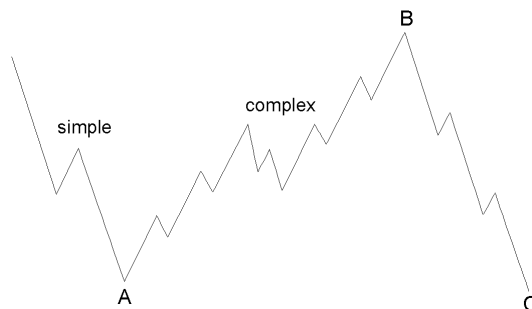
Figure 2-4
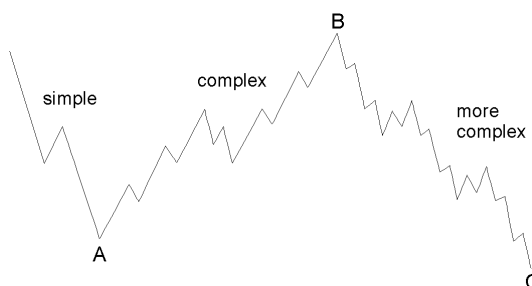
Figure 2-5

Lesson 11: Forecasting corrective waves

Depth of Corrective Waves (Bear Market Limitations)

No market approach other than the Wave Principle gives as satisfactory an answer to the question, "How far down can a bear market be expected to go?" The primary guideline is that corrections, especially when they themselves are fourth waves, tend to register their maximum retracement within the span of travel of the previous fourth wave of one lesser degree, most commonly near the level of its terminus.

The U.S. Market, 1789 to 1977, Plotted Yearly on a Constant Dollar Basis
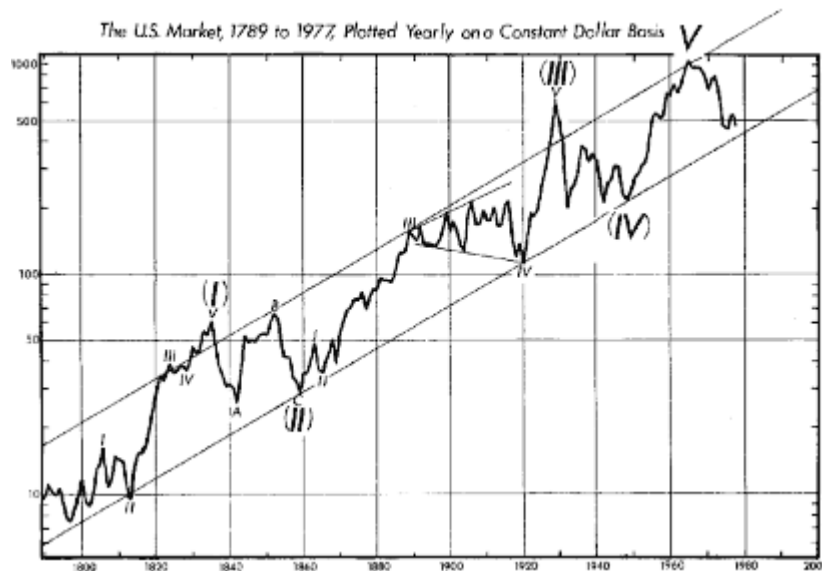
Example #1: The 1929-1932 Bear Market

The chart of stock prices adjusted to constant dollars developed by the Foundation for the Study of Cycles shows a contracting triangle as wave (IV). Its lows bottom within the area of the previous fourth wave of Cycle degree, an expanding triangle (see chart below).

Example #2: The 1942 Bear Market Low

In this case, the Cycle degree wave II bear market from 1937 to 1942, a zigzag, terminates within the area of Primary wave [4] of the bull market from 1932 to 1937 (see Figure 5-3).

Dow Jones Industrials
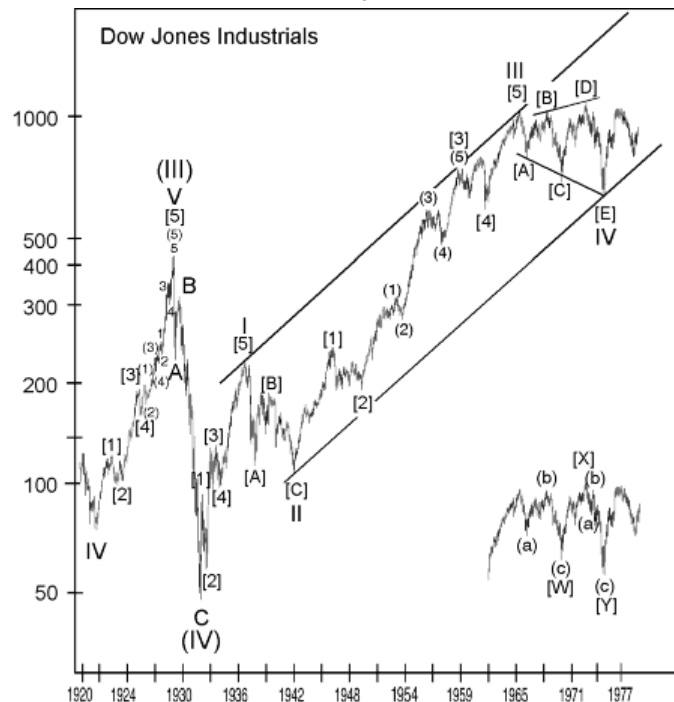
Figure 5-3

Example #3: The 1962 Bear Market Low

The wave [4] plunge in 1962 brought the averages down to just above the 1956 high of the five wave Primary sequence from 1949 to 1959. Ordinarily, the bear would have reached into the zone of wave (4), the fourth wave correction within wave [3]. This narrow miss nevertheless illustrates why this guideline is not a rule. The preceding strong third wave extension and the shallow A wave and strong B wave within [4] indicated strength in the wave structure, which carried over into the moderate net depth of the correction (see Figure 5-3).

Example #4: The 1974 Bear Market Low

The final decline into 1974, ending the 1966-1974 Cycle degree wave IV correction of the entire wave III rise from 1942, brought the averages down to the area of the previous fourth wave of lesser degree (Primary wave[4]). Again, Figure 5-3 shows what happened.

Our analysis of small degree wave sequences over the last twenty years further validates the proposition that the usual limitation of any bear market is the travel area of the preceding fourth wave of one lesser degree, particularly when the bear market in question is itself a fourth wave. However, in a clearly reasonable modification of the guideline, it is often the case that if the first wave in a sequence extends, the correction following the fifth wave will have as a typical limit the bottom of the second wave of lesser degree. For example, the decline into March 1978 in the DJIA bottomed exactly at the low of the second wave in March 1975, which followed an extended first wave off the December 1974 low.

On occasion, flat corrections or triangles, particularly those following extensions (see Example #3), will barely fail to reach into the fourth wave area.

Zigzags, on occasion, will cut deeply and move down into the area of the second wave of lesser degree, although this almost exclusively occurs when the zigzags are themselves second waves. "Double bottoms" are sometimes formed in this manner.

Behavior Following Fifth Wave Extensions

The most important empirically derived rule that can be distilled from our observations of market behavior is that when the fifth wave of an advance is an extension, the ensuing correction will be sharp and find support at the level of the low of wave two of the extension. Sometimes the correction will end there, as illustrated in Figure 2-6. Although a limited number of real life examples exist, the precision with which "A" waves have reversed at the level of the low of wave two of the preceding fifth wave extension is remarkable. Figure 2-7 is an illustration involving an expanded flat correction. (For future reference, please make a note of two real-life examples that we will show in charts of upcoming lessons. An example involving a zigzag can be found in Figure 5-3 at the low of wave [a] of II, and an example involving an expanded flat can be found in Figure 2-16 at the low of wave a of A of 4. As you will see in Figure 5-3, wave A of (IV) bottoms near wave (2) of [5], which is an extension within wave V from 1921 to 1929.)

Since the low of the second wave of an extension is commonly in or near the price territory of the immediately preceding fourth wave of one larger degree, this guideline implies behavior similar to that for the preceding guideline. It is notable for its precision, however. Additional value is provided by the fact that fifth wave extensions are typically followed by swift retracements. Their occurrence, then, is an advance warning of a dramatic reversal to a specific level, a powerful combination of knowledge. This guideline does not apply separately to fifth wave extensions of fifth wave extensions.
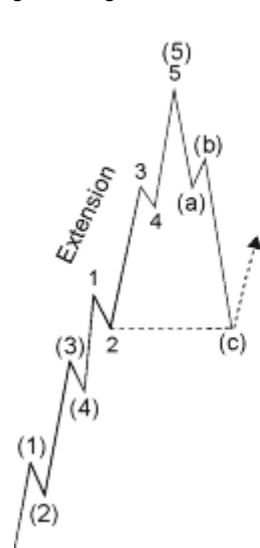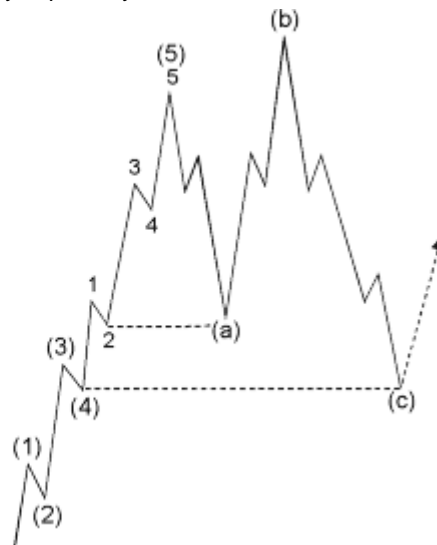
Figure 2-6   **Figure 2-7**

Lesson 12: Channeling

Wave Equality

One of the guidelines of the Wave Principle is that two of the motive waves in a five-wave sequence will tend toward equality in time and magnitude.

This is generally true of the two non-extended waves when one wave is an extension, and it is especially true if the third wave is the extension. If perfect equality is lacking, a .618 multiple is the next likely relationship (the use of ratios is covered in Lessons 16-25).

When waves are larger than Intermediate degree, the price relationships usually must be stated in percentage terms. Thus, within the entire extended Cycle wave advance from 1942 to 1966, we find that Primary wave [1] traveled 120 points, a gain of 129%, in 49 months, while Primary wave [5] traveled 438 points, a gain of 80% (.618 times the 129% gain), in 40 months (see Figure 5-3), far different from the 324% gain of the third Primary wave, which lasted 126 months.

When the waves are of Intermediate degree or less, the price equality can usually be stated in arithmetic terms, since the percentage lengths will also be nearly equivalent. Thus, in the year-end rally of 1976, we find that wave 1

traveled 35.24 points in 47 market hours while wave 5 traveled 34.40 points in 47 market hours. The guideline of equality is often extremely accurate.

Charting the Waves

A. Hamilton Bolton always kept an "hourly close" chart, i.e., one showing the end-of-hour prices, as do the authors. Elliott himself certainly followed the same practice, since in The Wave Principle he presents an hourly chart of stock prices from February 23 to March 31, 1938. Every Elliott Wave practitioner, or anyone interested in the Wave Principle, will find it instructive and useful to plot the hourly fluctuations of the DJIA, which are published by The Wall Street Journal and Barron's. It is a simple task that requires only a few minutes' work a week. Bar charts are fine but can be misleading by revealing fluctuations that occur near the time changes for each bar but not those that occur within the time for the bar. Actual print figures must be used on all plots. The so-called "opening" and "theoretical intraday" figures published for the Dow averages are statistical inventions that do not reflect the averages at any particular moment. Respectively, these figures represent a sum of the opening prices, which can occur at different times, and of the daily highs or lows of each individual stock in the average regardless of the time of day each extreme occurs.

The foremost aim of wave classification is to determine where prices are in the stock market's progression. This exercise is easy as long as the wave counts are clear, as in fast-moving, emotional markets, particularly in impulse waves, when minor movements generally unfold in an uncomplicated manner. In these cases, short term charting is necessary to view all subdivisions. However, in lethargic or choppy markets, particularly in corrections, wave structures are more likely to be complex and slow to develop. In these cases, longer term charts often effectively condense the action into a form that clarifies the pattern in progress. With a proper reading of the Wave Principle, there are times when sideways trends can be forecasted (for instance, for a fourth wave when wave two is a zigzag). Even when anticipated, though, complexity and lethargy are two of the most frustrating occurrences for the analyst. Nevertheless, they are part of the reality of the market and must be taken into account. The authors highly recommend that during such periods you take some time off from the market to enjoy the fruits of your hard work. You can't "wish" the market into action; it isn't listening. When the market rests, do the same.

The correct method for tracking the stock market is to use semilogarithmic chart paper, since the market's history is sensibly related only on a percentage basis. The investor is concerned with percentage gain or loss, not the number of points traveled in a market average. For instance, ten points in the DJIA in 1980 meant nothing, a one percent move. In the early 1920s, ten points meant a ten percent move, quite a bit more important.

For ease of charting, however, we suggest using semilog scale only for long term plots, where the difference is especially noticeable. Arithmetic scale is quite acceptable for tracking hourly waves since a 300 point rally with the DJIA at 5000 is not much different in percentage terms from a 300 point rally with the DJIA at 6000. Thus, channeling techniques work acceptably well on arithmetic scale with shorter term moves.

Channeling Technique

Elliott noted that parallel trend channels typically mark the upper and lower boundaries of impulse waves, often with dramatic precision. The analyst should draw them in advance to assist in determining wave targets and provide clues to the future development of trends.

The initial channeling technique for an impulse requires at least three reference points. When wave three ends, connect the points labeled "1" and "3," then draw a parallel line touching the point labeled "2," as shown in Figure 2-8. This construction provides an estimated boundary for wave four. (In most cases, third waves travel far enough that the starting point is excluded from the final channel's touch points.)
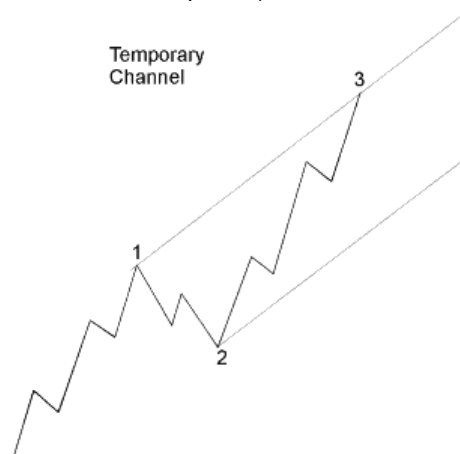
Figure 2-8

If the fourth wave ends at a point not touching the parallel, you must reconstruct the channel in order to estimate the boundary for wave five. First connect the ends of waves two and four. If waves one and three are normal, the upper parallel most accurately forecasts the end of wave five when drawn touching the peak of wave three, as in Figure 2-9. If wave three is abnormally strong, almost vertical, then a parallel drawn from its top may be too high. Experience has shown that a parallel to the baseline that touches the top of wave one is then more useful, as in the illustration of the rise in the price of gold bullion from August 1976 to March 1977 (see Figure 6-12). In some cases, it may be useful to draw both potential upper boundary lines to alert you to be especially attentive to the wave count and volume characteristics at those levels and then take appropriate action as the wave count warrants.
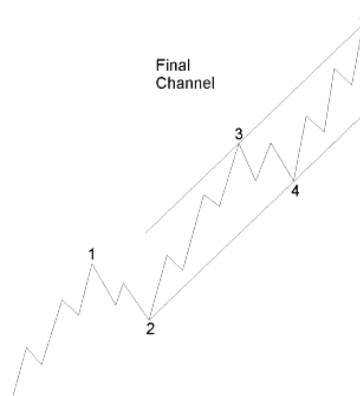
Figure 2-9
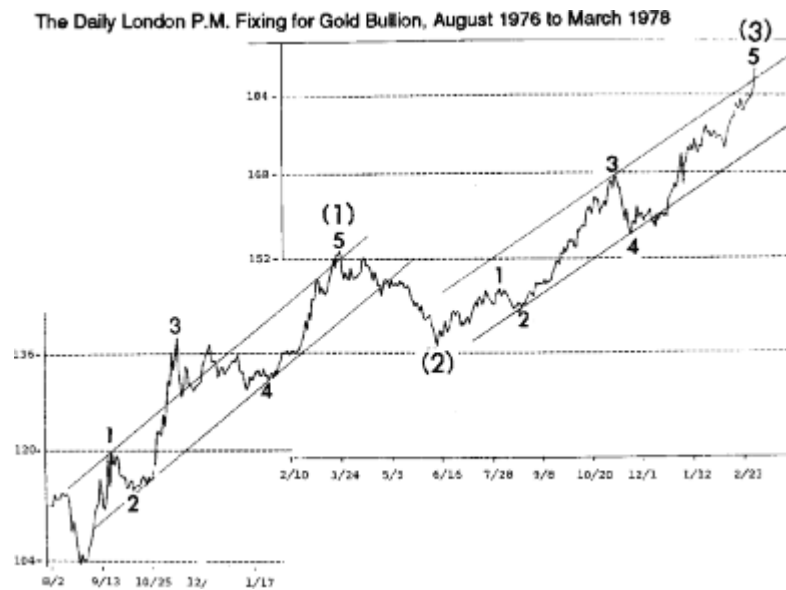
Figure 6-12

Throw-over

Within parallel channels and the converging lines of diagonal triangles, if a fifth wave approaches its upper trendline on declining volume, it is an indication that the end of the wave will meet or fall short of it. If volume is heavy as the fifth wave approaches its upper trendline, it indicates a possible penetration of the upper line, which Elliott called "throw-over." Near the point of throw-over, a fourth wave of small degree may trend sideways immediately below the parallel, allowing the fifth then to break it in a final gust of volume.

Throw-overs are occasionally telegraphed by a preceding "throw-under," either by wave 4 or by wave two of 5, as suggested by the drawing shown as Figure 2-10, from Elliott's book, The Wave Principle. They are confirmed by an immediate reversal back below the line. Throw-overs also occur, with the same characteristics, in declining markets. Elliott correctly warned that throw-overs at large degrees cause difficulty in identifying the waves of smaller degree during the throw-over, as smaller degree channels are sometimes penetrated on the upside by the final fifth wave. Examples of throw overs shown earlier in this course can be found in Figures 1-17 and 1-19.
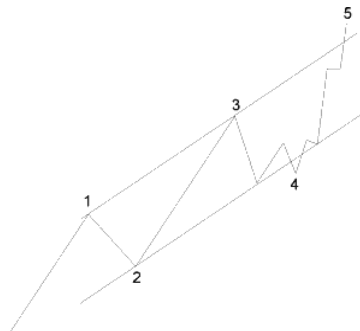
Figure 2-10

Lesson 13: More Guidelines

Scale

The larger the degree, the more necessary a semilog scale usually becomes. On the other hand, the virtually perfect channels that were formed by the 1921-1929 market on semilog scale (see Figure 2-11) and the 1932-1937 market on arithmetic scale (see Figure 2-12) indicate that waves of the same degree will form the correct Elliott trend channel only when plotted selectively on the appropriate scale. On arithmetic scale, the 1920s bull market accelerates beyond the upper boundary, while on semilog scale the 1930s bull market falls far short of the upper boundary. Aside from this difference in channeling, these two waves of Cycle dimension are surprisingly similar: they create nearly the same multiples in price (six times and five times respectively), they both contain extended fifth waves, and the peak of the third wave is the same percentage gain above the bottom in each case. The essential difference between the two bull markets is the shape and time length of each individual subwave.
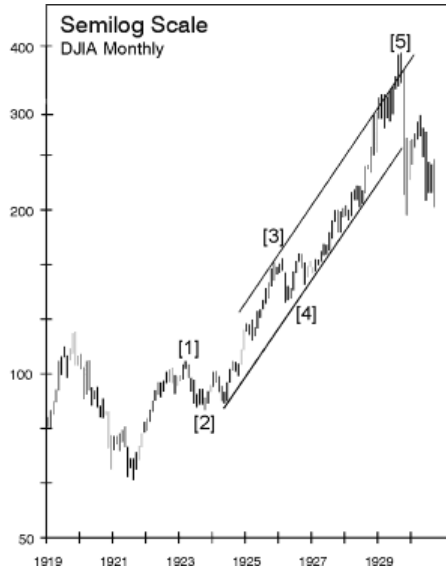
Figure 2-11
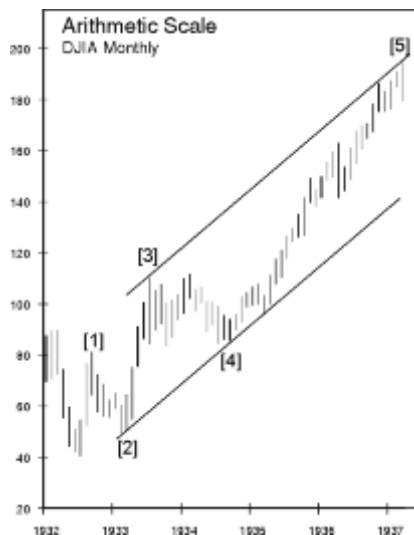
Figure 2-12

At most, we can state that the necessity for semilog scale indicates a wave that is in the process of acceleration, for whatever mass psychological reasons. Given a single price objective and a specific length of time allotted, anyone can draw a satisfactory hypothetical Elliott Wave channel from the same point of origin on both arithmetic and semilog scale by adjusting the slope of the waves to fit. Thus, the question of whether to expect a parallel channel on arithmetic or semilog scale is still unresolved as far as developing a definite tenet on the subject. If the price development at any point does not fall neatly within two parallel lines on the scale (either arithmetic or semilog) you are using, switch to the other scale in order to observe the channel in correct perspective. To stay on top of all developments, the analyst should always use both.

Volume

Elliott used volume as a tool for verifying wave counts and in projecting extensions. He recognized that in any bull market, volume has a natural tendency to expand and contract with the speed of price change. Late in a corrective phase, a decline in volume often indicates a decline in selling pressure. A low point in volume often coincides with a

turning point in the market. In normal fifth waves below Primary degree, volume tends to be less than in third waves. If volume in an advancing fifth wave of less than Primary degree is equal to or greater than that in the third wave, an extension of the fifth is in force. While this outcome is often to be expected anyway if the first and third waves are about equal in length, it is an excellent warning of those rare times when both a third and a fifth wave are extended.

At Primary degree and greater, volume tends to be higher in an advancing fifth wave merely because of the natural long term growth in the number of participants in bull markets. Elliott noted, in fact, that volume at the terminal point of a bull market above Primary degree tends to run at an all-time high. Finally, as discussed earlier, volume often spikes briefly at points of throw-over at the peak of fifth waves, whether at a trend channel line or the terminus of a diagonal triangle. (Upon occasion, such points can occur simultaneously, as when a diagonal triangle fifth wave terminates right at the upper parallel of the channel containing the price action of one larger degree.) In addition to these few valuable observations, we have expanded upon the importance of volume in various sections of this course.

The "Right Look"

The overall appearance of a wave must conform to the appropriate illustration. Although any five wave sequence can be forced into a three-wave count by labeling the first three subdivisions as one wave "A" as shown in Figure 2-13, it is incorrect to do so. The Elliott system would break down if such contortions were allowed. A long wave three with the end of wave four terminating well above the top of wave one must be classified as a five-wave sequence. Since wave A in this hypothetical case is composed of three waves, wave B would be expected to drop to about the start of wave A, as in a flat correction, which it clearly does not. While the internal count of a wave is a guide to its classification, the right overall shape is, in turn, often a guide to its correct internal count.
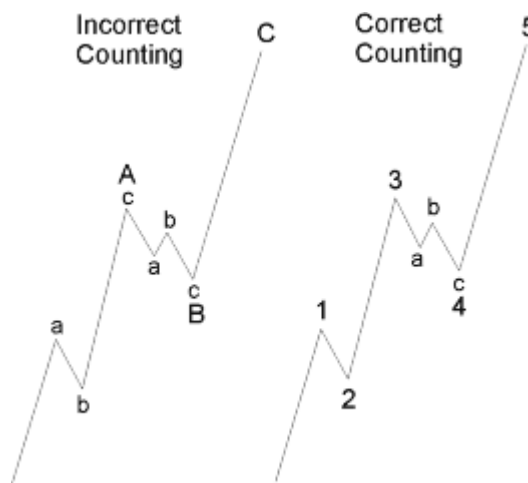
Figure 2-13

The "right look" of a wave is dictated by all the considerations we have outlined so far in the first two chapters. In our experience, we have found it extremely dangerous to allow our emotional involvement with the market to let us accept wave counts that reflect disproportionate wave relationships or misshapen patterns merely on the basis that the Wave Principle's patterns are somewhat elastic.

Lesson 14: Wave Personality

The idea of wave personality is a substantial expansion of the Wave Principle. It has the advantages of bringing human behavior more personally into the equation and even more important, of enhancing the utility of standard technical analysis.

The personality of each wave in the Elliott sequence is an integral part of the reflection of the mass psychology it embodies. The progression of mass emotions from pessimism to optimism and back again tends to follow a similar path each time around, producing similar circumstances at corresponding points in the wave structure. The personality of each wave type is usually manifest whether the wave is of Grand Supercycle degree or Subminuette. These properties not only forewarn the analyst about what to expect in the next sequence but at times can help determine one's present location in the progression of waves, when for other reasons the count is unclear or open to differing interpretations. As waves are in the process of unfolding, there are times when several different wave counts are perfectly admissible under all known Elliott rules. It is at these junctures that a knowledge of wave personality can be invaluable. If the analyst recognizes the character of a single wave, he can often correctly interpret the complexities of the larger pattern. The following discussions relate to an underlying bull market picture, as illustrated in Figures 2-14 and 2-15. These observations apply in reverse when the actionary waves are downward and the reactionary waves are upward.

1) First waves — As a rough estimate, about half of first waves are part of the "basing" process and thus tend to be heavily corrected by wave two.

In contrast to the bear market rallies within the previous decline, however, this first wave rise is technically more constructive, often displaying a subtle increase in volume and breadth. Plenty of short selling is in evidence as the majority has finally become convinced that the overall trend is down. Investors have finally gotten "one more rally to sell on," and they take advantage of it. The other fifty percent of first waves rise from either large bases formed by the previous correction, as in 1949, from downside failures, as in 1962, or from extreme compression, as in both 1962 and 1974. From such beginnings, first waves are dynamic and only moderately retraced.

Idealized Elliott Wave Progression
© 1980 Robert R. Prechter, Jr.

FINAL ADVANCE
Market performance and fundamentals improve, but not to levels of wave 3. Psychology creates overvaluation.

POWERFUL WAVE
Strength. Breadth. Best fundamentals. Increasing real prosperity. By the end, the underlying trend is considered up. Wave often subdivides. Is never the shortest wave.

REBOUND from undervalued levels. Recognition of survival.

wave 5
wave 4
wave 3
wave 2
wave 1

SURPRISING DISAPPOINTMENT
Signals that best part of growth phase has ended. Does not enter price territory of wave 1.

TEST OF LOWS
Fundamental conditions often as bad as or worse than those at the previous bottom. Underlying trend considered down. Does not carry to new low.

BOTTOM
Large degrees: question of existence, survival; depression; war.
Intermediate degrees: recession; "panic"; limited wars.
Minor degrees: often accompanied by "bad news".

Figure 2-14

2) Second waves — Second waves often retrace so much of wave one that most of the advancement up to that time is eroded away by the time it ends. This is especially true of call option purchases, as premiums sink drastically in the environment of fear during second waves. At this point, investors are thoroughly convinced that the bear market is back to stay. Second waves often produce downside non-confirmations and Dow Theory "buy spots," when low volume and volatility indicate a drying up of selling pressure.

3) Third waves — Third waves are wonders to behold. They are strong and broad, and the trend at this point is unmistakable. Increasingly favorable fundamentals enter the picture as confidence returns. Third waves usually generate the greatest volume and price movement and are most often the extended wave in a series. It follows, of course, that the third wave of a third wave, and so on, will be the most volatile point of strength in any wave sequence. Such points invariably produce breakouts, "continuation" gaps, volume expansions, exceptional breadth, major Dow Theory trend confirmations and runaway price movement, creating large hourly, daily, weekly, monthly or yearly gains in the market, depending on the degree of the wave. Virtually all stocks participate in third waves. Besides the personality of "B" waves, that of third waves produces the most valuable clues to the wave count as it unfolds.

4) Fourth waves — Fourth waves are predictable in both depth (see Lesson 11) and form, because by alternation they should differ from the previous second wave of the same degree.

More often than not they trend sideways, building the base for the final fifth wave move. Lagging stocks build their tops and begin declining during this wave, since only the strength of a third wave was able to generate any motion in them in the first place. This initial deterioration in the market sets the stage for non-confirmations and subtle signs of weakness during the fifth wave.

5) Fifth waves — Fifth waves in stocks are always less dynamic than third waves in terms of breadth. They usually display a slower maximum speed of price change as well, although if a fifth wave is an extension, speed of price change in the third of the fifth can exceed that of the third wave. Similarly, while it is common for volume to increase through successive impulse waves at Cycle degree or larger, it usually happens below Primary degree only if the fifth wave extends. Otherwise, look for lesser volume as a rule in a fifth wave as opposed to the third. Market dabblers sometimes call for "blowoffs" at the end of long trends, but the stock market has no history of reaching maximum acceleration at a peak. Even if a fifth wave extends, the fifth of the fifth will lack the dynamism of what preceded it. During fifth advancing waves, optimism runs extremely high, despite a narrowing of breadth. Nevertheless, market action does improve relative to prior corrective wave rallies. For example, the year-end rally in 1976 was unexciting in the Dow, but it was nevertheless a motive wave as opposed to the preceding corrective wave advances in April, July and September, which, by contrast, had even less influence on the secondary indexes and the cumulative advance-decline line. As a monument to the optimism that fifth waves can produce, the market forecasting services polled two weeks after the conclusion of that rally turned in the lowest percentage of "bears," 4.5%, in the history of the recorded figures despite that fifth wave's failure to make a new high!

Idealized Corrective Wave

TOP
Large degrees: prosperity and peace appear
guaranteed forever. Arrogant complacency reigns.
Intermediate degrees: economic
improvement, good feeling.
Minor degrees: often accompanied by
"good news."

NARROW, EMOTIONAL ADVANCE
Technically weak, selective.
Results in non-confirmations.
Fundamentals weaken subtly.
Aggressive euphoria and denial.

TECHNICAL BREAKDOWN
Trendlines broken;
viewed as buying opportunity.

wave A

wave B

wave C

WORST OF BEAR MARKET
Strength. Breadth.
Prices decline relentlessly.
Fundamentals ultimately
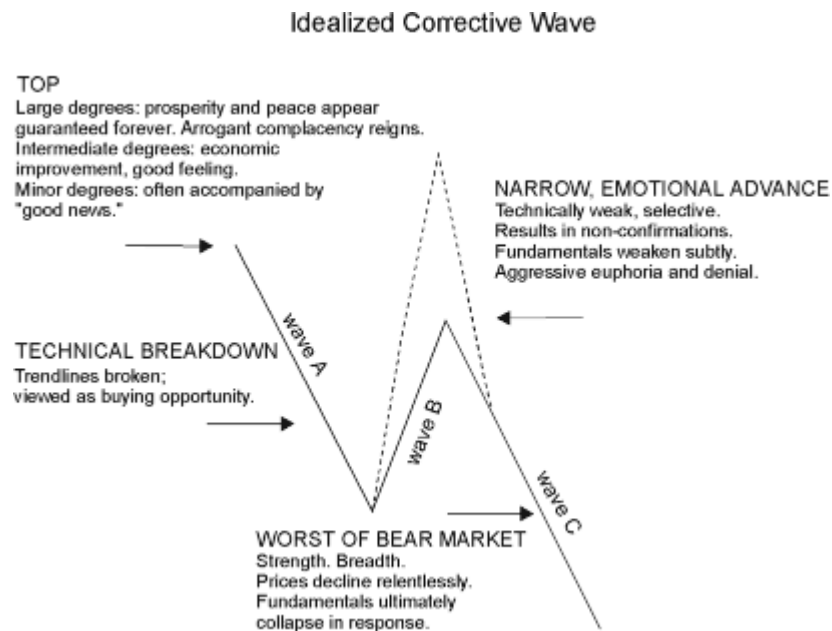collapse in response.

Figure 2-15

6) "A" waves — During "A" waves of bear markets, the investment world is generally convinced that this reaction is just a pullback pursuant to the next leg of advance. The public surges to the buy side despite the first really technically damaging cracks in individual stock patterns. The "A" wave sets the tone for the "B" wave to follow. A five-wave A indicates a zigzag for wave B, while a three-wave A indicates a flat or triangle.

7) "B" waves — "B" waves are phonies. They are sucker plays, bull traps, speculators' paradise, orgies of odd-lotter mentality or expressions of dumb institutional complacency (or both). They often involve a focus on a narrow list of stocks, are often "unconfirmed" (Dow Theory is covered in Lesson 28) by other averages, are rarely technically strong, and are virtually always doomed to complete retracement by wave C. If the analyst can easily say to himself, "There is something wrong with this market," chances are it's a "B" wave. "X" waves and "D" waves in expanding triangles, both of which are corrective wave advances, have the same characteristics. Several examples will suffice to illustrate the point.

— The upward correction of 1930 was wave B within the 1929-1932 A-B-C zigzag decline. Robert Rhea describes the emotional climate well in his opus, The Story of the Averages (1934): ...many observers took it to be a bull market signal. I can remember having shorted stocks early in December, 1929, after having completed a satisfactory short position in October. When the slow but steady advance of January and February carried above [the previous high], I became panicky and covered at considerable loss. ...I forgot that the rally might normally be expected to retrace possibly 66 percent or more of the 1929 downswing. Nearly everyone was proclaiming a new bull market. Services were extremely bullish, and the upside volume was running higher than at the peak in 1929.

— The 1961-1962 rise was wave (b) in an (a)-(b)-(c) expanded flat correction. At the top in early 1962, stocks were selling at unheard of price/earnings multiples that had not been seen up to that time and have not been seen since. Cumulative breadth had already peaked along with the top of the third wave in 1959.

— The rise from 1966 to 1968 was wave [B]* in a corrective pattern of Cycle degree. Emotionalism had gripped the public and "cheapies" were skyrocketing in the speculative fever, unlike the orderly and usually fundamentally justifiable participation of the secondaries within first and third waves. The Dow Industrials struggled unconvincingly higher throughout the advance and finally refused to confirm the phenomenal new highs in the secondary indexes.

— In 1977, the Dow Jones Transportation Average climbed to new highs in a "B" wave, miserably unconfirmed by the Industrials. Airlines and truckers were sluggish. Only the coal-carrying rails were participating as part of the energy play. Thus, breadth within the index was conspicuously lacking, confirming again that good breadth is generally a property of impulse waves, not corrections.

As a general observation, "B" waves of Intermediate degree and lower usually show a diminution of volume, while "B" waves of Primary degree and greater can display volume heavier than that which accompanied the preceding bull market, usually indicating wide public participation.

8) "C" waves — Declining "C" waves are usually devastating in their destruction. They are third waves and have most of the properties of third waves. It is during this decline that there is virtually no place to hide except cash. The illusions held throughout waves A and B tend to evaporate and fear takes over. "C" waves are persistent and broad. 1930-1932 was a "C" wave. 1962 was a "C" wave. 1969-1970 and 1973-1974 can be classified as "C" waves. Advancing "C" waves within upward corrections in larger bear markets are just as dynamic and can be mistaken for the start of a new upswing, especially since they unfold in five waves. The October 1973 rally (see Figure 1-37), for instance, was a "C" wave in an inverted expanded flat correction.

9) "D" waves — "D" waves in all but expanding triangles are often accompanied by increased volume. This is true probably because "D" waves in non-expanding triangles are hybrids, part corrective, yet having some characteristics of first waves since they follow "C" waves and are not fully retraced. "D" waves, being advances within corrective waves, are as phony as "B" waves. The rise from 1970 to 1973 was wave [D] within the large wave IV of Cycle degree. The "one-decision" complacency that characterized the attitude of the average institutional fund manager at the time is well documented. The area of participation again was narrow, this time the "nifty fifty" growth and glamour issues. Breadth, as

well as the Transportation Average, topped early, in 1972, and refused to confirm the extremely high multiples bestowed upon the favorite fifty. Washington was inflating at full steam to sustain the illusory prosperity during the entire advance in preparation for the election. As with the preceding wave [B], "phony" was an apt description.

10) "E" waves — "E" waves in triangles appear to most market observers to be the dramatic kickoff of a new downtrend after a top has been built.

They almost always are accompanied by strongly supportive news. That, in conjunction with the tendency of "E" waves to stage a false breakdown through the triangle boundary line, intensifies the bearish conviction of market participants at precisely the time that they should be preparing for a substantial move in the opposite direction. Thus, "E" waves, being ending waves, are attended by a psychology as emotional as that of fifth waves.

Lesson 15: Practical Application

Because the tendencies discussed here are not inevitable, they are stated not as rules, but as guidelines. Their lack of inevitability nevertheless detracts little from their utility. For example, take a look at Figure 2-16, an hourly chart showing the first four Minor waves in the DJIA rally off the March 1, 1978 low. The waves are textbook Elliott from beginning to end, from the length of waves to the volume pattern (not shown) to the trend channels to the guideline of equality to the retracement by the "a" wave following the extension to the expected low for the fourth wave to the perfect internal counts to alternation to the Fibonacci time sequences to the Fibonacci ratio relationships embodied within. It might be worth noting that 914 would be a reasonable target in that it would mark a .618 retracement of the 1976-1978 decline.

Figure 2-16

There are exceptions to guidelines, but without those, market analysis would be a science of exactitude, not one of probability. Nevertheless, with a thorough knowledge of the guide lines of wave structure, you can be quite confident of your wave count. In effect, you can use the market action to confirm the wave count as well as use the wave count to predict market action.

Notice also that Elliott Wave guidelines cover most aspects of traditional technical analysis, such as market momentum and investor sentiment.

The result is that traditional technical analysis now has a greatly increased value in that it serves to aid the identification of the market's exact position in the Elliott Wave structure. To that end, using such tools is by all means encouraged.

Learning the Basics

With a knowledge of the tools in Lessons 1 through 15, any dedicated student can perform expert Elliott Wave analysis. People who neglect to study the subject thoroughly or to apply the tools rigorously have given up before really trying. The best learning procedure is to keep an hourly chart and try to fit all the wiggles into Elliott Wave patterns, while keeping an open mind for all the possibilities. Slowly the scales should drop from your eyes, and you will continually be amazed at what you see.

It is important to remember that while investment tactics always must go with the most valid wave count, knowledge of alternative possibilities can be extremely helpful in adjusting to unexpected events, putting them immediately into perspective, and adapting to the changing market framework.

While the rigidities of the rules of wave formation are of great value in choosing entry and exit points, the flexibilities in the admissible patterns eliminate cries that whatever the market is doing now is "impossible." "When you have eliminated the impossible, whatever remains, however improbable, must be the truth." Thus eloquently spoke Sherlock Holmes to his constant companion, Dr. Watson, in Arthur Conan Doyle's The Sign of Four. This one sentence is a capsule summary of what one needs to know to be successful with Elliott. The best approach is deductive reasoning. By knowing what Elliott rules will not allow, one can deduce that whatever remains must be the most likely course for the market. Applying all the rules of extensions, alternation, overlapping, channeling, volume and the rest, the analyst has a much more formidable arsenal than one might imagine at first glance. Unfortunately for many, the approach requires

thought and work and rarely provides a mechanical signal. However, this kind of thinking, basically an elimination process, squeezes the best out of what Elliott has to offer and besides, it's fun!

As an example of such deductive reasoning, take another look at Figure 1-14, reproduced below:
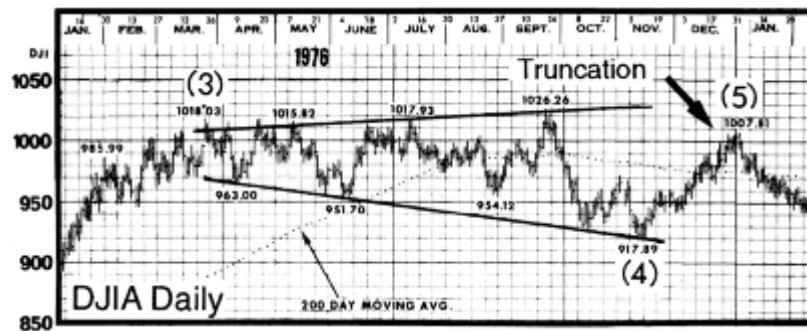

Figure 1-14

Cover up the price action from November 17, 1976 forward. Without the wave labels and boundary lines, the market would appear as formless. But with the Wave Principle as a guide, the meaning of the structures becomes clear. Now ask yourself, how would you go about predicting the next movement? Here is Robert Prechter's analysis from that date, from a personal letter to A.J. Frost, summarizing a report he issued for Merrill Lynch the previous day:

Enclosed you will find my current opinion outlined on a recent Trendline chart, although I use only hourly point charts to arrive at these conclusions.

My argument is that the third Primary wave, begun in October of 1975, has not completed its course as yet, and that the fifth Intermediate wave of that Primary is now underway. First and most important, I am convinced that October 1975 to March 1976 was so far a three-wave affair, not a five, and that only the possibility of a failure on May 11th could complete that wave as a five. However, the construction following that possible "failure" does not satisfy me as correct, since the first downleg to 956.45 would be of five waves and the entire ensuing construction is obviously a flat.

Therefore, I think that we have been in a fourth corrective wave since March 24th. This corrective wave satisfies completely the requirements for an expanding triangle formation, which of course can only be a fourth wave. The trendlines concerned are uncannily accurate, as is the downside objective, obtained by multiplying the first important length of decline (March 24th to June 7th, 55.51 points) by 1.618 to obtain 89.82 points. 89.82 points from the orthodox high of the third Intermediate wave at 1011.96 gives a downside target of 922, which was hit last week (actual hourly low 920.62) on November 11th. This would suggest now a fifth Intermediate back to new highs, completing the third Primary wave. The only problem I can see with this interpretation is that Elliott suggests that fourth wave declines usually hold above the previous fourth wave decline of lesser degree, in this case 950.57 on February 17th, which of course has been broken on the downside. I have found, however, that this rule is not steadfast. The reverse symmetrical triangle formation should be followed by a rally only approximating the width of the widest part of the triangle. Such a rally would suggest 1020-1030 and fall far short of the trendline target of 1090-1100. Also, within third waves, the first and fifth subwaves tend toward equality in time and magnitude. Since the first wave (Oct. 75-Dec.75) was a 10% move in two months, this fifth should cover about 100 points (1020-1030) and peak in January 1977, again short of the trendline mark.

Now uncover the rest of the chart to see how all these guidelines helped in assessing the market's likely path.

Christopher Morley once said, "Dancing is a wonderful training for girls. It is the first way they learn to guess what a man is going to do before he does it." In the same way, the Wave Principle trains the analyst to discern what the market is likely to do before it does it.

After you have acquired an Elliott "touch," it will be forever with you, just as a child who learns to ride a bicycle never forgets. At that point, catching a turn becomes a fairly common experience and not really too difficult. Most important, in giving you a feeling of confidence as to where you are in the progress of the market, a knowledge of Elliott can prepare you psychologically for the inevitable fluctuating nature of price movement and free you from sharing the widely practiced analytical error of forever projecting today's trends linearly into the future.

Practical Application

The Wave Principle is unparalleled in providing an overall perspective on the position of the market most of the time. Most important to individuals, portfolio managers and investment corporations is that the Wave Principle often indicates in advance the relative magnitude of the next period of market progress or regress. Living in harmony with those trends can make the difference between success and failure in financial affairs.

Despite the fact that many analysts do not treat it as such, the Wave Principle is by all means an objective study, or as Collins put it, "a disciplined form of technical analysis." Bolton used to say that one of the hardest things he had to learn was to believe what he saw. If the analyst does not believe what he sees, he is likely to read into his analysis what he thinks should be there for some other reason. At this point, his count becomes subjective. Subjective analysis is dangerous and destroys the value of any market approach.

What the Wave Principle provides is an objective means of assessing the relative probabilities of possible future paths for the market. At any time, two or more valid wave interpretations are usually acceptable by the rules of the Wave Principle. The rules are highly specific and keep the number of valid alternatives to a minimum. Among the valid alternatives, the analyst will generally regard as preferred the interpretation that satisfies the largest number of guidelines, and so on. As a result, competent analysts applying the rules and guidelines of the Wave Principle objectively should usually agree on the order of probabilities for various possible outcomes at any particular time. That order can usually be stated with certainty. Let no one assume, however, that certainty about the order of probabilities is the same as certainty about one specific outcome. Under only the rarest of circumstances does the analyst ever know exactly what

the market is going to do. One must understand and accept that even an approach that can identify high odds for a fairly specific outcome will be wrong some of the time. Of course, such a result is a far better performance than any other approach to market forecasting provides.

Using Elliott, it is often possible to make money even when you are in error. For instance, after a minor low that you erroneously consider of major importance, you may recognize at a higher level that the market is vulnerable again to new lows. A clear-cut three-wave rally following the minor low rather than the necessary five gives the signal, since a three-wave rally is the sign of an upward correction. Thus, what happens after the turning point often helps confirm or refute the assumed status of the low or high, well in advance of danger.

Even if the market allows no such graceful exit, the Wave Principle still offers exceptional value. Most other approaches to market analysis, whether fundamental, technical or cyclical, have no good way of forcing a change of opinion if you are wrong. The Wave Principle, in contrast, provides a built-in objective method for changing your mind. Since Elliott Wave analysis is based upon price patterns, a pattern identified as having been completed is either over or it isn't. If the market changes direction, the analyst has caught the turn. If the market moves beyond what the apparently completed pattern allows, the conclusion is wrong, and any funds at risk can be reclaimed immediately. Investors using the Wave Principle can prepare themselves psychologically for such outcomes through the continual updating of the second best interpretation, sometimes called the "alternate count." Because applying the Wave Principle is an exercise in probability, the ongoing maintenance of alternative wave counts is an essential part of investing with it. In the event that the market violates the expected scenario, the alternate count immediately becomes the investor's new preferred count. If you're thrown by your horse, it's useful to land right atop another.

Of course, there are often times when, despite a rigorous analysis, the question may arise as to how a developing move is to be counted, or perhaps classified as to degree. When there is no clearly preferred interpretation, the analyst must wait until the count resolves itself, in other words, to "sweep it under the rug until the air clears," as Bolton suggested. Almost always, subsequent moves will clarify the status of previous waves by revealing their position in the pattern of the next higher degree. When subsequent waves clarify the picture, the probability that a turning point is at hand can suddenly and excitingly rise to nearly 100%.

The ability to identify junctures is remarkable enough, but the Wave Principle is the only method of analysis which also provides guidelines for forecasting, as outlined in Lessons 10 through 15 and 20 through 25 of this course. Many of these guidelines are specific and can occasionally yield results of stunning precision. If indeed markets are patterned, and if those patterns have a recognizable geometry, then regardless of the variations allowed, certain price and time relationships are likely to recur. In fact, real world experience shows that they do.

It is our practice to try to determine in advance where the next move will likely take the market. One advantage of setting a target is that it gives a sort of backdrop against which to monitor the market's actual path. This way, you are alerted quickly when something is wrong and can shift your interpretation to a more appropriate one if the market does not do what is expected. If you then learn the reasons for your mistakes, the market will be less likely to mislead you in the future.

Still, no matter what your convictions, it pays never to take your eye off what is happening in the wave structure in real time. Although prediction of target levels well in advance can be done surprisingly often, such predictions are not required in order to make money in the stock market.

Ultimately, the market is the message, and a change in behavior can dictate a change in outlook. All one really needs to know at the time is whether to be bullish, bearish or neutral, a decision that can sometimes be made with a swift glance at a chart.

Of the many approaches to stock market analysis, the Elliott Wave Principle, in our view, offers the best tool for identifying market turns as they are approached. If you keep an hourly chart, the fifth of the fifth of the fifth in a primary trend alerts you within hours of a major change in direction by the market. It is a thrilling experience to pinpoint a turn, and the Wave Principle is the only approach that can occasionally provide the opportunity to do so. Elliott may not be the perfect formulation since the stock market is part of life and no formula can enclose it or express it completely. However, the Wave Principle is without a doubt the single most comprehensive approach to market analysis and, viewed in its proper light, delivers everything it promises.

Lesson 16: Introducing Fibonacci
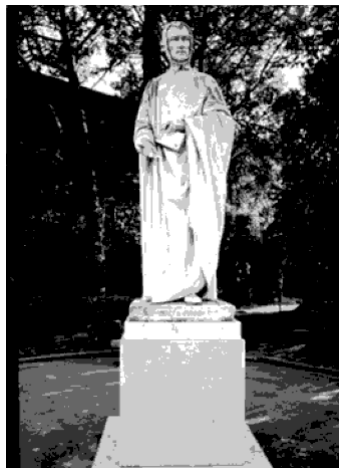
Statue of Leonardo Fibonacci, Pisa, Italy.

The inscription reads, "A. Leonardo Fibonacci, Insigne Matematico Piisano del Secolo XII."
Photo by Robert R. Prechter, Sr.

Historical And Mathematical Background Of The Wave Principle

The Fibonacci (pronounced fib-eh-nahr'-chee) sequence of numbers was discovered (actually rediscovered) by Leonardo Fibonacci da Pisa, a thirteenth century mathematician. We will outline the historical background of this amazing man and then discuss more fully the sequence (technically it is a sequence and not a series) of numbers that bears his name. When Elliott wrote Nature's Law, he referred specifically to the Fibonacci sequence as the mathematical basis for the Wave Principle. It is sufficient to state at this point that the stock market has a propensity to demonstrate a form that can be aligned with the form present in the Fibonacci sequence. (For a further discussion of the mathematics behind the Wave Principle, see "Mathematical Basis of Wave Theory," by Walter E. White, in New Classics Library's forthcoming book.)

In the early 1200s, Leonardo Fibonacci of Pisa, Italy published his famous Liber Abacci (Book of Calculation) which introduced to Europe one of the greatest mathematical discoveries of all time, namely the decimal system, including the positioning of zero as the first digit in the notation of the number scale. This system, which included the familiar symbols 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9, became known as the Hindu-Arabic system, which is now universally used.

Under a true digital or place-value system, the actual value represented by any symbol placed in a row along with other symbols depends not only on its basic numerical value but also on its position in the row, i.e., 58 has a different value from 85. Though thousands of years earlier the Babylonians and Mayas of Central America separately had developed digital or place-value systems of numeration, their methods were awkward in other respects. For this reason, the Babylonian system, which had been the first to use zero and place values, was never carried forward into the mathematical systems of Greece, or even Rome, whose numeration comprised the seven symbols I, V, X, L, C, D, and M, with non-digital values assigned to those symbols. Addition, subtraction, multiplication and division in a system using these non-digital symbols is not an easy task, especially when large numbers are involved. Paradoxically, to overcome this problem, the Romans used the very ancient digital device known as the abacus. Because this instrument is digitally based and contains the zero principle, it functioned as a necessary supplement to the Roman computational system. Throughout the ages, bookkeepers and merchants depended on it to assist them in the mechanics of their tasks. Fibonacci, after expressing the basic principle of the abacus in Liber Abacci, started to use his new system during his travels. Through his efforts, the new system, with its easy method of calculation, was eventually transmitted to Europe. Gradually the old usage of Roman numerals was replaced with the Arabic numeral system. The introduction of the new system to Europe was the first important achievement in the field of mathematics since the fall of Rome over seven hundred years before. Fibonacci not only kept mathematics alive during the Middle Ages, but laid the foundation for great developments in the field of higher mathematics and the related fields of physics, astronomy and engineering.

Although the world later almost lost sight of Fibonacci, he was unquestionably a man of his time. His fame was such that Frederick II, a scientist and scholar in his own right, sought him out by arranging a visit to Pisa. Frederick II was Emperor of the Holy Roman Empire, the King of Sicily and Jerusalem, scion of two of the noblest families in Europe and Sicily, and the most powerful prince of his day. His ideas were those of an absolute monarch, and he surrounded himself with all the pomp of a Roman emperor.

The meeting between Fibonacci and Frederick II took place in 1225 A.D. and was an event of great importance to the town of Pisa. The Emperor rode at the head of a long procession of trumpeters, courtiers, knights, officials and a menagerie of animals. Some of the problems the Emperor placed before the famous mathematician are detailed in Liber Abacci. Fibonacci apparently solved the problems posed by the Emperor and forever more was welcome at the King's Court. When Fibonacci revised Liber Abacci in 1228 A.D., he dedicated the revised edition to Frederick II.

It is almost an understatement to say that Leonardo Fibonacci was the greatest mathematician of the Middle Ages. In all, he wrote three major mathematical works: the Liber Abacci, published in 1202 and revised in 1228, Practica Geometriae, published in 1220, and Liber Quadratorum. The admiring citizens of Pisa documented in 1240 A.D. that he was "a discreet and learned man," and very recently Joseph Gies, a senior editor of the Encyclopedia Britannica, stated that future scholars will in time "give Leonard of Pisa his due as one of the world's great intellectual pioneers." His works, after all these years, are only now being translated from Latin into English. For those interested, the book entitled Leonard of Pisa and the New Mathematics of the Middle Ages, by Joseph and Frances Gies, is an excellent treatise on the age of Fibonacci and his works.

Although he was the greatest mathematician of medieval times, Fibonacci's only monuments are a statue across the Arno River from the Leaning Tower and two streets which bear his name, one in Pisa and the other in Florence. It seems strange that so few visitors to the 179-foot marble Tower of Pisa have ever heard of Fibonacci or seen his statue. Fibonacci was a contemporary of Bonanna, the architect of the Tower, who started building in 1174 A.D. Both men made contributions to the world, but the one whose influence far exceeds the other's is almost unknown.

The Fibonacci Sequence

In Liber Abacci, a problem is posed that gives rise to the sequence of numbers 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, and so on to infinity, known today as the Fibonacci sequence. The problem is this:

How many pairs of rabbits placed in an enclosed area can be produced in a single year from one pair of rabbits if each pair gives birth to a new pair each month starting with the second month?

In arriving at the solution, we find that each pair, including the first pair, needs a month's time to mature, but once in production, begets a new pair each month. The number of pairs is the same at the beginning of each of the first two months, so the sequence is 1, 1. This first pair finally doubles its number during the second month, so that there are two pairs at the beginning of the third month. Of these, the older pair begets a third pair the following month so that at the beginning of the fourth month, the sequence expands 1, 1, 2, 3. Of these three, the two older pairs reproduce, but not the youngest pair, so the number of rabbit pairs expands to five. The next month, three pairs reproduce so the sequence expands to 1, 1, 2, 3, 5, 8 and so forth. Figure 3-1 shows the Rabbit Family Tree with the family growing with logarithmic

acceleration. Continue the sequence for a few years and the numbers become astronomical. In 100 months, for instance, we would have to contend with 354,224,848,179,261,915,075 pairs of rabbits.

The Fibonacci sequence resulting from the rabbit problem has many interesting properties and reflects an almost constant relationship among its components.
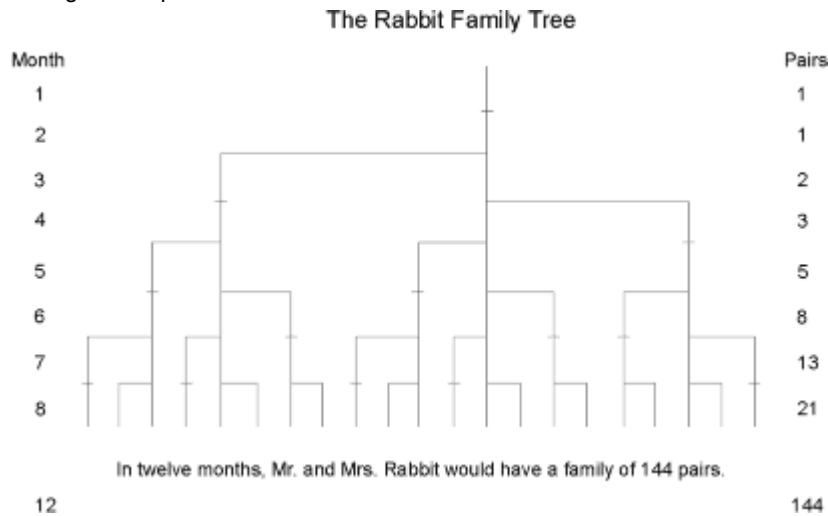

The Rabbit Family Tree

In twelve months, Mr. and Mrs. Rabbit would have a family of 144 pairs.

Figure 3-1

The sum of any two adjacent numbers in the sequence forms the next higher number in the sequence, viz., 1 plus 1 equals 2, 1 plus 2 equals 3, 2 plus 3 equals 5, 3 plus 5 equals 8, and so on to infinity.

The Golden Ratio

After the first several numbers in the sequence, the ratio of any number to the next higher is approximately .618 to 1 and to the next lower number approximately 1.618 to 1. The further along the sequence, the closer the ratio approaches phi (denoted f) which is an irrational number, .618034....

Between alternate numbers in the sequence, the ratio is approximately .382, whose inverse is 2.618. Refer to Figure 3-2 for a ratio table interlocking all Fibonacci numbers from 1 to 144.

Fibonacci Ratio Table

Toward perfect ratios

Figure 3-2

Phi is the only number that when added to 1 yields its inverse: .618 + 1 = 1 ч .618. This alliance of the additive and the multiplicative produces the following sequence of equations: .618^2 = 1 - .618, .618^3 = .618 - .618^2, .618^4 = .618^2 - .618^3, .618^5 = .618^3 - .618^4, etc. or alternatively, 1.618^2 = 1 + 1.618, 1.618^3 = 1.618 + 1.618^2, 1.618^4 = 1.618^2 + 1.618^3, 1.618^5 = 1.618^3 + 1.618^4, etc.

Some statements of the interrelated properties of these four main ratios can be listed as follows:

1.618 - .618 = 1,	2.618 - 1.618 = 1,
1.618 x .618 = 1,	2.618 x .382 = 1,
1 - .618 = .382,	2.618 x .618 = 1.618,
.618 x .618 = .382,	1.618 x 1.618 = 2.618.

Besides 1 and 2, any Fibonacci number multiplied by four, when added to a selected Fibonacci number, gives another Fibo-nacci number, so that:

3 x 4 = 12; + 1 = 13,	13 x 4 = 52; + 3 = 55,
5 x 4 = 20; + 1 = 21,	21 x 4 = 84; + 5 = 89,
8 x 4 = 32; + 2 = 34,	

and so on.

As the new sequence progresses, a third sequence begins in those numbers that are added to the 4x multiple. This relationship is possible because the ratio between second alternate Fibonacci numbers is 4.236, where .236 is both its inverse and its difference from the number 4. This continuous series-building property is reflected at other multiples for

the same reasons. 1.618 (or .618) is known as the Golden Ratio or Golden Mean. Its proportions are pleasing to the eye and an important phenomenon in music, art, architecture and biology. William Hoffer, writing for the December 1975 Smithsonian Magazine, said: ...the proportion of .618034 to 1 is the mathematical basis for the shape of playing cards and the Parthenon, sunflowers and snail shells, Greek vases and the spiral galaxies of outer space. The Greeks based much of their art and architecture upon this proportion.

They called it "the golden mean."

Fibonacci's abracadabric rabbits pop up in the most unexpected places. The numbers are unquestionably part of a mystical natural harmony that feels good, looks good and even sounds good. Music, for example, is based on the 8 note octave. On the piano this is represented by 8 white keys, 5 black ones — 13 in all. It is no accident that the musical harmony that seems to give the ear its greatest satisfaction is the major sixth. The note E vibrates at a ratio of .62500 to the note C. A mere .006966 away from the exact golden mean, the proportions of the major sixth set off good vibrations in the cochlea of the inner ear — an organ that just happens to be shaped in a logarithmic spiral.

The continual occurrence of Fibonacci numbers and the golden spiral in nature explains precisely why the proportion of .618034 to 1 is so pleasing in art. Man can see the image of life in art that is based on the golden mean.

Nature uses the Golden Ratio in its most intimate building blocks and in its most advanced patterns, in forms as minuscule as atomic structure, microtubules in the brain and DNA molecules to those as large as planetary orbits and galaxies. It is involved in such diverse phenomena as quasi crystal arrangements, planetary distances and periods, reflections of light beams on glass, the brain and nervous system, musical arrangement, and the structures of plants and animals. Science is rapidly demonstrating that there is indeed a basic proportional principle of nature. By the way, you are holding your mouse with your five appendages, all but one of which have three jointed parts, five digits at the end, and three jointed sections to each digit.

Lesson 17: Fibonacci Geometry

The Golden Section

Any length can be divided in such a way that the ratio between the smaller part and the larger part is equivalent to the ratio between the larger part and the whole (see Figure 3-3). That ratio is always .618.

Figure 3-3

The Golden Section occurs throughout nature. In fact, the human body is a tapestry of Golden Sections (see Figure 3-9) in everything from outer dimensions to facial arrangement. "Plato, in his Timaeus," says Peter Tompkins, "went so far as to consider phi, and the resulting Golden Section proportion, the most binding of all mathematical relations, and considered it the key to the physics of the cosmos." In the sixteenth century, Johannes Kepler, in writing about the Golden, or "Divine Section," said that it described virtually all of creation and specifically symbolized God's creation of "like from like." Man is the divided at the navel into Fibonacci proportions. The statistical average is approximately .618. The ratio holds true separately for men, and separately for women, a fine symbol of the creation of "like from like." Is all of mankind's progress also a creation of "like from like?"

The Golden Rectangle

The sides of a Golden Rectangle are in the proportion of 1.618 to 1. To construct a Golden Rectangle, start with a square of 2 units by 2 units and draw a line from the midpoint of one side of the square to one of the corners formed by the opposite side as shown in Figure 3-4.
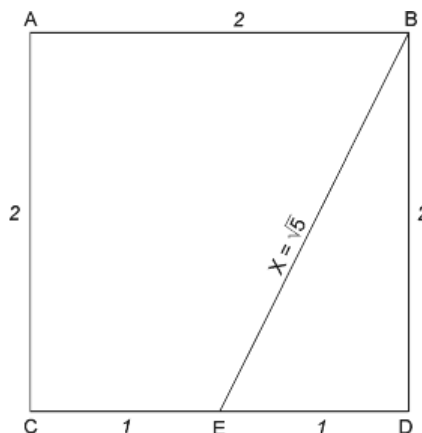
Figure 3-4

Triangle EDB is a right-angled triangle. Pythagoras, around 550 B.C., proved that the square of the hypotenuse (X) of a right-angled triangle equals the sum of the squares of the other two sides. In this case, therefore, $X^2 = 2^2 + 1^2$, or $X^2 = 5$. The length of the line EB, then, must be the square root of 5. The next step in the construction of a Golden Rectangle is to extend the line CD, making EG equal to the square root of 5, or 2.236, units in length, as shown in Figure

3-5. When completed, the sides of the rectangles are in the proportion of the Golden Ratio, so both the rectangle AFGC and BFGD are Golden Rectangles.
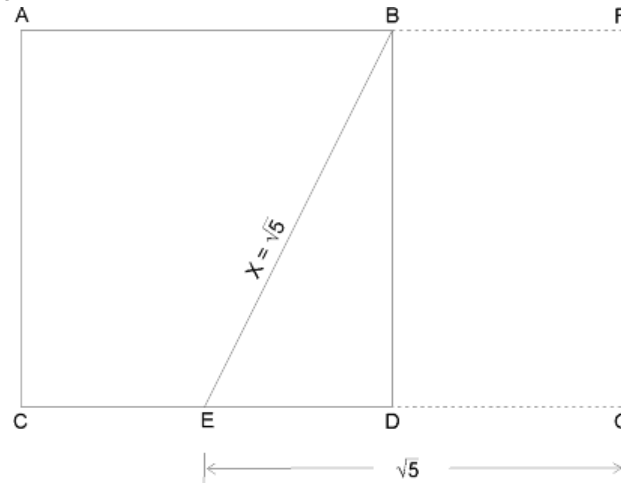
Figure 3-5

Since the sides of the rectangles are in the proportion of the Golden Ratio, then the rectangles are, by definition, Golden Rectangles.

Works of art have been greatly enhanced with knowledge of the Golden Rectangle. Fascination with its value and use was particularly strong in ancient Egypt and Greece and during the Renaissance, all high points of civilization. Leonardo da Vinci attributed great meaning to the Golden Ratio. He also found it pleasing in its proportions and said, "If a thing does not have the right look, it does not work." Many of his paintings had the right look because he used the Golden Section to enhance their appeal.

While it has been used consciously and deliberately by artists and architects for their own reasons, the phi proportion apparently does have an effect upon the viewer of forms. Experimenters have determined that people find the .618 proportion aesthetically pleasing. For instance, subjects have been asked to choose one rectangle from a group of different types of rectangles with the average choice generally found to be close to the Golden Rectangle shape. When asked to cross one bar with another in a way they liked best, subjects generally used one to divide the other into the phi proportion. Windows, picture frames, buildings, books and cemetery crosses often approximate Golden Rectangles.

As with the Golden Section, the value of the Golden Rectangle is hardly limited to beauty, but serves function as well. Among numerous examples, the most striking is that the double helix of DNA itself creates precise Golden Sections at regular intervals of its twists (see Figure 3-9).

While the Golden Section and the Golden Rectangle represent static forms of natural and man-made aesthetic beauty and function, the representation of an aesthetically pleasing dynamism, an orderly progression of growth or progress, can be made only by one of the most remarkable forms in the universe, the Golden Spiral.

The Golden Spiral

A Golden Rectangle can be used to construct a Golden Spiral. Any Golden Rectangle, as in Figure 3-5, can be divided into a square and a smaller Golden Rectangle, as shown in Figure 3-6. This process then theoretically can be continued to infinity. The resulting squares we have drawn, which appear to be whirling inward, are marked A, B, C, D, E, F and G.

Figure 3-6

Figure 3-7

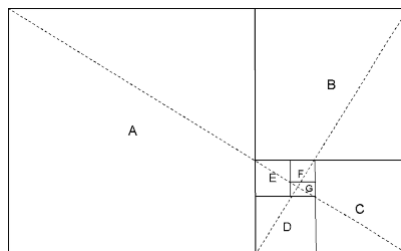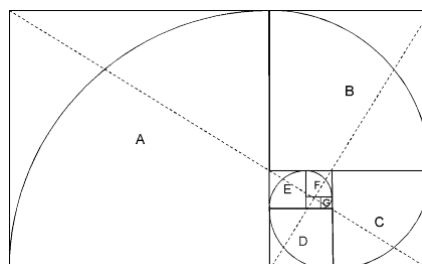The dotted lines, which are themselves in golden proportion to each other, diagonally bisect the rectangles and pinpoint the theoretical center of the whirling squares. From near this central point, we can draw the spiral as shown in Figure 3-7 by connecting the points of intersection for each whirling square, in order of increasing size. As the squares whirl inward and outward, their connecting points trace out a Golden Spiral. The same process, but using a sequence of whirling triangles, also can be used to construct a Golden Spiral.

At any point in the evolution of the Golden Spiral, the ratio of the length of the arc to its diameter is 1.618. The diameter and radius, in turn, are related by 1.618 to the diameter and radius 90° away, as illustrated in Figure 3-8.

$$\frac{r_2}{r_1} = \frac{r_3}{r_2} = \frac{r_4}{r_3} = \ldots = \frac{r_n}{r_{n-1}} = 1.618$$

$$\frac{d_2}{d_1} = \frac{d_3}{d_2} = \ldots = \frac{d_n}{d_{n-1}} = 1.618$$

(where $d_1 = r_1 + r_3$, $d_2 = r_2 + r_4$, etc.)

$$\frac{arcXY}{arcWX} = \frac{arcYZ}{arcXY}, \text{ etc.} = \frac{arcXZ}{arcWY} = 1.618$$

$$\frac{arcWY}{\text{diam. (WY)}} = \frac{arcXZ}{\text{diam. (XZ)}}, \text{ etc.} = 1.618$$
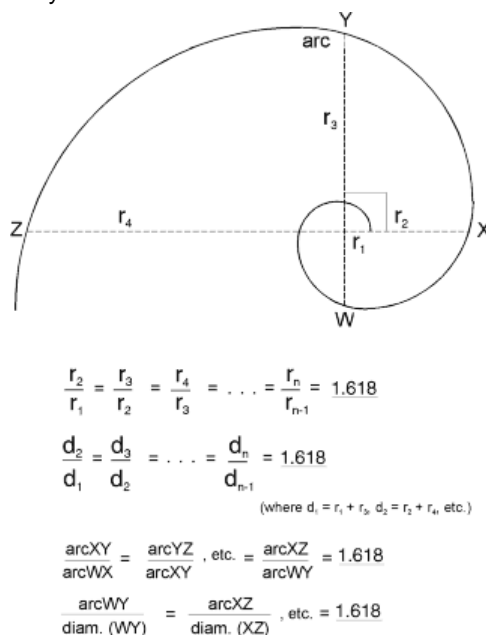
Figure 3-8

The Golden Spiral, which is a type of logarithmic or equiangular spiral, has no boundaries and is a constant shape. From any point on the spiral, one can travel infinitely in either the outward or inward direction. The center is never met, and the outward reach is unlimited. The core of a logarithmic spiral seen through a microscope would have the same look as its widest viewable reach from light years away. As David Bergamini, writing for Mathematics (in Time-Life Books' Science Library series) points out, the tail of a comet curves away from the sun in a logarithmic spiral. The epeira spider spins its web into a logarithmic spiral. Bacteria grow at an accelerating rate that can be plotted along a logarithmic spiral. Meteorites, when they rupture the surface of the Earth, cause depressions that correspond to a logarithmic spiral. Pine cones, sea horses, snail shells, mollusk shells, ocean waves, ferns, animal horns and the arrange- ment of seed curves on sunflowers and daisies all form logarithmic spirals. Hurricane clouds and the galaxies of outer space swirl in logarithmic spirals. Even the human finger, which is composed of three bones in Golden Section to one another, takes the spiral shape of the dying poinsettia leaf when curled. In Figure 3-9, we see a reflection of this cosmic influence in numerous forms. Eons of time and light years of space separate the pine cone and the spiraling galaxy, but the design is the same: a 1.618 ratio, perhaps the primary law governing dynamic natural phenomena. Thus, the Golden Spiral spreads before us in symbolic form as one of nature's grand designs, the image of life in endless expansion and contraction, a static law governing a dynamic process, the within and the without sustained by the 1.618 ratio, the Golden Mean.

Figure 3-9a   **Figure 3-9b**   **Figure 3-9c**

Figure 3-9d

Figure 3-9e   **Figure 3-9f**

Lesson 18: The Meaning Of Phi

The value of this ubiquitous phenomenon was deeply understood and profoundly appreciated by the greatest intellects of the ages. History abounds with examples of exceptionally learned men who held a special fascination for this mathematical formulation. Pythagoras chose the five-pointed star, in whic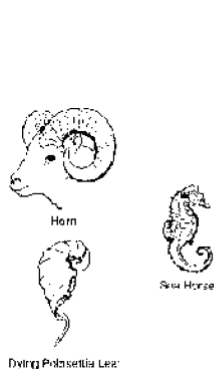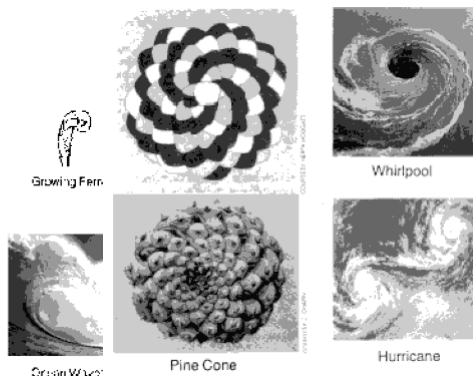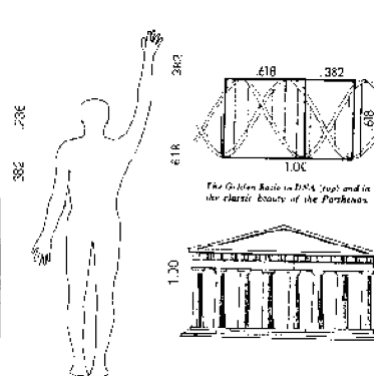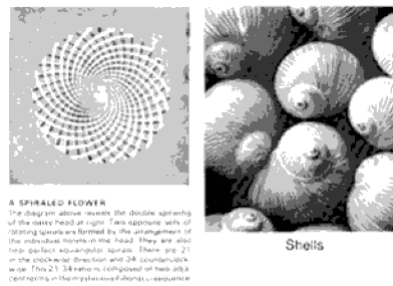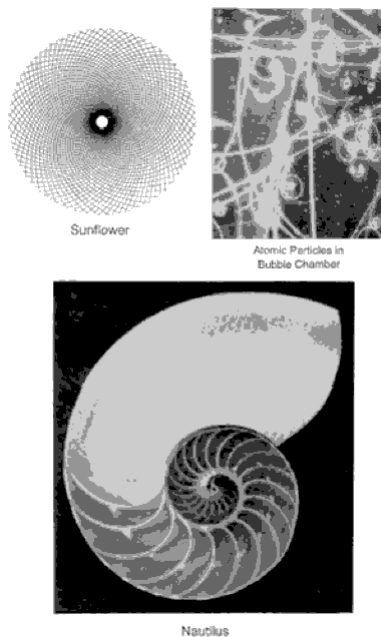h every segment is in golden ratio to the next smaller segment, as the symbol of his Order; celebrated 17th century mathematician Jacob Bernoulli had the Golden Spiral etched into his headstone; Isaac Newton had the same spiral carved on the headboard of his bed (owned today by the Gravity Foundation, New Boston, NH). The earliest known aficionados were the architects of the Gizeh pyramid in Egypt, who recorded the knowledge of phi in its construction nearly 5000 years ago. Egyptian engineers consciously incorporated the Golden Ratio in the Great Pyramid by giving its faces a slope height equal to 1.618 times half its base, so that the vertical height of the pyramid is at the same time the square root of 1.618 times half its base. According to Peter Tompkins, author of Secrets of the Great Pyramid (Harper & Row, 1971), "This relation shows Herodotus' report to be indeed correct, in that the square of the height of the pyramid is Цf x Цf = f, and the areas of the face 1 x f = f."

Furthermore, using these proportions, the Egyptian scientists (apparently in order to build a scale model of the Northern Hemisphere) used pi and phi in an approach so mathematically sophisticated that it accomplished the feat of squaring the circle and cubing the sphere (i.e., making them of equal area and volume), a feat which was not duplicated for well over four thousand years.

While the mere mention of the Great Pyramid may serve as an engraved invitation to skepticism (perhaps for good reason), keep in mind that its form reflects the same fascination held by pillars of Western scientific, mathematical, artistic and philosophic thought, including Plato, Pythagoras, Bernoulli, Kepler, DaVinci and Newton. Those who designed and built the pyramid were likewise demonstrably brilliant scientists, astronomers, mathematicians and engineers. Clearly they wanted to enshrine for millennia the Golden Ratio as something of transcendent importance. That such a caliber of people, who were later joined by some of the greatest minds of Greece and the Enlightenment in their fascination for this ratio, undertook this task is itself important. As for why, all we have is conjecture from a few authors. Yet that conjecture, however obtuse, curiously pertains to our own observations. It has been surmised that the Great Pyramid, for centuries after it was built, was used as a temple of initiation for those who proved themselves worthy of understanding the great universal secrets. Only those who could rise above the crude acceptance of things as they seemed to discover what, in actuality, they were, could be instructed in "the mysteries," i.e., the complex truths of eternal order and growth.

Did such "mysteries" include phi? Tompkins explains, "The pharaonic Egyptians, says Schwaller de Lubicz, considered phi not as a number, but as a symbol of the creative function, or of reproduction in an endless series. To them it represented `the fire of life, the male action of sperm, the logos [referenced in] the gospel of St. John.'" Logos, a Greek word, was defined variously by Heraclitus and subsequent pagan, Jewish and Christian philosophers as meaning the rational order of the universe, an immanent natural law, a life-giving force hidden within things, the universal structural force governing and permeating the world.

Consider when reading such deep yet vague descriptions that these people could not clearly see what they sensed. They did not have graphs and the Wave Principle to make nature's growth pattern manifest and were doing the best they could to describe an organizational principle that they discerned as shaping the natural world. If these ancient philosophers were right that a universal structural force governs and permeates the world, should it not govern and permeate the world of man? If forms throughout the universe, including man's body, brain and DNA, reflect the form of phi, might man's activities reflect it as well? If phi is the life-force in the universe, might it be the impulse behind the progress in man's productive capacity? If phi is a symbol of the creative function, might it govern the creative activity of man? If man's progress is based upon production and reproduction "in an endless series," is it not reasonable that such progress has the spiraling form of phi, and that this form is discernible in the movement of the valuation of his productive capacity, i.e., the stock market? Just as the initiated Egyptians learned the hidden truths of order and growth in the universe behind the apparent randomness and chaos (something that modern "chaos theory" has finally rediscovered in the 1980s), so the stock market, in our opinion, can be understood properly if it is taken for what it is rather than for what it crudely appears to be upon cursory consideration. The stock market is not a random, formless mess reacting to current news events but a remarkably precise recording of the formal structure of the progress of man.

Compare this concept with astronomer William Kingsland's words in The Great Pyramid in Fact and in Theory that Egyptian astronomy/astrology was a "profoundly esoteric science connected with the great cycles of man's evolution." The Wave Principle explains the great cycles of man's evolution and reveals how and why they unfold as they do. Moreover, it encompasses micro as well as macro scales, all of which are based upon a paradoxical principle of dynamism and variation within an unaltered form.

It is this form that gives structure and unity to the universe. Nothing in nature suggests that life is disorderly or formless. The word "universe" means "one order." If life has form, then we must not reject the probability that human progress, which is part of the reality of life, also has order and form.

By extension, the stock market, which values man's productive enterprise, will have order and form as well. All technical approaches to understanding the stock market depend on the basic principle of order and form. Elliott's theory, however, goes beyond all others. It postulates that no matter how minute or how large the form, the basic design remains constant.

Elliott, in his second monograph, used the title Nature's Law — The Secret of the Universe in preference to "The Wave Principle" and applied it to all sorts of human activity. Elliott may have gone too far in saying that the Wave Principle was the secret of the universe, as nature appears to have created numerous forms and processes, not just one simple design. Nevertheless, some of history's greatest scientists, mentioned earlier, would probably have agreed with Elliott's formulation. At minimum, it is credible to say that the Wave Principle is one of the most important secrets of the universe. Even this grandiose claim at first may appear to be only so much tall talk to practically-minded investors, and quite understandably so.

The grand nature of the concept stretches the imagination and confounds the intellect, while its applicability is as yet unclear. First we must ask, can we both theorize and observe that there is indeed a principle that operates on the same mathematical basis in the heavens and earth as it does in the stock market?

The answer is yes. The stock market has the very same mathematical base as do these natural phenomena. The idealized Elliott concept of the progression of the stock market is an excellent base from which to construct the Golden Spiral, as Figure 3-10 illustrates with a rough approximation. In this construction, the top of each successive wave of higher degree is the touch point of the logarithmic expansion.
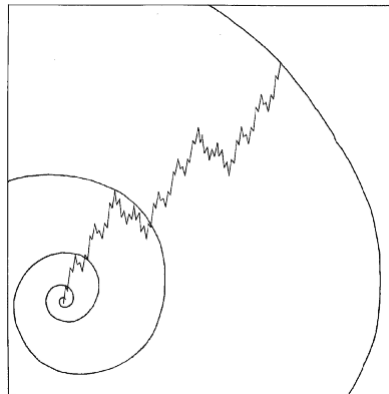
Figure 3-10

This result is possible because at every degree of stock market activity, a bull market subdivides into five waves and a bear market subdivides into three waves, giving us the 5-3 relationship that is the mathematical basis of the Elliott Wave Principle. We can generate the complete Fibonacci sequence, as we first did in Figure 1-4, by using Elliott's concept of the progression of the market. If we start with the simplest expression of the concept of a bear swing, we get one straight line decline. A bull swing, in its simplest form, is one straight line advance. A complete cycle is two lines. In the next degree of complexity, the corresponding numbers are 3, 5 and 8. As illustrated in Figure 3-11, this sequence can be taken to infinity.

Bear   Bull   Both

1, 1, 2

Bear   Bull   Both

3, 5, 8

Bear   Bull   Both

13, 21, 34

etc.
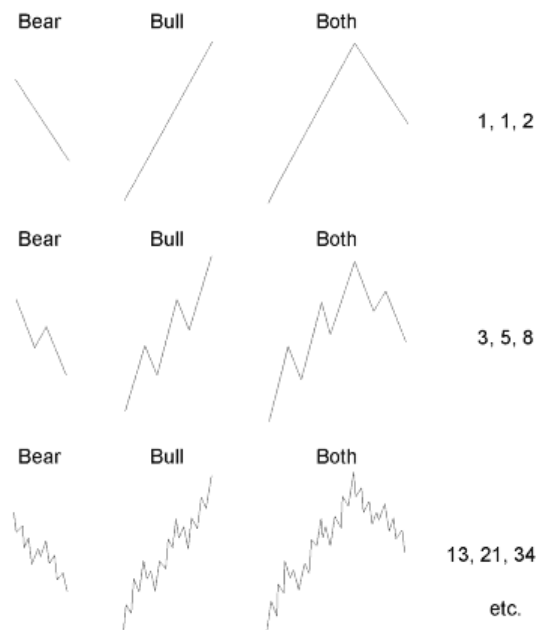
Figure 3-11

Lesson 19: Phi And The Stock Market

The stock market's patterns are repetitive (and fractal, to use today's terminology) in that the same basic pattern of movement that shows up in minor waves, using hourly plots, shows up in Supercycles and Grand Supercycles, using yearly plots. Figures 3-12 and 3-13 show two charts, one reflecting the hourly fluctuations in the Dow over a ten day period from June 25th to July 10th, 1962 and the other a yearly plot of the S&P 500 Index from 1932 to 1978 (courtesy of The Media General Financial Weekly). Both plots indicate similar patterns of movement despite a difference in the time span of over 1500 to 1. The long term formulation is still unfolding, as wave V from the 1974 low has not run its full course, but to date the pattern is along lines parallel to the hourly chart. Why? Because in the stock market, form is not a slave to the time element. Under Elliott's rules, both short and long term plots reflect a 5-3 relationship that can be aligned with the form that reflects the properties of the Fibonacci sequence of numbers. This truth suggests that collectively, man's emotions, in their expression, are keyed to this mathematical law of nature.

Figure 3-12   **Figure 3-13**

Now compare the formations shown in Figures 3-14 and 3-15. Each illustrates the natural law of the inwardly directed Golden Spiral and is governed by the Fibonacci ratio. Each wave relates to the previous wave by .618. In fact, the distances in terms of the Dow points themselves reflect Fibonacci mathematics. In Figure 3-14, showing the 1930-

1942 sequence, the market swings cover approximately 260, 160, 100, 60, and 38 points respectively, closely resembling the declining list of Fibonacci ratios: 2.618, 1.618, 1.00, .618 and .382.
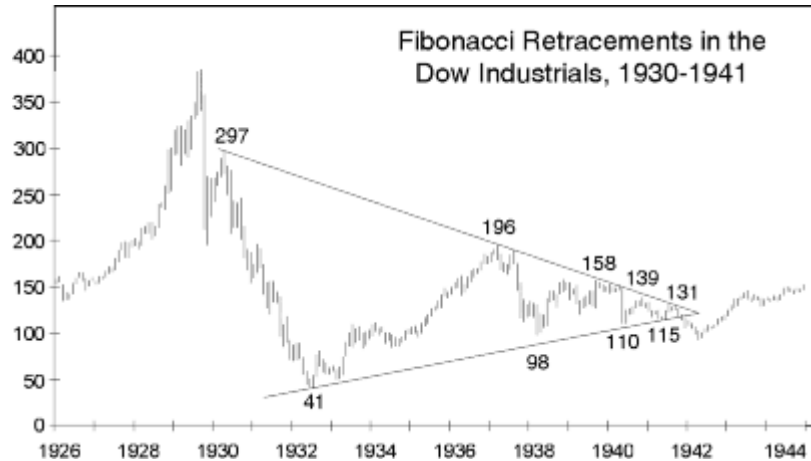
Figure 3-14
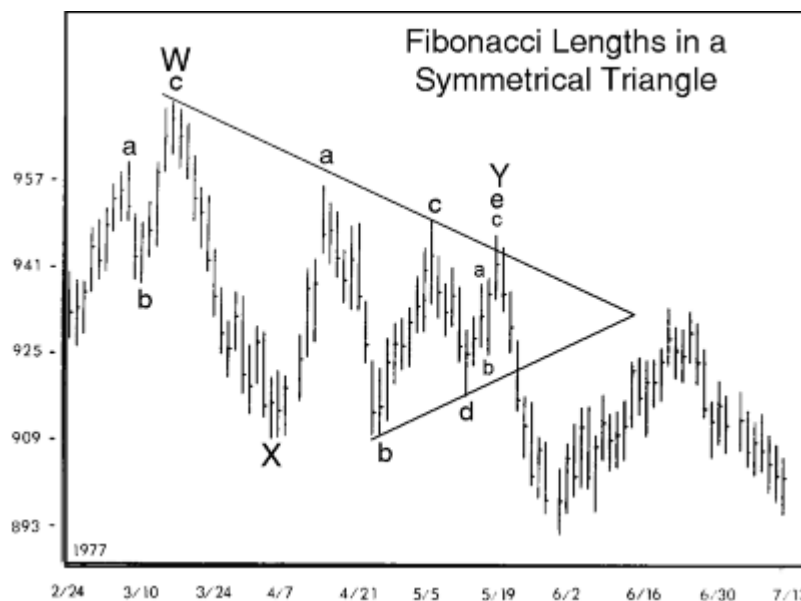
Figure 3-15

Starting with wave X in the 1977 upward correction shown in Figure 3-15, the swings are almost exactly 55 points (wave X), 34 points (waves A through C), 21 points (wave d), 13 points (wave a of e) and 8 points (wave b of e), the Fibonacci sequence itself. The total net gain from beginning to end is 13 points, and the apex of the triangle lies exactly on the level of the correction's beginning at 930, which is also the level of the peak of the subsequent reflex rally in June. Whether one takes the actual number of points in the waves as coincidence or part of the design, one can be certain that the precision manifest in the constant .618 ratio between each successive wave is not coincidence. Lessons 20 through 25 and 30 will elaborate substantially on the appearance of the Fibonacci ratio in market patterns.

Fibonacci Mathematics in the Structure of the Wave Principle

Even the ordered structural complexity of Elliott Wave forms reflects the Fibonacci sequence. There is 1 basic form: the five wave sequence. There are 2 modes of waves: motive (which subdivide into the cardinal class of waves, numbered) and corrective (which subdivide into the consonant class of waves, lettered). There are 3 orders of simple patterns of waves: fives, threes and triangles (which have characteristics of both fives and threes).

There are 5 families of simple patterns: impulse, diagonal triangle, zigzag, flat and triangle. There are 13 variations of simple patterns: impulse, ending diagonal, leading diagonal, zigzag, double zigzag, triple zigzag, regular flat, expanded flat, running flat, contracting triangle, descending triangle, ascending triangle and expanding triangle.

The corrective mode has two groups, simple and combined, bringing the total number of groups to 3. There are 2 orders of corrective combinations (double correction and triple correction), bringing the total number of orders to 5. Allowing only one triangle per combination and one zigzag per combination (as required), there are 8 families of corrective combinations in all: zig/flat, zig/tri., flat/flat, flat/tri., zig/flat/flat, zig/flat/tri., flat/flat/flat and flat/flat/tri., which brings the total number of families to 13. The total number of simple patterns and combination families is 21.

Figure 3-16 is a depiction of this developing tree of complexity. Listing permutations of those combinations, or further variations of lesser importance within waves, such as which wave, if any, is extended, which ways alternation is

satisfied, whether an impulse does or does not contain a diagonal triangle, which types of triangles are in each of the combinations, etc., may serve to keep this progression going.
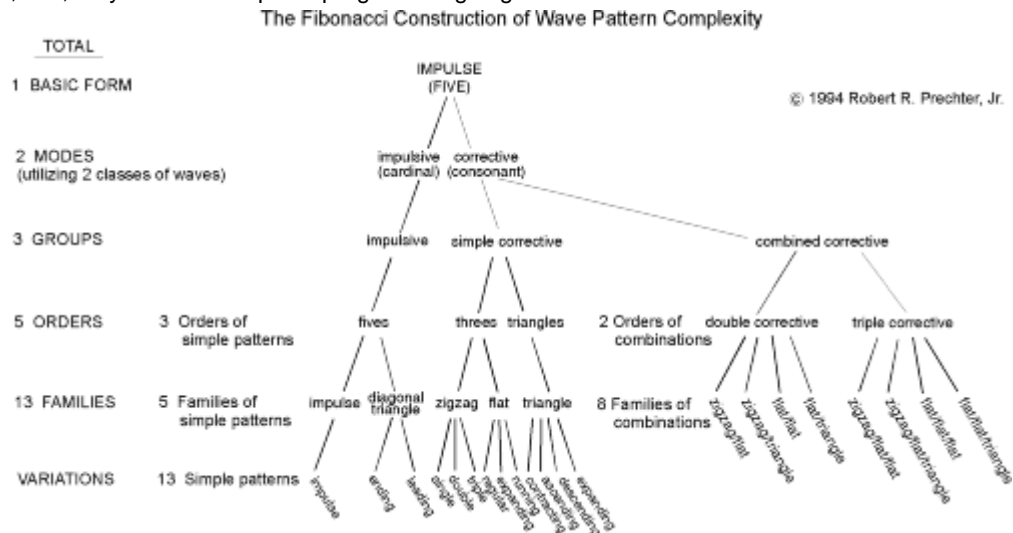

Figure 3-16

There may be an element of contrivance in this ordering process, as one can conceive of some possible variations in acceptable categorization.

Still, that a principle about Fibonacci appears to reflect Fibonacci is itself worth some reflection.

Phi and Additive Growth

As we will show in subsequent lessons, the spiral-like form of market action is repeatedly shown to be governed by the Golden Ratio, and even Fibonacci numbers appear in market statistics more often than mere chance would allow. However, it is crucial to understand that while the numbers themselves do have theoretic weight in the grand concept of the Wave Principle, it is the ratio that is the fundamental key to growth patterns of this type. Although it is rarely pointed out in the literature, the Fibonacci ratio results from this type of additive sequence no matter what two numbers start the sequence. The Fibonacci sequence is the basic additive sequence of its type since it begins with the number "1" (see Figure 3-17), which is the starting point of mathematical growth.

However, we may also take any two randomly selected numbers, such as 17 and 352, and add them to produce a third, continuing in that manner to produce additional numbers. As this sequence progresses, the ratio between adjacent terms in the sequence always approaches the limit phi very quickly. This relationship becomes obvious by the time the eighth term is produced (see Figure 3-18). Thus, while the specific numbers making up the Fibonacci sequence reflect the ideal progression of waves in markets, the Fibonacci ratio is a fundamental law of geometric progression in which two preceding units are summed to create the next. That is why this ratio governs so many relationships in data series relating to natural phenomena of growth and decay, expansion and contraction, and advancement and retreat.
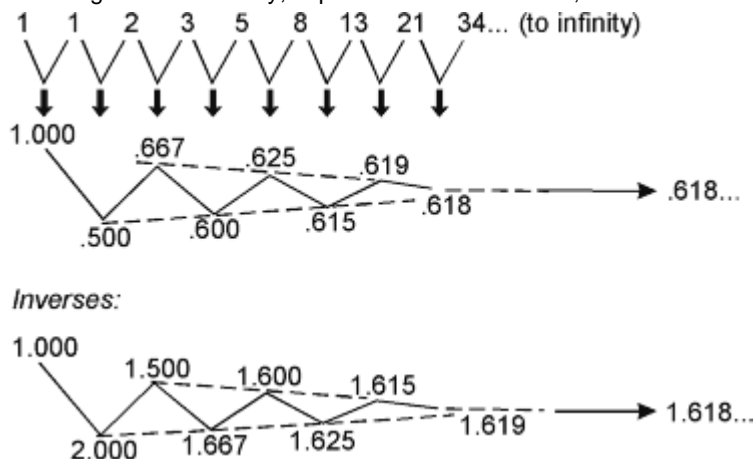
Figure 3-17

In its broadest sense, the Elliott Wave Principle proposes that the same law that shapes living creatures and galaxies is inherent in the spirit and activities of men en masse. The Elliott Wave Principle shows up clearly in the market because the stock market is the finest reflector of mass psychology in the world. It is a nearly perfect recording of man's social psychological states and trends, which produce the fluctuating valuation of his own productive enterprise, making manifest its very real patterns of progress and regress. What the Wave Principle says is that mankind's progress (of which the stock market is a popularly determined valuation) does not occur in a straight line, does not occur randomly, and does not occur cyclically. Rather, progress takes shape in a "three steps forward, two steps back" fashion, a form that nature prefers. In our opinion, the parallels between and Wave Principle and other natural phenomena are too great

to be dismissed as just so much nonsense. On the balance of probabilities, we have come to the conclusion that there is a principle, everywhere present, giving shape to social affairs, and that Einstein knew what he was talking about when he said, "God does not play dice with the universe." The stock market is no exception, as mass behavior is undeniably linked to a law that can be studied and defined. The briefest way to express this principle is a simple mathematical statement: the 1.618 ratio.

The Desiderata, by poet Max Ehrmann, reads, "You are a child of the Universe, no less than the trees and the stars; you have a right to be here. And whether or not it is clear to you, no doubt the Universe is unfolding as it should." Order in life? Yes. Order in the stock market? Apparently.
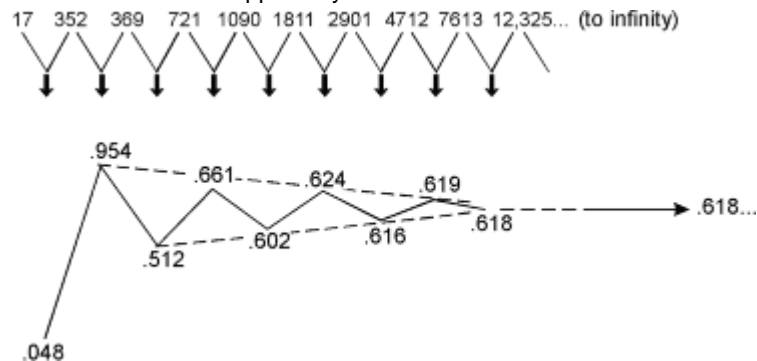
Figure 3-18

In 1939, Financial World magazine published twelve articles by R.N. Elliott entitled "The Wave Principle." The original publisher's note, in the introduction to the articles, stated the following:

During the past seven or eight years, publishers of financial magazines and organizations in the investment advisory field have been virtually flooded with "systems" for which their proponents have claimed great accuracy in forecasting stock market movements. Some of them appeared to work for a while. It was immediately obvious that others had no value whatever. All have been looked upon by The Financial World with great skepticism. But after investigation of Mr. R.N. Elliott's Wave Principle, The Financial World became convinced that a series of articles on this subject would be interesting and instructive to its readers. To the individual reader is left the determination of the value of the Wave Principle as a working tool in market forecasting, but it is believed that it should prove at least a useful check upon conclusions based on economic considerations. — The Editors of The Financial World

In the rest of this course, we reverse the editors' suggested procedure and argue that economic considerations at best may be thought of as an ancillary tool in checking market forecasts based entirely upon the Elliott Wave Principle.

Lesson 20: Introduction To Ratio Analysis

Ratio Analysis

Ratio analysis is the assessment of the proportionate relationship, in time and amplitude, of one wave to another. In discerning the working of the Golden Ratio in the five up and three down movement of the stock market cycle, one might anticipate that on completion of any bull phase, the ensuing correction would be three-fifths of the previous rise in both time and amplitude. Such simplicity is seldom seen. However, the underlying tendency of the market to conform to relationships suggested by the Golden Ratio is always present and helps generate the right look for each wave.

The study of wave amplitude relationships in the stock market can often lead to such startling discoveries that some Elliott Wave practitioners have become almost obsessive about its importance. Although Fibonacci time ratios are far less common, years of plotting the averages have convinced the authors that the amplitude (measured either arithmetically or in percentage terms) of virtually every wave is related to the amplitude of an adjacent, alternate and/or component wave by one of the ratios between Fibonacci numbers. However, we shall endeavor to present the evidence and let it stand or fall on its own merit.

The first evidence we found of the application of time and amplitude ratios in the stock market comes from, of all suitable sources, the works of the great Dow Theorist, Robert Rhea. In 1936, Rhea, in his book The Story of the Averages, compiled a consolidated summary of market data covering nine Dow Theory bull markets and nine bear markets spanning a thirty-six year time period from 1896 to 1932. He had this to say about why he felt it was necessary to present the data despite the fact that no use for it was immediately apparent:

Whether or not [this review of the averages] has contributed anything to the sum total of financial history, I feel certain that the statistical data presented will save other students many months of work.... Consequently, it seemed best to record all the statistical data we had collected rather than merely that portion which appeared to be useful.... The figures presented under this heading probably have little value as a factor in estimating the probable extent of future movements; nevertheless, as a part of a general study of the averages, the treatment is worthy of consideration.

One of the observations was this one:

The footings of the tabulation shown above (considering only the industrial average) show that the nine bull and bear markets covered in this review extended over 13,115 calendar days. Bull markets were in progress 8,143 days, while the remaining 4,972 days were in bear markets. The relationship between these figures tends to show that bear markets run 61.1 percent of the time required for bull periods.

And finally, Column 1 shows the sum of all primary movements in each bull (or bear) market. It is obvious that such a figure is considerably greater than the net difference between the highest and lowest figures of any bull market. For example, the bull market discussed in Chapter II started (for Industrials) at 29.64 and ended at 76.04, and the

difference, or net advance, was 46.40 points. Now this advance was staged in four primary swings of 14.44, 17.33, 18.97, and 24.48 points respectively. The sum of these advances is 75.22, which is the figure shown in Column 1. If the net advance, 46.40, is divided into the sum of advances, 75.22, the result is 1.621, which gives the percent shown in Column 1. Assume that two investors were infallible in their market operations, and that one bought stocks at the low point of the bull market and retained them until the high day of that market before selling. Call his gain 100 percent. Now assume that the other investor bought at the bottom, sold out at the top of each primary swing, and repurchased the same stocks at the bottom of each secondary reaction — his profit would be 162.1, compared with 100 realized by the first investor.

Thus the total of secondary reactions retraced 62.1 percent of the net advance. [Emphasis added.]

So in 1936 Robert Rhea discovered, without knowing it, the Fibonacci ratio and its function relating bull phases to bear in both time and amplitude.

Fortunately, he felt that there was value in presenting data that had no immediate practical utility, but that might be useful at some future date.

Similarly, we feel that there is much to learn on the ratio front and our introduction, which merely scratches the surface, could be valuable in leading some future analyst to answer questions we have not even thought to ask.

Ratio analysis has revealed a number of precise price relationships that occur often among waves. There are two categories of relationships: retracements and multiples.

Retracements

Occasionally, a correction retraces a Fibonacci percentage of the preceding wave. As illustrated in Figure 4-1, sharp corrections tend more often to retrace 61.8% or 50% of the previous wave, particularly when they occur as wave 2 of an impulse wave, wave B of a larger zigzag, or wave X in a multiple zigzag. Sideways corrections tend more often to retrace 38.2% of the previous impulse wave, particularly when they occur as wave 4, as shown in Figure 4-2.
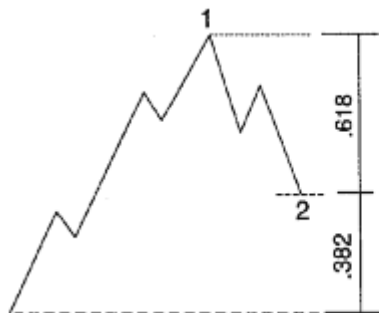

Figure 4-1   **Figure 4-2**

Retracements come in all sizes. The ratios shown in Figures 4-1 and 4-2 are merely tendencies, yet that is where most analysts place an inordinate focus because measuring retracements is easy. Far more precise and reliable, however, are relationships between alternate waves, or lengths unfolding in the same direction, as explained in the next section.

Lesson 21: Motive and Corrective Wave Multiples

Wave Multiples

Motive Wave Multiples

Lesson 12 mentioned that when wave 3 is extended, waves 1 and 5 tend towards equality or a .618 relationship, as illustrated in Figure 4-3.

Actually, all three motive waves tend to be related by Fibonacci mathematics, whether by equality, 1.618 or 2.618 (whose inverses are .618 and .382). These impulse wave relationships usually occur in percentage terms. For instance, wave I from 1932 to 1937 gained 371.6%, while wave III from 1942 to 1966 gained 971.7%, or 2.618 times as much. Semilog scale is required to reveal these relationships. Of course, at small degrees, arithmetic and percentage scales produce essentially the same result, so that the number of points in each impulse wave reveals the same multiples.

Another typical development is that wave 5's length is sometimes related by the Fibonacci ratio to the length of wave 1 through wave 3, as illustrated in Figure 4-4, which illustrates the point with an extended fifth wave. .382 and .618 relationships occur when wave five is not extended. In those rare cases when wave 1 is extended, it is wave 2, quite reasonably, that often subdivides the entire impulse wave into the Golden Section, as shown in Figure 4-5.

As a generalization that subsumes some of the observations we have already made, unless wave 1 is extended, wave 4 often divides the price range of an impulse wave into the Golden Section. In such cases, the latter portion is .382 of the total distance when wave 5 is not extended, as shown in Figure 4-6, and .618 when it is, as shown in Figure 4-7. This guideline is somewhat loose in that the exact point within wave 4 that effects the subdivision varies. It can be its start, end or extreme counter-trend point. Thus, it provides, depending on the circumstances, two or three closely-clustered targets for the end of wave 5. This guideline explains why the target for a retracement following a fifth wave often is doubly indicated by the end of the preceding fourth wave and the .382 retracement point.
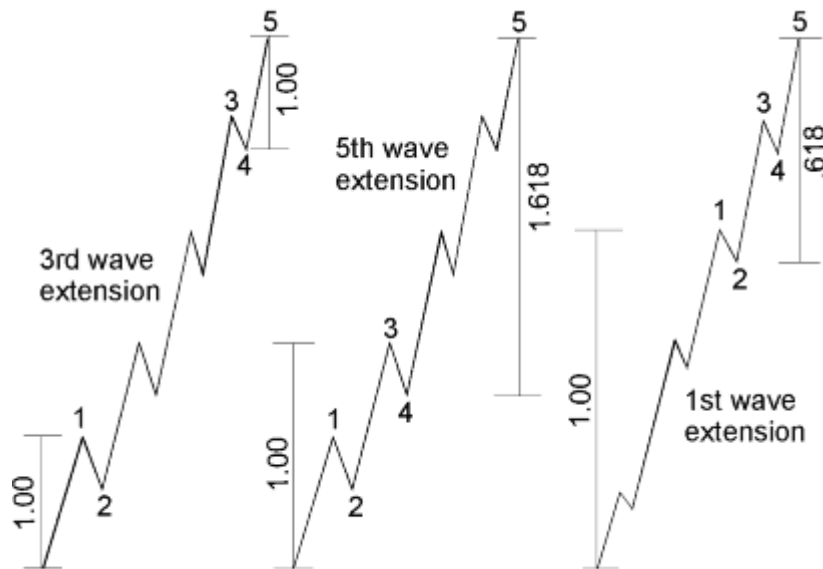
Figure 4-3   **Figure 4-4**   **Figure 4-5**
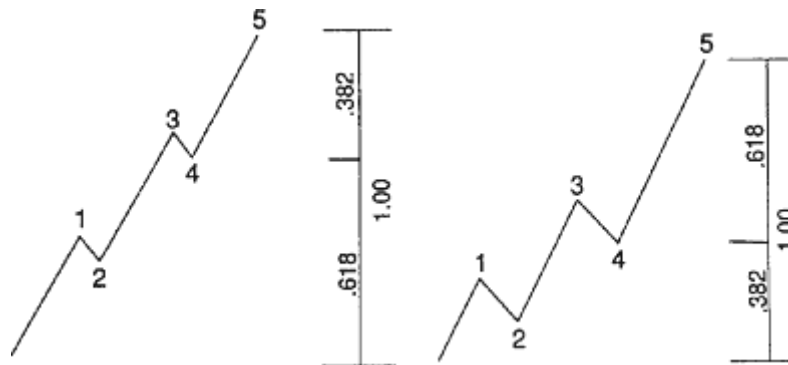
Figure 4-6   **Figure 4-7**

Corrective Wave Multiples

In a zigzag, the length of wave C is usually equal to that of wave A, as shown in Figure 4-8, although it is not uncommonly 1.618 or .618 times the length of wave A. This same relationship applies to a second zigzag relative to the first in a double zigzag pattern, as shown in Figure 4-9.
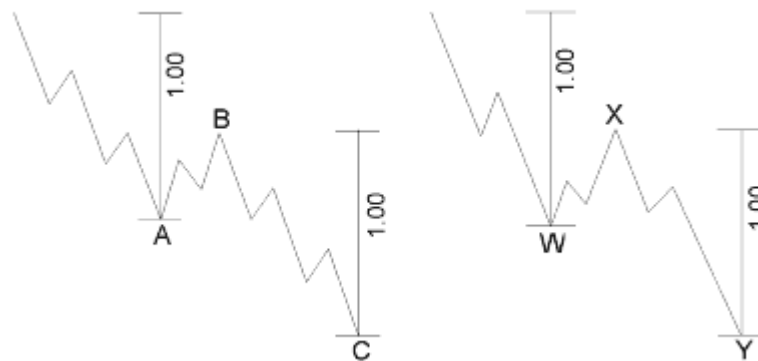
Figure 4-8   **Figure 4-9**

In a regular flat correction, waves A, B and C are, of course, approximately equal, as shown in Figure 4-10. In an expanded flat correction, wave C is often 1.618 times the length of wave A. Sometimes wave C will terminate beyond the end of wave A by .618 times the length of wave A. Both of these tendencies are illustrated in Figure 4-11. In rare cases, wave C is 2.618 times the length of wave A. Wave B in an expanded flat is sometimes 1.236 or 1.382 times the length of wave A.
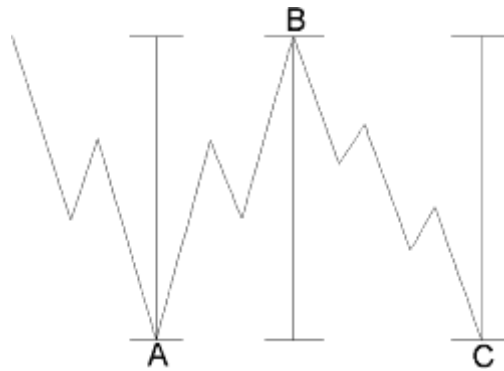
Figure 4-10
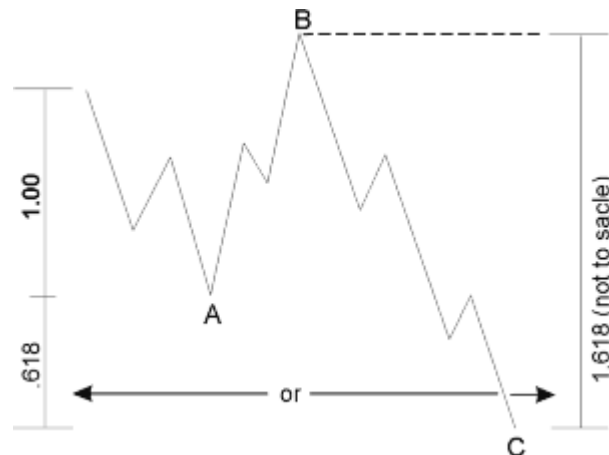
Figure 4-11

In a triangle, we have found that at least two of the alternate waves are typically related to each other by .618. I.e., in a contracting, ascending or descending triangle, wave e = .618c, wave c = .618a, or wave d = .618b. In an expanding triangle, the multiple is 1.618. In rare cases, adjacent waves are related by these ratios.

In double and triple corrections, the net travel of one simple pattern is sometimes related to another by equality or, particularly if one of the threes is a triangle, by .618.

Finally, wave 4 quite commonly spans a gross and/or net price range that has an equality or Fibonacci relationship to its corresponding wave 2. As with impulse waves, these relationships usually occur in percentage terms.

Lesson 22: Applied Ratio Analysis

Elliott himself, a few years after Rhea's book, was the first to realize the applicability of ratio analysis. He noted that the number of DJIA points between 1921 and 1926, encompassing the first through third waves, was 61.8% of the number of points in the fifth wave from 1926 to 1928 (1928 is the orthodox top of the bull market according to Elliott). Exactly the same relationship occurred again in the five waves up from 1932 to 1937.

A. Hamilton Bolton, in the 1957 Elliott Wave Supplement to the Bank Credit Analyst, gave this price forecast based on expectations of typical wave behavior:

The powerhouse that will be building up if the market consolidates for another year or so along orthodox lines, it seems to us, will offer the probability that Primary V could be quite sensational, taking the DJIA to 1000 or more in the early 1960s in a wave of great speculation.

Then, in The Elliott Wave Principle — A Critical Appraisal, reflecting on examples cited by Elliott, Bolton stated,

Should the 1949 market to date adhere to this formula, then the advance from 1949 to 1956 (361 points in the DJIA) should be completed when 583 points (161.8% of 361 points) have been added to the 1957 low of 416, or a total of 999 DJIA. Alternatively, 361 over 416 would call for 777 in the DJIA.

Later, when Bolton wrote the 1964 Elliott Wave Supplement, he concluded, Since we are now well past the 777 level, it looks as if 1000 in the averages could be our next target.

The year 1966 proved those statements to be the most accurate prediction in stock market history, when the 3:00 p.m. hourly reading on February 9th registered a high at 995.82 (the "intraday" high was 1001.11). Six years prior to the event, then, Bolton was right to within 3.18 DJIA points, less than one third of one percent error.

Despite this remarkable portent, it was Bolton's view, as it is ours, that wave form analysis must take precedence over the implications of the proportionate relationships of waves in a sequence. Indeed, when undertaking a ratio analysis, it is essential that one understand and apply the Elliott counting and labeling methods to determine from which points the measurements should be made in the first place. Ratios between lengths based on orthodox pattern termination levels are reliable; those based on nonorthodox price extremes generally are not.

The authors themselves have used ratio analysis, often with satisfying success. A.J. Frost became convinced of his ability to recognize turning points by catching the "Cuban crisis" low in October 1962 the hour it occurred and telegraphing his conclusion to Hamilton Bolton in Greece. Then, in 1970, in a supplement to The Bank Credit Analyst, he

determined that the bear market low for the Cycle wave correction in progress would probably occur at a level .618 times the distance of the 1966-67 decline below the 1967 low, or 572. Four years later, the DJIA's hourly reading in December 1974 at the exact low was 572.20, from which the explosive rise into 1975-76 occurred.

Ratio analysis has value at smaller degrees as well. In the summer of 1976, in a published report for Merrill Lynch, Robert Prechter identified the fourth wave then in progress as a rare expanding triangle, and in October used the 1.618 ratio to determine the maximum expected low for the eight month pattern to be 922 on the Dow. The low occurred five weeks later at 920.63 at 11:00 on November 11, launching the year-end fifth wave rally.

In October 1977, five months in advance, Mr. Prechter computed a probable level for the 1978 major bottom as "744 or slightly lower." On March 1, 1978, at 11:00, the Dow registered its low at exactly 740.30. A follow-up report published two weeks after the bottom reaffirmed the importance of the 740 level, noting that: ...the 740 area marks the point at which the 1977-78 correction, in terms of Dow points, is exactly .618 times the length of the entire bull market rise from 1974 to 1976. Mathematically we can state that 1022 - (1022-572).618 = 744 (or using the orthodox high on December 31st, 1005 - (1005-572).618 = 737). Second, the 740 area marks the point at which the 1977-78 correction is exactly 2.618 times the length of the preceding correction in 1975 from July to October, so that 1005 - (885-784)2.618 = 742. Third, in relating the target to the internal components of the decline, we find that the length of wave C = 2.618 times the length of wave A if wave C bottoms at 746. Even the wave factors as researched in the April 1977 report mark 740 as a likely level for a turn. At this juncture then, the wave count is compelling, the market appears to be stabilizing, and the last acceptable Fibonacci target level under the Cycle dimension bull market thesis has been reached at 740.30 on March 1st. It is at such times that the market, in Elliott terms, must "make it or break it."

The three charts from that report are reproduced here as Figures 4-12 (with a few extra markings to condense comments from the text), 4-13 and 4-14. They illustrate the wave structure into the recent low from Primary down to Minuette degree. Even at this early date, 740.30 seems to be firmly established as the low of Primary wave [2] in Cycle wave V.
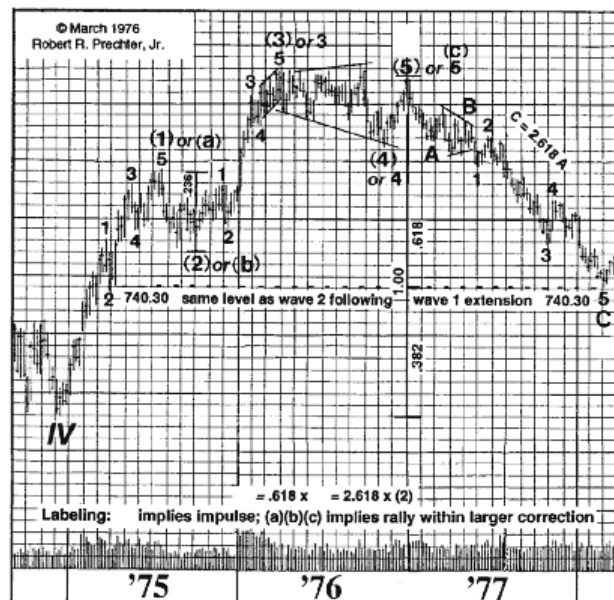
Figure 4-12
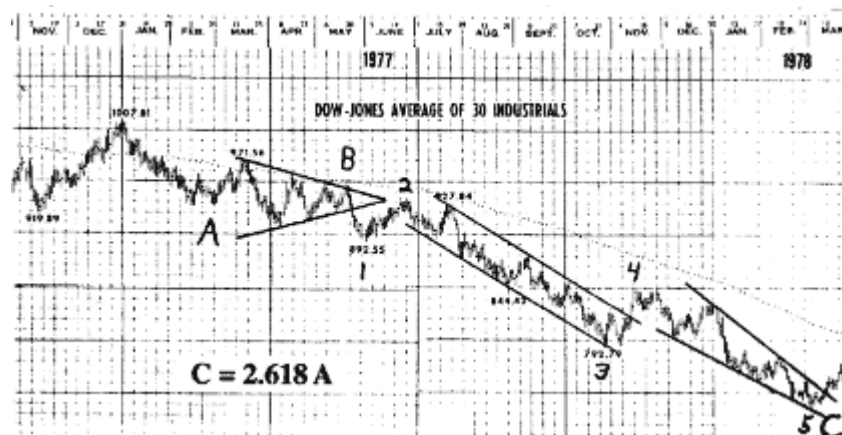
Figure 4-13
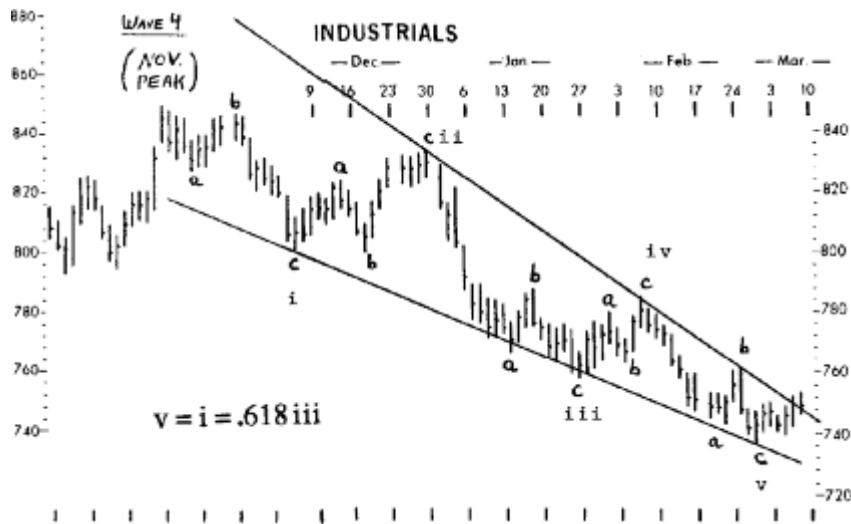
Figure 4-14

Lesson 23: Multiple Wave Relationships

We have found that predetermined price objectives are useful in that if a reversal occurs at that level and the wave count is acceptable, a doubly significant point has been reached. When the market ignores such a level or gaps through it, you are put on alert to expect the next calculated level to be achieved. As the next level is often a good distance away, this can be extremely valuable information. Moreover, targets are based upon the most satisfying wave count. Thus, if they are not met or are exceeded by a significant margin, in many instances you will be forced in a timely manner to reconsider your preferred count and investigate what is then rapidly becoming a more attractive interpretation. This approach helps keep you one step ahead of nasty surprises. It is a good idea to keep all reasonable wave interpretations in mind so you can use ratio analysis to obtain additional clues as to which one is operative.

Multiple Wave Relationships

Keep in mind that all degrees of trend are always operating on the market at the same time. Therefore, at any given moment the market will be full of Fibonacci ratio relationships, all occurring with respect to the various wave degrees unfolding. It follows that future levels that create several

Fibonacci relationships have a greater likelihood of marking a turn than a level that creates only one.

For instance, if a .618 retracement of a Primary wave [1] by a Primary wave [2] gives a particular target, and within it, a 1.618 multiple of Intermediate wave (a) in an irregular correction gives the same target for Intermediate wave (c), and within that, a 1.00 multiple of Minor wave 1 gives the same target yet again for Minor wave 5, then you have a powerful argument for expecting a turn at that calculated price level. Figure 4-15 illustrates this example.
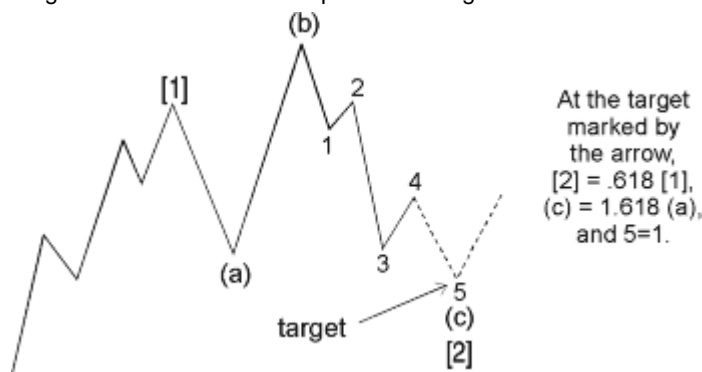
Figure 4-15

Figure 4-16 is an imaginary rendition of a reasonably ideal Elliott wave, complete with parallel trend channel. It has been created as an example of how ratios are often present throughout the market. In it, the following eight relationships hold:

[2] = .618 x [1];
[4] = .382 x [3];
[5] = 1.618 x [1];
[5] = .618 x [0] → [3];

[2] = .618 x [4];
in [2], (a) = (b) = (c);
in [4], (a) = (c);
in [4], (b) = .236 x (a)

Figure 4-16

If a complete method of ratio analysis could be successfully resolved into basic tenets, forecasting with the Elliott Wave Principle would become more scientific. It will always remain an exercise of probability, however, not certainty. Nature's laws governing life and growth, though immutable, nevertheless allow for an immense diversity of specific outcome, and the market is no exception. All that can be said about ratio analysis 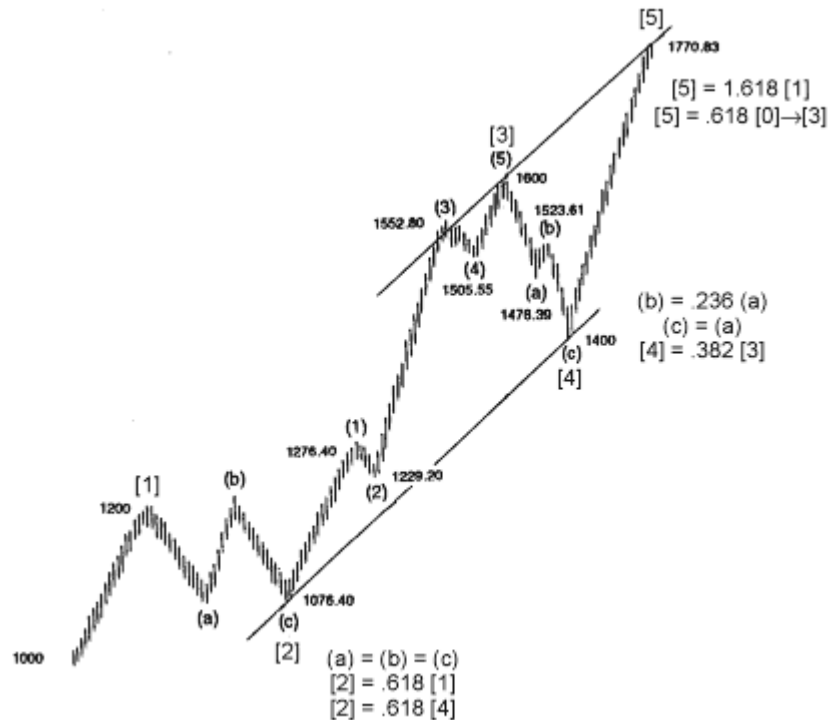at this point is that comparing the price lengths of waves frequently confirms, often with pinpoint accuracy, the applicability to the stock market of the ratios found in the Fibonacci sequence. It was awe-inspiring, but no surprise to us, for instance, that the advance from December 1974 to July 1975 traced just over 61.8% of the preceding 1973-74 bear slide, or that the 1976-78 market decline traced exactly 61.8% of the preceding rise from

December 1974 to September 1976. Despite the continual evidence of the importance of the .618 ratio, however, our basic reliance must be on form, with ratio analysis as backup or guideline to what we see in the patterns of movement. Bolton's counsel with respect to ratio analysis was, "Keep it simple." Research may still achieve further progress, as ratio analysis is still in its infancy. We are hopeful that those who labor with the problem of ratio analysis will add worthwhile material to the Elliott approach.

Lesson 24: A Real-Time Application Of Multiple Wave Relationships

Lessons 20 through 26 list a number of ways that knowledge of the Fibonacci ratio's occurrence in market patterns can be used in forecasting. This lesson provides an example of how the ratio was applied in an actual market situation, as published in Robert Prechter's Elliott Wave Theorist.

When approaching the discovery of mathematical relationships in the markets, the Wave Principle offers a mental foothold for the practical thinker. If studied carefully, it can satisfy even the most cynical researcher. A side element of the Wave Principle is the recognition that the Fibonacci ratio is one of the primary governors of price movement in the stock market averages. The reason that a study of the Fibonacci ratio is so compelling is that the 1.618:1 ratio is the only price relationship whereby the length of the shorter wave under consideration is to the length of the longer wave as the length of the longer wave is to the length of the entire distance traveled by both waves, thus creating an interlocking wholeness to the price structure. It was this property that led early mathematicians to dub 1.618 the "Golden Ratio."

The Wave Principle is based on empirical evidence, which led to a working model, which subsequently led to a tentatively developed theory. In a nutshell, the portion of the theory that applies to anticipating the occurrence of Fibonacci ratios in the market can be stated this way: a) The Wave Principle describes the movement of markets. b) The numbers of waves in each degree of trend correspond to the Fibonacci sequence. c) The Fibonacci ratio is the governor of the Fibonacci sequence. d) The Fibonacci ratio has reason to be evident in the market.

As for satisfying oneself that the Wave Principle describes the movement of markets, some effort must be spent attacking the charts. The purpose of this Lesson is merely to present evidence that the Fibonacci ratio expresses itself often enough in the averages to make it clear that it is indeed a governing force (not necessarily the governing force) on aggregate market prices.

As the years have passed since the "Economic Analysis" section of Lesson 31 was written, the Wave Principle has dramatically proved its utility in forecasting bond prices. Interest rates, after all, are simply the price of an important commodity: money. As a specific example of the Fibonacci ratio's value, we offer the following excerpts from The Elliott Wave Theorist during a seven month period in 1983-84.

The Elliott Wave Theorist

November 1983

Now it's time to attempt a more precise forecast for bond prices. Wave (a) in December futures dropped 11s points, so a wave (c) equivalent subtracted from the wave (b) peak at 73S last month projects a downside target of 61s. It is also the case that alternate waves within symmetrical triangles are usually related by .618. .As it happens, wave [B] fell 32 points. 32 x .618 = 19s points, which should be a good estimate for the length of wave [D]. 19s points from the peak of wave [C] at 80 projects a downside target of 60j. Therefore, the 60j - 61s area is the best point to be watching for the bottom of the current decline. [See Figure B-14.]

Figure B-14

April 3, 1984 [after (b) ended in a triangle]

The ultimate downside target will probably occur nearer the point at which wave [D] is .618 times as long as wave [B], which took place from June 1980 to September 1981 and traveled 32 points basis the weekly continuation chart. Thus, if wave [D] travels 19s points, the nearby contract should bottom at 60j. In support of this target is the five wave (a), which indicates that a zigzag decline is in force from the May 1983 highs. Within zigzags, waves "A" and "C" are typically of equal length. Basis the June contract, wave (a) fell 11 points. 11 points from the triangle peak at 70s projects 59s, making the 60 zone (+ or - j) a point of strong support and a potential target. As a final calculation, thrusts following triangles usually fall approximately the distance of the widest part of the triangle (as discussed in Lesson 8). Based on [Figure B-15], that distance is 10S points, which subtracted from the triangle peak gives 60j as a target.

June 4, 1984

The most exciting event of 1984 is the apparent resolution of the one-year decline in bond prices. Investors were cautioned to hold off buying until bonds reached the 59s-60j level. On May 30, the day that level was achieved, rumors about Continental Illinois Bank were flying, the 1100 level on the Dow was smashed in the morning on -650 ticks, and the June bonds, amid panic selling, ticked briefly to as low as 59S, just touching the triangle support line drawn on the chart last month. It stopped cold right there and closed at 59 31/32, just 1/32 of a point from the exact center of our target zone. In the two and a half days following that low, bonds have rebounded two full points in a dramatic reversal.

July 11, 1984

The background of investor psychology is very suggestive of an important bond market low [see Figure B-18]. In fact, if this were the only measure I followed, it would appear that bonds are the buy of a lifetime. The news media, which all but ignored the rise in interest rates until May 1984, has been flooding the pages of the press with "higher interest rate" stories. Most of these came out, in typical fashion, after the May low, which was tested in June. During second waves, investors typically relive the fears that exited at the actual bottom, while the market demonstrates an understanding, by holding above the previous low, that the worst has passed. The last five weeks have demonstrated this phenomenon vividly.
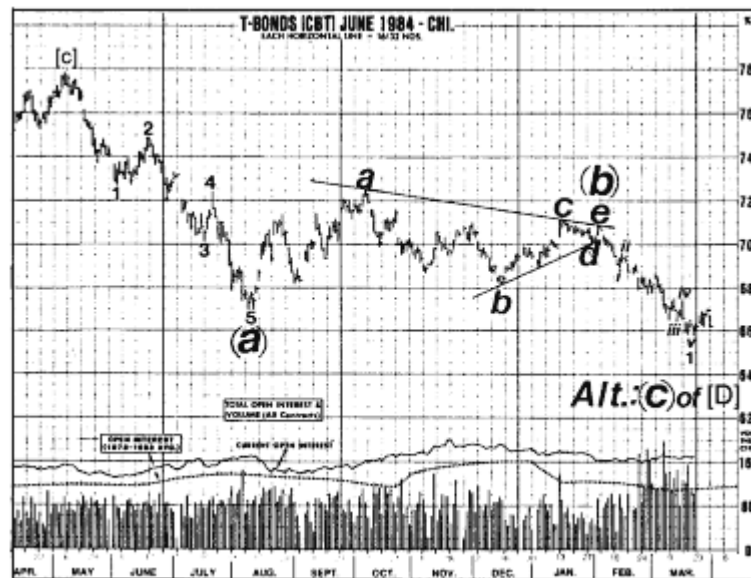
Figure B-15

Figure B-16

On June 11, the Wall Street Journal headline read, "Fed Move to Tighten Credit is Expected During the Summer by Many Economists." On June 18, two full articles, including a front page feature, focused on the prospects for higher interest rates: "Cooler Economy Seen Failing to Stem Further

Rise in Interest Rates This Year," and "Interest Rates Begin to Damp Economy; Many Analysts See Further Increases." On June 22, the WSJ featured an incredible five-page in-depth report entitled "World Debt in Crisis," complete with a picture of falling dominoes and quotes like these: from a congressman, "I don't think we're going to make it to the 1990s"; from a V.P. at Citicorp, "Let's be clear — nobody's debts are going to be repaid"; and from a former assistant Secretary of State for economic affairs, "We are living on borrowed time and borrowed money." On July 2, the

WSJ reported, without saying so, that economists have panicked. Their forecasts for higher rates now extend halfway into next year! The headline read, "Higher Interest Rates Are Predicted for Rest of Year And Further Rises Are Seen for 1985's First Six Months." Says the article, "Some say it would take a miracle for rates to fall." The WSJ is not alone in taking the pulse of economists. Financial World magazine's June 27 poll listed the forecasts of 24 economists against their beginning-of-year predictions. Every single one of them has raised his forecast in a linear-logic reaction to the rise in rates that has already occurred. They are using the same type of thinking that led them to a "lower interest rates ahead" conclusion a year ago, at the bottom. This overwhelming consensus based on fundamental analysis is no guarantee that rates have peaked, but history shows that this type of analysis will rarely result in market success. I prefer to bet on an overlooked theory which recognizes that market patterns repeat themselves over and over again because people are people.

As further developments proved, that low marked the last buying opportunity prior to the start of a historical advance in bond prices. Fibonacci ratio analysis, applied with a knowledge of where such relationships are to be expected, forecasted the level of the low, which was then powerfully affirmed as it occurred.
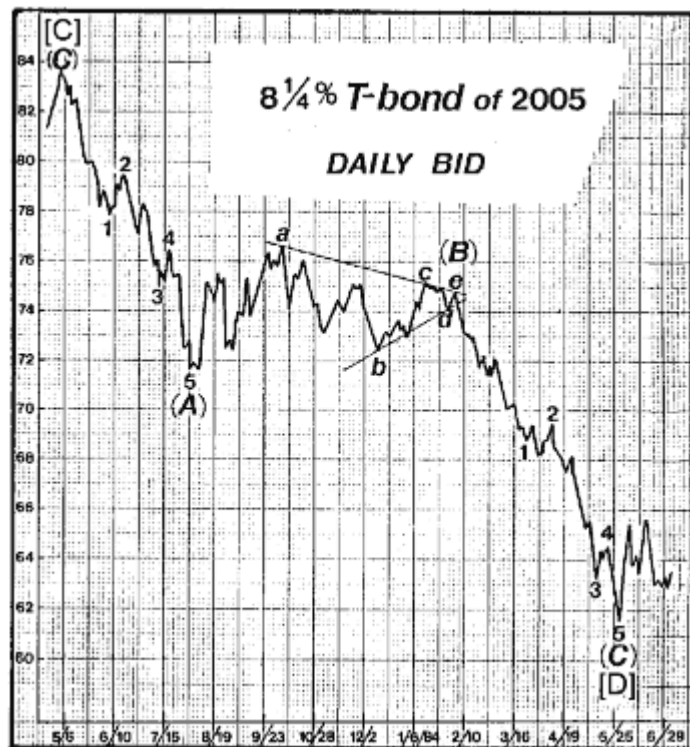
Figure B-18

Lesson 25: Fibonacci Time Sequences

There is no sure way of using the time factor by itself in forecasting. Frequently, however, time relationships based on the Fibonacci sequence go beyond an exercise in numerology and seem to fit wave spans with remarkable accuracy, giving the analyst added perspective. Elliott said that the time factor often "conforms to the pattern" and therein lies its significance. In wave analysis, Fibonacci time periods serve to indicate possible times for a turn, especially if they coincide with price targets and wave counts.

In Nature's Law, Elliott gave the following examples of Fibonacci time spans between important turning points in the market:

— 1921 to 1929	8 years
— July 1921 to November 1928	89 months
— September 1929 to July 1932	34 months
— July 1932 to July 1933	13 months
— July 1933 to July 1934	13 months
— July 1934 to March 1937	34 months
— July 1932 to March 1937	5 years (55 months)
— March 1937 to March 1938	13 months
— 1929 to 1942	13 years

In Dow Theory Letters on November 21, 1973, Richard Russell gave some additional examples of Fibonacci time periods:

— 1907 panic low to 1962 panic low	55 years
— 1949 major bottom to 1962 panic low	13 years
— 1921 recession low to 1942 recession low	21 years
— January 1960 top to October 1962 bottom	34 months

Taken in toto, these distances appear to be a bit more than coincidence.

Walter E. White, in his 1968 monograph on the Elliott Wave Principle, concluded that "the next important low point may be in 1970." As substantiation, he pointed out the following Fibonacci sequence: 1949 + 21 = 1970; 1957 + 13 = 1970; 1962 + 8 = 1970; 1965 + 5 = 1970. May 1970, of course, marked the low point of the most vicious slide in thirty years.

The progression of years from the 1928 (possible orthodox) and 1929 (nominal) high of the last Supercycle produces a remarkable Fibonacci sequence as well:

— 1929 + 3 = 1932 bear market bottom
— 1929 + 5 = 1934 correction bottom
— 1929 + 8 = 1937 bull market top
— 1929 + 13 = 1942 bear market bottom
— 1928 + 21 = 1949 bear market bottom
— 1928 + 34 = 1962 crash bottom
— 1928 + 55 = 1982 major bottom (1 year off)

A similar series has begun at the 1965 (possible orthodox) and 1966 (nominal) highs of the third Cycle wave of the current Supercycle:

— 1965 + 1 = 1966 nominal high
— 1965 + 2 = 1967 reaction low
— 1965 + 3 = 1968 blowoff peak for secondaries
— 1965 + 5 = 1970 crash low
— 1966 + 8 = 1974 bear market bottom
— 1966 + 13 = 1979 low for 9.2 and 4.5 year cycles
— 1966 + 21 = 1987 high, low and crash

In applying Fibonacci time periods to the pattern of the market, Bolton noted that time "permutations tend to become infinite" and that time "periods will produce tops to bottoms, tops to tops, bottoms to bottoms or bottoms to tops." Despite this reservation, he successfully indicated within the same book, which was published in 1960, that 1962 or 1963, based on the Fibonacci sequence, could produce an important turning point. 1962, as we now know, saw a vicious bear market and the low of Primary wave [4], which preceded a virtually uninterrupted advance lasting nearly four years.

In addition to this type of time sequence analysis, the time relationship between bull and bear as discovered by Robert Rhea has proved useful in forecasting. Robert Prechter, in writing for Merrill Lynch, noted in March 1978 that "April 17 marks the day on which the A-B-C decline would consume 1931 market hours, or .618 times the 3124 market hours in the advance of waves (1), (2) and (3)." Friday, April 14 marked the upside breakout from the lethargic inverse head and shoulders pattern on the Dow, and Monday, April 17 was the explosive day of record volume, 63.5 million shares. While this time projection did not coincide with the low, it did mark the exact day when the psychological pressure of the preceding bear was lifted from the market.

Benner's Theory

Samuel T. Benner had been an ironworks manufacturer until the post Civil War panic of 1873 ruined him financially. He turned to wheat farming in

Ohio and took up the statistical study of price movements as a hobby to find, if possible, the answer to the recurring ups and downs in business. In 1875, Benner wrote a book entitled Business Prophecies of the Future Ups and Downs in Prices. The forecasts contained in his book are based mainly on cycles in pig iron prices and the recurrence of financial panics over a fairly considerable period of years. Benner's forecasts proved remarkably accurate for many years, and he established an enviable record for himself as a statistician and forecaster. Even today, Benner's charts are of interest to students of cycles and are occasionally seen in print, sometimes without due credit to the originator.

Benner noted that the highs of business tend to follow a repeating 8-9-10 yearly pattern. If we apply this pattern to high points in the Dow Jones

Industrial Average over the past seventy-five years starting with 1902, we get the following results. These dates are not projections based on

Benner's forecasts from earlier years, but are only an application of the 8-9-10 repeating pattern applied in retrospect.

Year	Interval	Market Highs
1902		April 24, 1902
1910	8	January 2, 1910
1919	9	November 3, 1919
1929	10	September 3, 1929
1937	8	March 10, 1937
1946	9	May 29, 1946
1956	10	April 6, 1956
1964	8	February 4, 1965
1973	9	January 11, 1973

With respect to economic low points, Benner noted two series of time sequences indicating that recessions (bad times) and depressions (panics) tend to alternate (not surprising, given Elliott's rule of alternation). In commenting on panics, Benner observed that 1819, 1837, 1857 and 1873 were panic years and showed them in his original "panic" chart to reflect a repeating 16-18-20 pattern, resulting in an irregular periodicity of these recurring events. Although he applied a 20-18-16 series to recessions, or "bad times," less serious stock market lows seem rather to follow the same 16-18-20 pattern as do major panic lows. By applying the 16-18-20 series to the alternating stock market lows, we get an accurate fit, as the

Benner-Fibonacci Cycle Chart (Figure 4-17), first published in the 1967 supplement to the Bank Credit Analyst, graphically illustrates.

Note that the last time the cycle configuration was the same as the present was the period of the 1920s, paralleling the last occurrence of a fifth Elliott wave of Cycle degree.

This formula, based upon Benner's idea of repeating series for tops and bottoms, has worked reasonably well for most of this century. Whether the pattern will always reflect future highs is another question. These are fixed cycles, after all, not Elliott. Nevertheless, in our search for the reason for its satisfactory fit with reality, we find that Benner's theory conforms reasonably closely to the Fibonacci sequence in that the repeating series of 8-9-10 produces Fibonacci numbers up to the number 377, allowing for a marginal difference of one point, as shown below.

The Benner-Fibonacci Cycle Chart 1902-1987
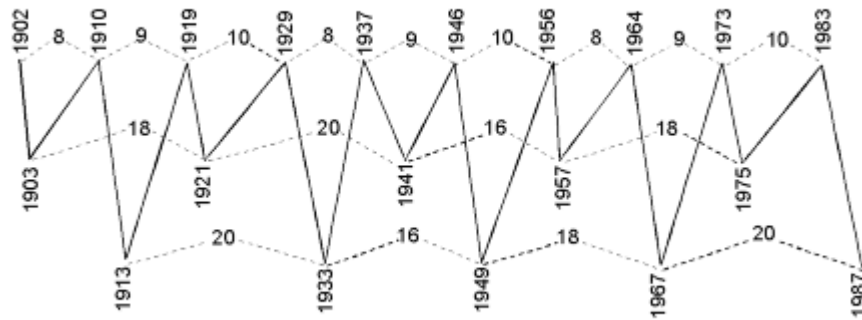
PEAKS:8-9-10, repeat. TROUGHS: 16-18-20, repeat. MAJOR TROUGHS: 16-18-20, repeat.

Figure 4-17

8-9-10 Series	Selected Subtotals	Fibonacci Numbers	Differences
8 =	8	8	0
+ 9			
+10			
+ 8 =	35	34	+1
+9			
+10 =	54	55	-1
...+ 8 =	89	89	0
...+ 8 =	143	144	-1
...+ 9 =	233	233	0
...+10 =	378	377	+1

Our conclusion is that Benner's theory, which is based on different rotating time periods for bottoms and tops rather than constant repetitive periodicities, falls within the framework of the Fibonacci sequence. Had we no experience with the approach, we might not have mentioned it, but it has proved useful in the past when applied in conjunction with a knowledge of Elliott Wave progression. A.J. Frost applied Benner's concept in late 1964 to make the inconceivable (at the time) prediction that stock prices were doomed to move essentially sideways for the next ten years, raching a high in 1973 at about 1000 DJIA and a low in the 500 to 600 zone in late 1974 or early 1975. A letter sent by Forst to Hamilton Bolton at the time is reproduced here. Figure 4-18 is a reproduction of the accompanying chart, complete with notes. As the letter was dated December 10, 1964, it represents yet another long term Elliott prediction which turned out to be more fact than fancy.

December 10, 1964
Mr. A.H. Bolton
Bolton, Tremblay, & Co. 1245 Sherbrooke Street West
Montreal 25, Quebec
Dear Hammy:
Now that we are well along in the current period of economic expansion and gradually becoming vulnerable to changes in investment sentiment, it seems prudent to polish the crystal ball and do a little hard assessing. In appraising trends, I have every confidence in your bank credit approach except when the atmosphere becomes rarefied. I cannot forget 1962. My feeling is that all fundamental tools are for the most part low pressure instruments. Elliott, on the other hand, although difficult in its practical application, does have special merit in high areas. For this reason, I have kept my eye cocked on the Wave Principle and what I see now causes me some concern. As I read Elliott, the stock market is vulnerable and the end of the major cycle from 1942 is upon us. ...I shall present my case to the effect that we are on dangerous ground and that a prudent investment policy (if one can use a dignified word to express undignified action) would be to fly to the nearest broker's office and throw everything to the winds.
The third wave of the long rise from 1942, namely June 1949 to January 1960, represents an extension of primary cycles ...then the entire cycle from 1942 may have reached its orthodox culmination point and what lies ahead of us now is probably a double top and a long flat of Cycle dimension. ...applying Elliott's theory of alternation, the next three primary moves should form a flat of considerable duration. It will be interesting to see if this develops. In the meantime, I don't mind going out on the proverbial limb and making a 10-year projection as an Elliott theorist using only Elliott and Benner ideas. No self-respecting analyst other than an Elliott man would do such a thing, but then that is the sort of thing this unique theory inspires.
Best to you,
A. J. Frost
Although we have been able to codify ratio analysis substantially as described in the first half of this chapter, there appear to be many ways that the
Fibonacci ratio is manifest in the stock market. The approaches suggested here are merely carrots to whet the appetite of prospective analysts and set them on the right track. Parts of the following chapters further explore the use of ratio analysis and give perspective on its complexity, accuracy and applicability. Additional detailed examples are

presented in the Lessons 32 through 34. Obviously, the key is there. All that remains is to discover how many doors it will unlock.
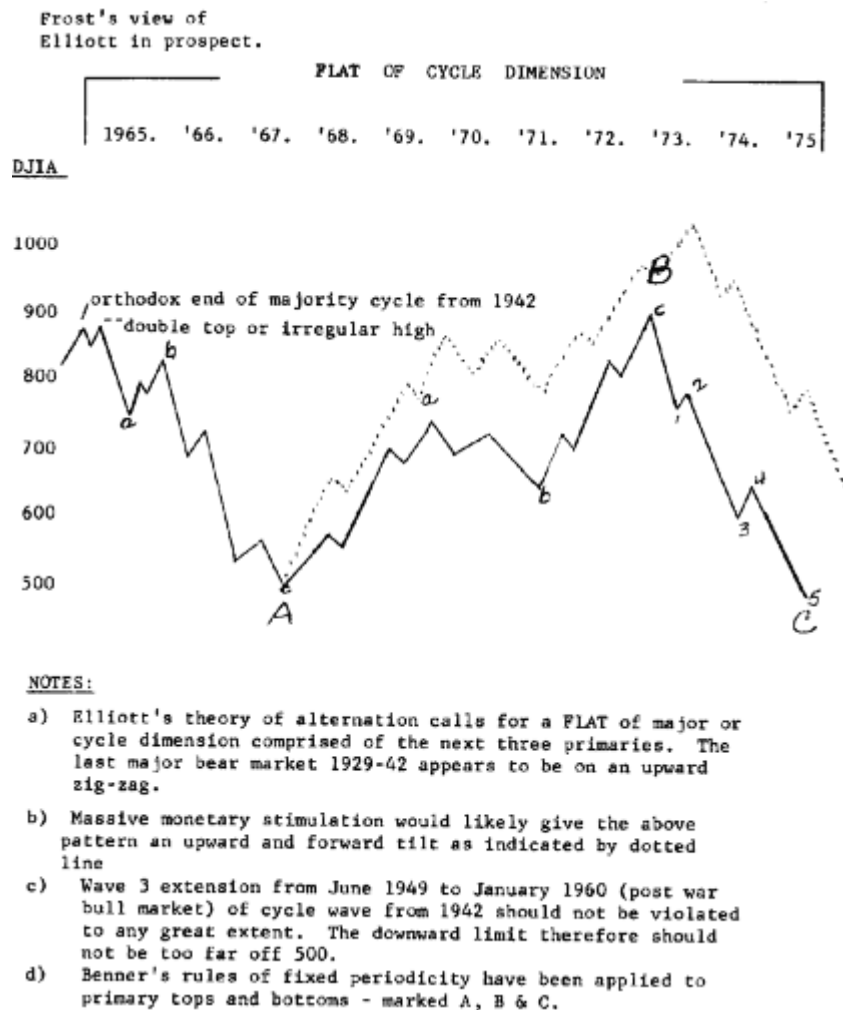

Figure 4-18

Lesson 26: Long Term Waves

In September 1977, Forbes published an interesting article on the complexity theory of inflation entitled "The Great Hamburger Paradox," in which the writer, David Warsh, asks, "What really goes into the price of a hamburger? Why do prices explode for a century or more and then level off?" He quotes Professor E.H. Phelps Brown and Sheila V. Hopkins of Oxford University as saying,

> For a century or more, it seems, prices will obey one all-powerful law; it changes and a new law prevails. A war that would have cast the trend up to new heights in one dispensation is powerless to deflect it in another. Do we yet know what are the factors that set this stamp on an age, and why, after they have held on so long through such shakings, they give way quickly and completely to others?

Brown and Hopkins state that prices seem to "obey one all-powerful law," which is exactly what R.N. Elliott said. This all-powerful law is the harmonious relationship found in the Golden Ratio, which is basic to nature's laws and forms part of the fabric of man's physical, mental and emotional structure as well. As Mr. Warsh additionally observes quite accurately, human progress seems to move in sudden jerks and jolts, not as in the smooth clockwork operation of Newtonian physics. We agree with Mr. Warsh's conclusion but further posit that these shocks are not of only one noticeable degree of metamorphosis or age, but occur at all degrees along the logarithmic spiral of man's progress and the progress of the universe, from Minuette degree and smaller to Grand Supercycle degree and greater. To introduce another expansion on the idea, we suggest that these shocks themselves are part of the clockwork. A watch may appear to run smoothly, but its progress is controlled by the spasmodic jerks of a timing mechanism, whether mechanical or quartz crystal. Quite likely the logarithmic spiral of man's progress is propelled in a similar manner, though with the jolts tied not to time periodicity, but to repetitive form.

If you say "nuts" to this thesis, please consider that we are probably not talking about an exogenous force, but an endogenous one. Any rejection of the Wave Principle on the grounds that it is deterministic leaves unanswered the how and why of the social patterns we demonstrate in this book.

All we propose is that there is a natural psychodynamic in men that generates form in social behavior, as revealed by market behavior. Most important, understand that the form we describe is primarily social, not individual. Individuals have free will and indeed can learn to recognize these typical patterns of social behavior and use that knowledge to their advantage. It is not easy to act and think contrarily to the crowd and to your own natural tendencies, but with discipline

and the aid of experience, you can certainly train yourself to do so once you establish that initial crucial insight into the true essence of market behavior. Needless to say, it is quite the opposite of what people have believed it to be, whether they have been influenced by the cavalier assumptions of event causality made by fundamentalists, the economic models posited by economists, the "random walk" offered by academics, or the vision of market manipulation by "Gnomes of Zurich" (sometimes identified only as "they") proposed by conspiracy theorists.

We suppose the average investor has little interest in what may happen to his investments when he is dead or what the investment environment of his great-great-great-great grandfather was. It is difficult enough to cope with current conditions in the daily battle for investment survival without concerning ourselves with the distant future or the long buried past. However, long term waves must be assessed, first because the developments of the past serve greatly to determine the future, and secondly because it can be illustrated that the same law that applies to the long term applies to the short term and produces the same patterns of stock market behavior.

In Lessons 26 and 27 we shall outline the current position of the progression of "jerks and jolts" from what we call the Millennium degree to today's Cycle degree bull market. Moreover, as we shall see, because of the position of the current Millennium wave and the pyramiding of "fives" in our final composite wave picture, this decade could prove to be one of the most exciting times in world history to be writing about and studying the Elliott Wave Principle.

1. The Millennium Wave from the Dark Ages

Data for researching price trends over the last two hundred years is not especially difficult to attain, but we have to rely on less exact statistics for perspective on earlier trends and conditions. The long term price index compiled by Professor E. H. Phelps Brown and Sheila V. Hopkins and further enlarged by David Warsh is based on a simple "market basket of human needs" for the period from 950 A.D. to 1954.

By splicing the price curves of Brown and Hopkins onto industrial stock prices from 1789, we get a long-term picture of prices for the last one thousand years. Figure 5-1 shows approximate general price swings from the Dark Ages to 1789. For the fifth wave from 1789, we have overlaid a straight line to represent stock price swings in particular, which we will analyze further in the next section. Strangely enough, this diagram, while only a very rough indication of price trends, produces an unmistakable five-wave Elliott pattern.
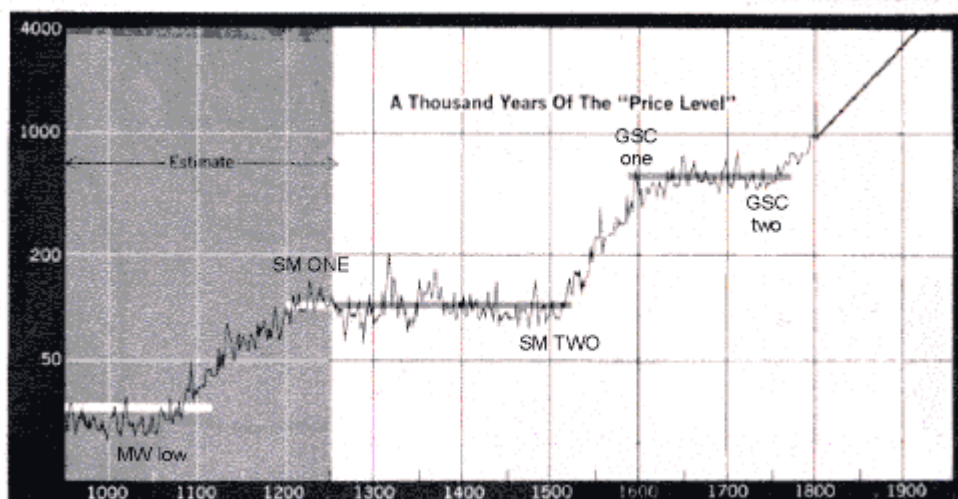

Figure 5-1

Paralleling the broad price movements of history are the great periods of commercial and industrial expansion over the centuries. Rome, whose great culture at one time may have coincided with the peak of the previous Millennium wave, finally fell in 476 A.D. For five hundred years afterward, during the ensuing Millennium degree bear market, the search for knowledge became almost extinct. The Commercial Revolution (950-1350), eventually sparked the first new sub-Millennium wave of expansion that ushered in the Middle Ages. The leveling of prices from 1350 to 1520 forms wave two and represents a "correction" of the progress during the Commercial Revolution.

The next period of rising prices, the first Grand Supercycle wave of sub-Millennium wave Three, coincided with both the Capitalist Revolution (1520-1640) and with the greatest period in English history, the Elizabethan period. Elizabeth I (1533-1603) came to the throne of England just after an exhausting war with France. The country was poor and in despair, but before Elizabeth died, England had defied all the powers of Europe, expanded her empire, and become the most prosperous nation in the world. This was the age of Shakespeare, Martin Luther, Drake and Raleigh, truly a glorious epoch in world history. Business expanded and prices rose during this period of creative brilliance and luxury. By 1650, prices had reached a peak, leveling off to form Grand Supercycle wave two.

The third Grand Supercycle wave within this sub-Millennium wave appears to have begun for commodity prices around 1760 rather than our presumed time period for the stock market around 1770 to 1790, which we have labeled "1789" where the stock market data begins. However, as a study by Gertrude Shirk in the April/May 1977 issue of Cycles magazine points out, trends in commodity prices have tended to precede similar trends in stock prices generally by about a decade. Viewed in light of this knowledge, the two measurements actually fit together extremely well.

This third Grand Supercycle upwave within the current sub-Millennium wave Three coincides with the burst in productivity generated by the Industrial Revolution (1750-1850) and parallels the rise of the United States of America as a world power.

Elliott logic suggests that the Grand Supercycle from 1789 to date must both follow and precede other waves in the ongoing Elliott pattern, with typical relationships in time and amplitude. If the 200-year Grand Supercycle wave has almost run its full course, it stands to be corrected by three

Supercycle waves (two down and one up), which could extend over the next one or two centuries. It is difficult to think of a low-growth situation in world economies lasting for such a long period, but the possibility cannot be ruled out. This broad hint of long term trouble does not preclude that technology will mitigate the severity of what might be presumed to develop socially. The Elliott Wave Principle is a law of probability and relative degree, not a predictor of exact conditions. Nevertheless, the end of the current Supercycle (V) should usher in an era of economic and social stagnancy or setback in significant portions of the world.

Lesson 27: The Wave Pattern Up To 1978

The Grand Supercycle from 1789

This long wave has the right look of three waves in the direction of the main trend and two against the trend for a total of five, complete with an extended third wave corresponding with the most dynamic and progressive period of U.S. history. In Figure 5-2, the Supercycle subdivisions have been marked (I), (II), (III), (IV) and (V).

Considering that we are exploring market history back to the days of canal companies, horse-drawn barges and meager statistics, it is surprising that the record of "constant dollar" industrial share prices, which was developed by Gertrude Shirk for Cycles magazine, forms such a clear Elliott pattern. Especially striking is the trend channel, the baseline of which connects several important Cycle and Supercycle wave lows and the upper parallel of which connects the peaks of several advancing waves.

Wave (I) is a fairly clear "five," assuming 1789 to be the beginning of the Supercycle. Wave (II) is a flat, which neatly predicts a zigzag or triangle for wave (IV), by rule of alternation. Wave (III) is extended and can be easily subdivided into the necessary five subwaves, including an expanding triangle characteristically in the fourth Cycle wave position. Wave (IV), from 1929 to 1932, terminates within the area of the fourth wave of lesser degree.

An inspection of wave (IV) in Figure 5-3 illustrates in greater detail the zigzag of Supercycle dimension that marked the most devastating market collapse in U.S. history. In wave A of the decline, daily charts show that the third subwave, in characteristic fashion, included the Wall Street crash of October 29, 1929. Wave A was then retraced approximately 50% by wave B, the "famous upward correction of 1930," as Richard Russell terms it, during which even Robert Rhea was led by the emotional nature of the rally to cover his short positions. Wave C finally bottomed at 41.22, a drop of 253 points or about 1.382 times the length of wave A, and completed an 89 (a Fibonacci number) percent drop in stock prices in three (another Fibonacci number) years.

The U.S. Stock Market, Plotted Yearly Through 1977
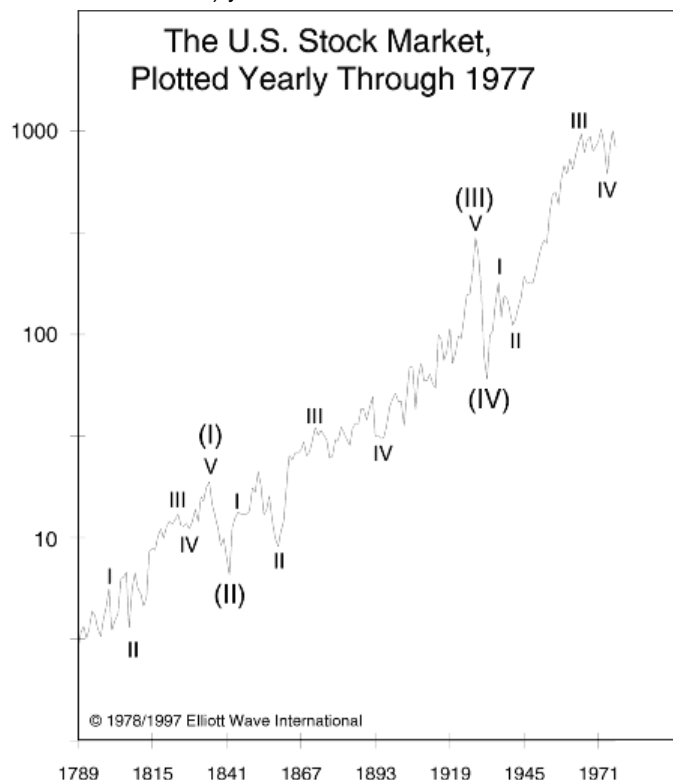
Figure 5-2

Wave (V) of this Grand Supercycle is still in progress, [as of 1978] and is further analyzed below.

The Supercycle Wave from 1932

Supercycle wave (V) has been in progress since 1932 and is still unfolding (see Figure 5-3). If there were such a thing as a perfect wave formation under the Wave Principle, this long term sequence of Elliott waves would be a prime candidate. The breakdown of Cycle waves is as follows:

Wave I: 1932 to 1937 — This wave is a clear cut five-wave sequence according to the rules established by Elliott. It retraces .618 of the market decline from the 1928 and 1930 highs and, within it, the extended fifth wave travels 1.618 times the distance of the first through third waves.

Wave II: 1937 to 1942 — Within wave II, subwave [A] is a five, and wave [C] is a five, so the entire formation is a zigzag. Most of the price damage occurs in wave [A]. Thus, there is great strength in the structure of the entire corrective wave, much beyond what we would normally expect, as wave [C] travels only slightly into new low ground for the correction. Most of the damage of wave [C] was time based or erosive, as continued deflation pushed stock prices to price/earnings levels which were below those even in 1932. A wave of this construction can have the power of a flat.

Wave III: 1942 to 1965(6) — This wave is an extension, by which the Dow rose nearly 1000% in twenty-four years. Its principal features are as follows: 1) Wave [4] is a flat, alternating with a zigzag, wave [2]. 2) Wave [3] is the longest Primary wave and an extension. 3) Wave [4] corrects to near the top of the preceding fourth wave of one lesser degree and holds well above the peak of wave [1]. 4) The length of subwaves [1] and [5] are related by the Fibonacci ratio in terms of percentage advance (129% and 80% respectively, where 80 = 129 x .618), as is often the case between two non-extended waves.

Wave IV: 1965(6) to 1974 — In Figure 5-3, wave IV bottoms in the area of wave [4], as is normal, and holds well above the peak of wave I. Two possible interpretations are shown: a five-wave expanding triangle from February 1965 and a double three from January 1966. Both counts are admissible, although the triangle interpretation might suggest a lower objective, where wave V would trace an advance approximately as long as the widest part of the triangle. No other Elliott evidence, however, suggests that such a weak wave is in the making. Some Elliott theorists attempt to count the last decline from January 1973 to December 1974 as a five, thus labeling Cycle wave IV a large flat. Our technical objections to a five-wave count are that the supposed third subwave is too short, and the first wave is then overlapped by the fourth, thereby offending two of Elliott's basic rules. It is clearly an A-B-C decline.
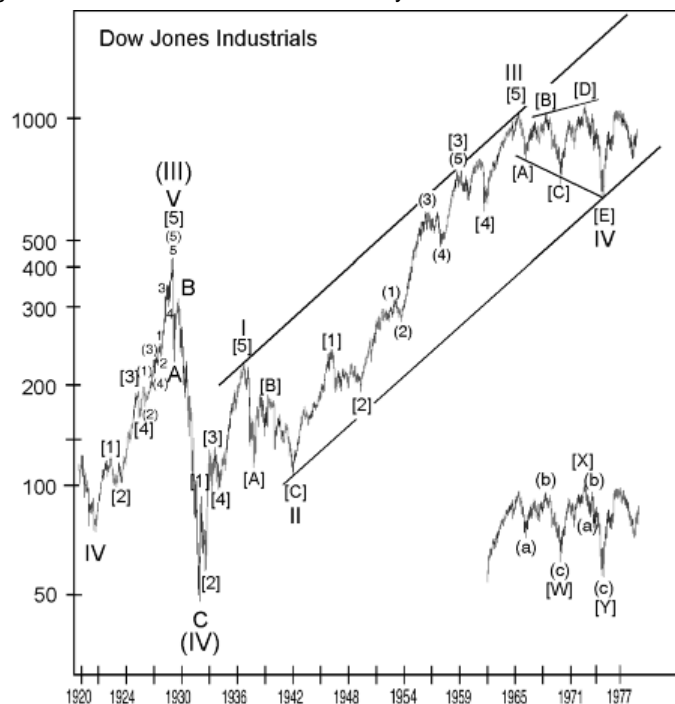

Figure 5-3

Wave V: 1974 to ? — This wave of Cycle degree is still unfolding. It is likely that two Primary waves have been completed at this juncture and that the market is in the process of tracing out the third Primary, which should accompany a break- out to new all time highs. The last chapter will cover in somewhat more detail our analysis and expectations with respect to the current market.

Thus, as we read Elliott, the current bull market in stocks is the fifth wave from 1932 of the fifth wave from 1789 within an extended third wave from the Dark Ages. Figure 5-4 gives the composite picture and speaks for itself.

The history of the West from the Dark Ages appears in retrospect to have been an almost uninterrupted phase of human progress. The cultural rise of Europe and North America, and before that the rise of the Greek city-states and the expansion of the Roman Empire, and before that the thousand year wave of social progress in Egypt, might be termed waves of Cultural degree, each of which was separated by Cultural degree waves of stagnation and regress, each lasting centuries. One might argue that even these five waves, constituting the entirety of recorded history to date, may constitute a developing wave of Epochal degree, and that some period of social catastrophe centuries hence (involving nuclear war, perhaps?) will ultimately ensure the occurrence of the largest human social regress in five thousand years.

Of course, the theory of the spiraling Wave Principle suggests that there exist waves of larger degree than Epochal. The ages in the development of the species Homo sapiens might be waves of even higher degree. Perhaps Homo sapiens himself is one stage in the development of hominids, which in turn are one stage in the development of even larger waves in the progress of life on Earth. After all, if the existence of the planet Earth is conceived to have lasted one year so far, life forms emerged from the oceans five weeks ago, while manlike creatures have walked the Earth for only the last six hours of the year, less than one one-hundredth of the total period during which forms of life

have existed. On this basis, Rome dominated the Western world for a total of five seconds. Viewed from this perspective, a Grand Supercycle degree wave is not really of such large degree after all.
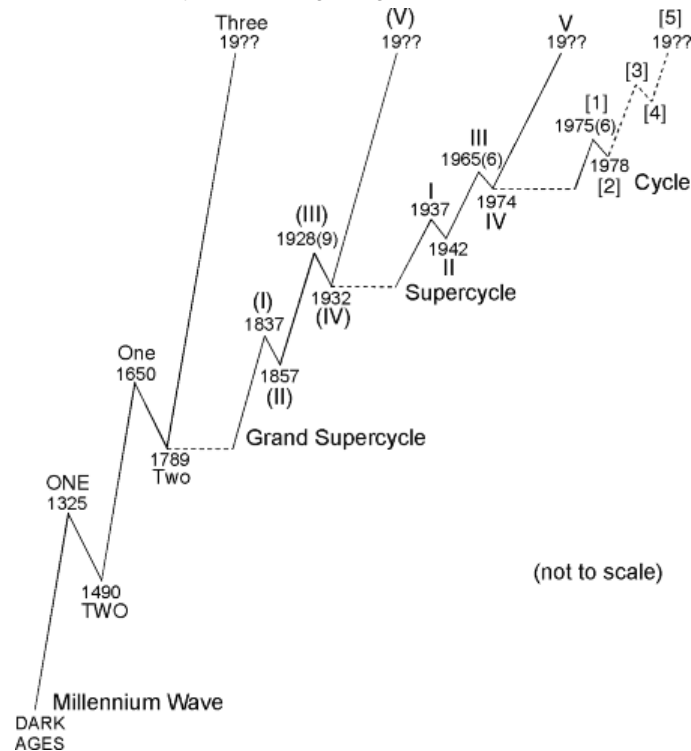

Figure 5-4

Lesson 28: Individual Stocks

The art of managing investments is the art of acquiring and disposing of stocks and other securities so as to maximize gains. When to make a move in the investment field is more important than what issue to choose. Stock selection is of secondary importance compared to timing. It is relatively easy to select sound stocks in essential industries if that is what one is after, but the question always to be weighed is when to buy them.

To be a winner in the stock market, one must know the direction of the primary trend and proceed to invest with it, not against it, in stocks that historically have tended to move in unison with the market as a whole. Fundamentals alone are seldom a proper justification for investing in stocks.

U.S. Steel in 1929 was selling at $260 a share and was considered a sound investment for widows and orphans. The dividend was $8.00 a share.

The Wall Street crash reduced the price to $22 a share, and the company did not pay a dividend for four years. The stock market is usually a bull or a bear, seldom a cow.

Somehow the market averages develop trends which unfold in Elliott Wave patterns regardless of the price movements of individual stocks. As we shall illustrate, while the Wave Principle has some application to individual stocks, the count for many issues is often too fuzzy to be of great practical value. In other words, Elliott will tell you if the track is fast but not which horse is going to win. For the most part, basic technical analysis with regard to individual stocks is probably more rewarding than trying to force the stock's price action into an Elliott count that may or may not exist.

There is reason to this. The Elliott philosophy broadly allows for individual attitudes and circumstances to affect price patterns of any single issue and, to a lesser degree, a narrow group of stocks, simply because what the Elliott Wave Principle reflects is only that part of each man's decision process which is shared by the mass of investors. In the larger reflection of wave form, then, the unique circumstances of individual investors and individual companies cancel each other out, leaving as residue a mirror of the mass mind alone. In other words, the form of the Wave Principle reflects the progress not of each man or company but of mankind as a whole and his enterprise. Companies come and go. Trends, fads, cultures, needs and desires ebb and flow with the human condition. Therefore, the progress of general business activity is well reflected by the Wave

Principle, while each individual area of activity has its own essence, its own life expectancy, and a set of forces which may relate to it alone. Thus, each company, like each man, appears on the scene as part of the whole, plays its part, and eventually returns to the dust from which it came.

If, through a microscope, we were to observe a tiny droplet of water, its individuality might be quite evident in terms of size, color, shape, density, salinity, bacteria count, etc., but when that droplet is part of a wave in the ocean, it becomes swept along with the force of the waves and the tides, despite its individuality. With over twenty million "droplets" owning stocks listed on the New York Stock Exchange, is it any wonder that the market averages are one of the greatest manifestations of mass psychology in the world?

Despite this important distinction, many stocks tend to move more or less in harmony with the general market. It has been shown that on average, seventy-five percent of all stocks move up with the market, and ninety percent of all stocks move down with the market, although price movements of individual stocks are usually more erratic than those of the averages. Closed-end stocks of investment companies and stocks of large cyclical corporations, for obvious reasons,

tend to conform to the patterns of the averages more closely than most other stocks. Emerging growth stocks, however, tend to create the clearest individual Elliott Wave patterns because of the strong investor emotion that accompanies their progress. The best approach seems to be to avoid trying to analyze each issue on an Elliott basis unless a clear, unmistakable wave pattern unfolds before your eyes and commands attention. Decisive action is best taken only then, but it should be taken, regardless of the wave count for the market as a whole. Ignoring such a pattern is always more dangerous than paying the insurance premium.

Despite the above detailed caveat, there are numerous examples of times when individual stocks reflect the Wave Principle. The seven individual stocks shown in Figures 6-1 through 6-7 show Elliott Wave patterns representing three types of situations. The bull markets for U.S. Steel, Dow

Chemical and Medusa show five-wave advances from their major bear market lows. Eastman Kodak and Tandy show A-B-C bear markets into 1978.

The charts of Kmart (formerly Kresge) and Houston Oil and Minerals illustrate long term "growth" type advances that trace out Elliott patterns and break their long term supporting channel lines only after completing satisfactory wave counts.
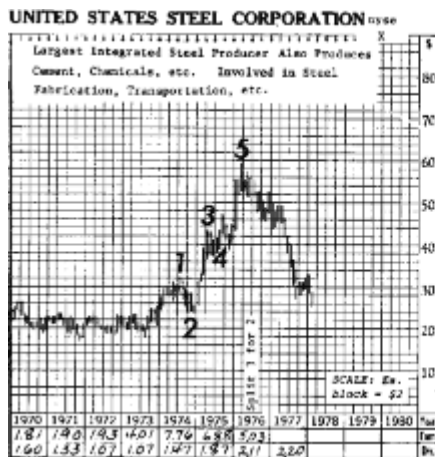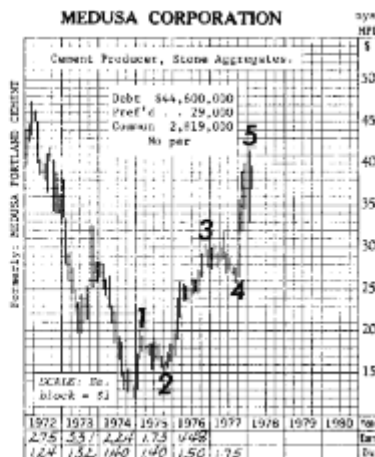

Figure 6-1

Figure 6-2

Figure 6-3

Figure 6-4

Figure 6-5

Figure 6-6

Figure 6-7

Lesson 29: Commodities

Commodities have as much individual character as stocks. One difference between the behavior of commodities and stock market averages is that in commodities, primary bull and bear markets at times overlap each other. Sometimes, for instance, a complete five-wave bull market will fail to take a commodity to a new all-time high, as the chart of soybeans illustrates in Figure 6-9. Therefore, while beautiful charts of Supercycle degree waves do exist for a number of commodities, it seems that the peak observable degree in some cases is the Primary or Cycle degree. Beyond this degree, the Principle gets bent here and there.

Also in contrast to the stock market, commodities most commonly develop extensions in fifth waves within Primary or Cycle degree bull markets.

This tendency is entirely consistent with the Wave Principle, which reflects the reality of human emotions. Fifth wave advances in the stock market are propelled by hope, while fifth wave advances in commodities are propelled by a comparatively dramatic emotion, fear: fear of inflation, fear of drought, fear of war. Hope and fear look different on a chart, which is one of the reasons that commodity market tops often look like stock market bottoms. Commodity bull market extensions, moreover, often appear following a triangle in the fourth wave position. Thus, while post-triangle thrusts in the stock market are often "swift and short," triangles in commodity bull markets of large degree often precede extended blowoffs. One example is shown in the chart of silver in Figure 1-44.

The best Elliott patterns are born from important long term breakouts from extended sideways base patterns, as occurred in coffee, soybeans, sugar, gold and silver at different times in the 1970s. Unfortunately, semilogarithmic chart scale, which may have indicated applicability of Elliott trend channels, was not available for this study.

Figure 6-8 shows the progress of the two year price explosion in coffee from mid-1975 to mid-1977. The pattern is unmistakably Elliott, even down to Minor wave degree. The ratio analyses employed beautifully project the peak price level. In these computations, the length of the rise to the peak of wave (3) and to the peak of wave 3 each divide the bull market into the Golden Section at equivalent distances. As you can see by the equally acceptable counts listed at the bottom of the chart, both of those peaks can be labeled as the top of wave [3], fulfilling typical ratio analysis guidelines. After the peak of the fifth wave was reached, a devastating bear market struck apparently from out of the blue.
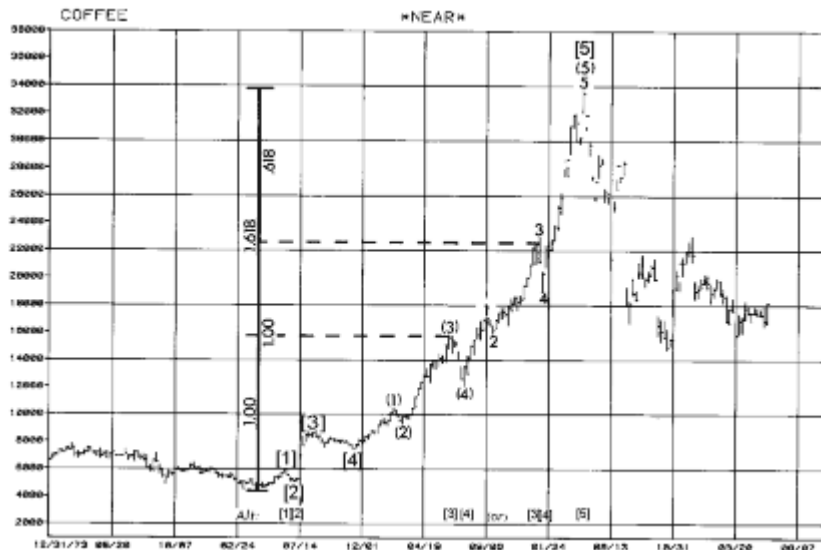

Figure 6-8

Figure 6-9 displays five and a half years of price history for soybeans. The explosive rise in 1972-73 emerged from a long base, as did the explosion in coffee prices. The target area is met here as well, in that the length of the rise to the peak of wave 3, multiplied by 1.618, gives almost exactly the distance from the end of wave 3 to the peak of wave 5. In the ensuing A-B-C bear market, a perfect Elliott zigzag unfolds, bottoming in January 1976. Wave B of this correction is just shy of .618 times the length of wave A. A new bull market takes place in 1976-77, although of subnormal extent since the peak of wave 5 falls just short of the expected minimum target of $10.90. In this case, the gain to the peak of wave 3 ($3.20) times 1.618 gives $5.20, which when added to the low within wave 4 at $5.70 gives the $10.90 target. In each of these bull markets, the initial measuring unit is the same, the length of the advance from its beginning to the peak of wave three. That distance is then .618 times the length of wave 5, measured from the peak of wave 3, the low of wave 4, or in between. In other words, in each case, some point within wave 4 divides the entire rise into the Golden Section, as described in Lesson 21.

Figure 6-10 is a weekly high-low chart of Chicago wheat futures. During the four years after the peak at $6.45, prices trace out an Elliott A-B-C bear market with excellent internal interrelationships. Wave B is a contracting triangle. The five touch points conform perfectly to the boundaries of the trendlines. Though in an unusual manner, the triangle's subwaves develop as a reflection of the Golden Spiral, with each leg related to another by the Fibonacci ratio (c = .618b; d = .618a; e = .618d). A typical "false breakout" occurs near the end of the progression, although this time it is accomplished not by wave e, but by wave 2 of C. In addition, the wave A decline is approximately 1.618 times the length of wave a of B, and of wave C.

Thus, we can demonstrate that commodities have properties that reflect the universal order that Elliott discovered. It seems reasonable to expect, though, that the more individual the personality of a commodity, which is to say, the less it

is a necessary part of human existence, the less it will reliably reflect an Elliott pattern. One commodity that is unalterably tied to the psyche of mass humanity is gold.
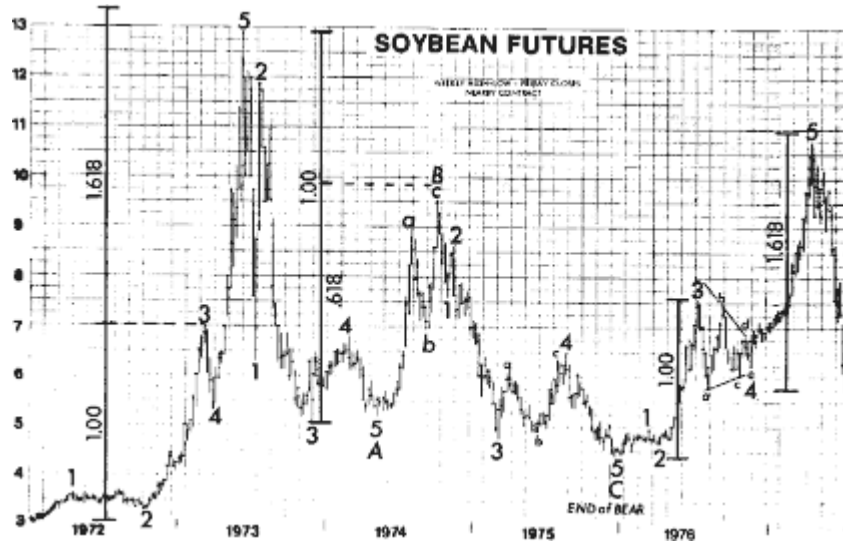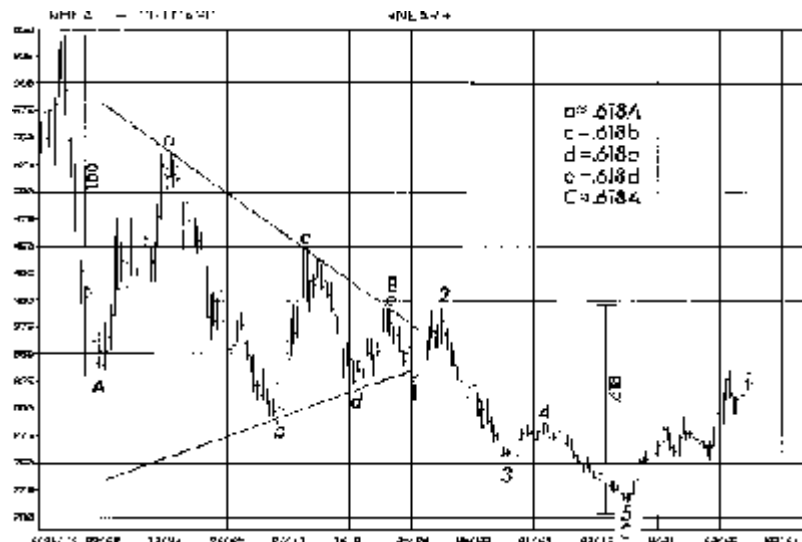

Figure 6-9

Figure 6-10

Gold

Gold often moves "contra-cyclically" to the stock market. When the price of gold reverses to the upside after a downtrend, it can often occur concurrently with a turn for the worse in stocks, and vice versa. Therefore, an Elliott reading of the gold price has in the recent past provided confirming evidence for an expected turn in the Dow.

In April of 1972, the long-standing "official" price of gold was increased from $35 an ounce to $38 an ounce, and in February of 1973 was again increased to $42.22. This fixed "official" price established by central banks for convertibility purposes and the rising trend in the unofficial price in the early seventies led to what was called the "two-tier" system. In November 1973, the official price and the two-tier system were abolished by the inevitable workings of supply and demand in the free market.

The free market price of gold rose from $35 per ounce in January 1970 and reached a closing "London fix" price peak of $197 an ounce on

December 30, 1974. The price then started to slide, and on August 31, 1976 reached a low of $103.50. The fundamental "reasons" given for this decline have always been U.S.S.R. gold sales, U.S. Treasury gold sales and I.M.F. auctions. Since then, the price of gold has recovered substantially and is trending upward again [as of 1978].

Despite both the efforts of the U.S. Treasury to diminish gold's monetary role, the highly charged emotional factors affecting gold as a store of value and a medium of exchange have produced an inescapably clear Elliott pattern. Figure 6-11 is a price chart of London gold, and on it we have indicated the correct wave count, in which the rise from the freemarket liftoff to the peak at $179.50 an ounce on April 3rd, 1974 is a completed five-wave sequence. The officially maintained price of $35 an ounce before 1970 prevented any wave formation prior to that time and thus helped create the necessary long term base. The dynamic breakout from that base fits well the criterion for the clearest Elliott count for a commodity, and clear it is.
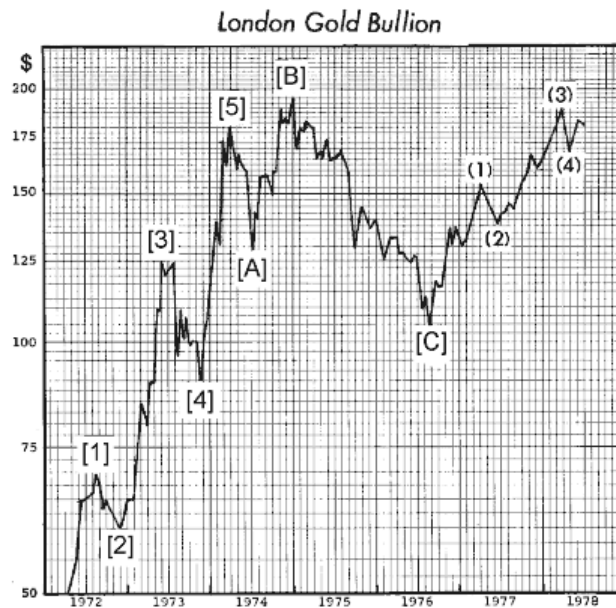
London Gold Bullion

Figure 6-11

The rocketing five-wave advance forms a nearly perfect wave, with the fifth terminating well against the upper boundary of the trend channel. The Fibonacci target projection method typical of commodities is fulfilled, in that the $90 rise to the peak of wave [3] provides the basis for measuring the distance to the orthodox top. $90 x .618 = $55.62, which when added to the peak of wave III at $125, gives $180.62. The actual price at wave V's peak was $179.50, quite close indeed. Also noteworthy is that at $179.50, the price of gold had multiplied by just over five (a Fibonacci number) times its price at $35.

Then in December 1974, after the initial wave [A] decline, the price of gold rose to an all-time high of nearly $200 an ounce. This wave was wave [B] of an expanded flat correction, which crawled upward along the lower channel line, as corrective wave advances often do. As befits the personality of a "B" wave, the phoniness of the advance was unmistakable. First, the news background, as everyone knew, appeared to be bullish for gold, with American legalization of ownership due on January 1, 1975. Wave [B], in a seemingly perverse but market-logical manner, peaked precisely on the last day of 1974. Secondly, gold mining stocks, both North American and South African, were noticeably under-performing on the advance, forewarning of trouble by refusing to confirm the assumed bullish picture.

Wave [C], a devastating collapse, accompanied a severe decline in the valuation of gold stocks, carrying some back to where they had begun their advances in 1970. In terms of the bullion price, the authors computed in early 1976 by the usual relationship that the low should occur at about $98, since the length of wave [A] at $51, times 1.618, equals $82, which when subtracted from the orthodox high at $180, gives a target at $98. The low for the correction was well within the zone of the previous fourth wave of lesser degree and quite near the target, hitting a closing London price of $103.50 on August 25, 1976, the month just between the Dow Theory stock market peak in July and the nominal DJIA peak in September. The [A]-[B]-[C] expanded flat correction implies great thrust in the next wave into new high ground.

Gold, historically speaking, is one of the disciplines of economic life, with a sound record of achievement. It has nothing more to offer the world than discipline. Perhaps that is the reason politicians work tirelessly to ignore it, denounce it, and attempt to demonetize it. Somehow, though, governments always seem to manage to have a supply on hand "just in case." Today, gold stands in the wings of international finance as a relic of the old days, but nevertheless also as a harbinger of the future. The disciplined life is the productive life, and that concept applies to all levels of endeavor, from dirt farming to international finance.

Gold is the time honored store of value, and although the price of gold may flatten for a long period, it is always good insurance to own some until the world's monetary system is intelligently restructured, a development that seems inevitable, whether it happens by design or through natural economic forces. That paper is no substitute for gold as a store of value is probably another of nature's laws.

Lesson 30: Dow Theory, Cycles, News And Random Walk

According to Charles H. Dow, the primary trend of the market is the broad, all-engulfing "tide," which is interrupted by "waves," or secondary reactions and rallies. Movements of smaller size are the "ripples" on the waves. The latter are generally unimportant unless a line (defined as a sideways structure lasting at least three weeks and contained within a price range of five percent) is formed. The main tools of the theory are the Transportation Average (formerly the Rail Average) and the Industrial Average. The leading exponents of Dow's theory, William Peter Hamilton, Robert Rhea, Richard Russell and E. George Schaefer, rounded out Dow's theory but never altered its basic tenets.

As Charles Dow once observed, stakes can be driven into the sands of the seashore as the waters ebb and flow to mark the direction of the tide in much the same way as charts are used to show how prices are moving. Out of experience came the fundamental Dow Theory tenet that since both averages are part of the same ocean, the tidal action of one average must move in unison with the other to be authentic. Thus, a movement to a new extreme in an established trend by one average alone is a new high or new low which is said to lack "confirmation" by the other average.

The Elliott Wave Principle has points in common with Dow Theory. During advancing impulse waves, the market should be a "healthy" one, with breadth and the other averages confirming the action. When corrective and ending waves are in progress, divergences, or non-confirmations, are likely. Dow's followers also recognized three psychological "phases" of a market advance. Naturally, since both methods describe reality, the descriptions of these phases are similar to the personalities of Elliott's waves 1, 3 and 5 as we outlined them in Lesson 14.
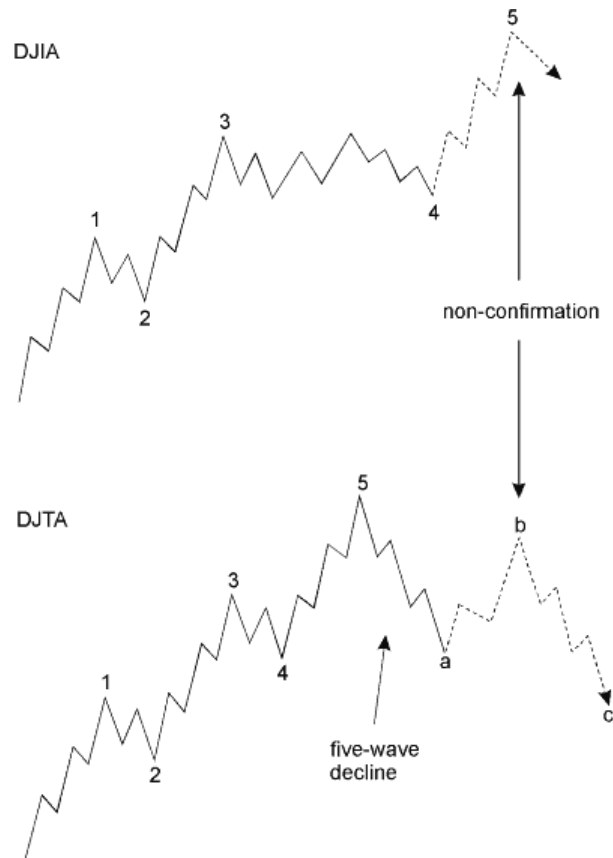

Figure 7-1

The Wave Principle validates much of Dow Theory, but of course Dow Theory does not validate the Wave Principle since Elliott's concept of wave action has a mathematical base, needs only one market average for interpretation, and unfolds according to a specific structure. Both approaches, however, are based on empirical observations and complement each other in theory and practice. Often, for instance, the Elliott count can forewarn the Dow Theorist of an upcoming non-confirmation. If, as Figure 7-1 shows, the Industrial Average has completed four waves of a primary swing and part of a fifth, while the Transportation Average is rallying in wave B of a zigzag correction, a non-confirmation is inevitable. In fact, this type of development has helped the authors more than once. As an example, in May 1977, when the Transportation Average was climbing to new highs, the preceding five-wave decline in the Industrials during January and February signaled loud and clear that any rally in that index would be doomed to create a non-confirmation.

On the other side of the coin, a Dow Theory non-confirmation can often alert the Elliott analyst to examine his count to see whether or not a reversal should be the expected event. Thus, knowledge of one approach can assist in the application of the other. Since Dow Theory is the grandfather of the Wave Principle, it deserves respect for its historical significance as well as its consistent record of performance over the years.

Cycles

The "cycle" approach to the stock market has become quite fashionable in recent years, coinciding with the publishing of several books on the subject. Such approaches have a great deal of validity, and in the hands of an artful analyst can be an excellent approach to market analysis. But in our opinion, while it can make money in the stock market as can many other technical tools, the "cycle" approach does not reflect the true essence of the law behind the progression of markets. In our opinion, the analyst could go on indefinitely in his attempt to verify fixed cycle periodicities, with negligible results. The Wave Principle reveals, as well it should, that the market reflects more the properties of a spiral than a circle, more the properties of nature than of a machine.

News

While most financial news writers explain market action by current events, there is seldom any worthwhile connection. Most days contain a plethora of both good and bad news, which is usually selectively scrutinized to come up with a plausible explanation for the movement of the market. In Nature's Law, Elliott commented on the value of news as follows:

At best, news is the tardy recognition of forces that have already been at work for some time and is startling only to those unaware of the trend. The futility in relying on anyone's ability to interpret the value of any single news item in terms of the stock market has long been recognized by experienced and successful investors. No single news item or

series of developments can be regarded as the underlying cause of any sustained trend. In fact, over a long period of time the same events have had widely different effects because trend conditions were dissimilar. This statement can be verified by casual study of the 45 year record of the Dow Jones Industrial Average.

During that period, kings have been assassinated, there have been wars, rumors of wars, booms, panics, bankruptcies, New Era, New Deal, "trust busting," and all sorts of historic and emotional developments. Yet all bull markets acted in the same way, and likewise all bear markets evinced similar characteristics that controlled and measured the response of the market to any type of news as well as the extent and proportions of the component segments of the trend as a whole. These characteristics can be appraised and used to forecast future action of the market, regardless of news.

There are times when something totally unexpected happens, such as earthquakes. Nevertheless, regardless of the degree of surprise, it seems safe to conclude that any such development is discounted very quickly and without reversing the indicated trend under way before the event. Those who regard news as the cause of market trends would probably have better luck gambling at race tracks than in relying on their ability to guess correctly the significance of outstanding news items. Therefore the only way to "see the forest clearly" is to take a position above the surrounding trees.

Elliott recognized that not news, but something else forms the patterns evident in the market. Generally speaking, the important analytical question is not the news per se, but the importance the market places or appears to place on the news. In periods of increasing optimism, the market's apparent reaction to an item of news is often different from what it would have been if the market were in a downtrend. It is easy to label the progression of Elliott waves on a historical price chart, but it is impossible to pick out, say, the occurrences of war, the most dramatic of human activities, on the basis of recorded stock market action. The psychology of the market in relation to the news, then, is sometimes useful, especially when the market acts contrary to what one would "normally" expect.

Experience suggests that the news tends to lag the market, yet follows exactly the same progression. During waves 1 and 2 of a bull market, the front page of the newspaper reports news that engenders fear and gloom. The fundamental situation generally seems the worst as wave 2 of the market's new advance bottoms out. Favorable fundamentals return in wave 3 and peak temporarily in the early part of wave 4. They return partway through wave 5, and like the technical aspects of wave 5, are less impressive than those present during wave 3 (see "Wave Personality" in Lesson 14). At the market's peak, the fundamental background remains rosy, or even improves, yet the market turns down, despite it. Negative fundamentals then begin to wax again after the correction is well under way. The news, or "fundamentals," then, are offset from the market temporally by a wave or two. This parallel progression of events is a sign of unity in human affairs and tends to confirm the Wave Principle as an integral part of the human experience.

Technicians argue, in an understandable attempt to account for the time lag, that the market "discounts the future," i.e., actually guesses correctly in advance changes in the social condition. This theory is initially enticing because in preceding social and political events, the market appears to sense changes before they occur. However, the idea that investors are clairvoyant is somewhat fanciful. It is almost certain that in fact people's emotional states and trends, as reflected by market prices, cause them to behave in ways that ultimately affect economic statistics and politics, i.e., produce "news." To sum up our view, then, the market, for our purposes, is the news.

Random Walk Theory

Random Walk theory has been developed by statisticians in the academic world. The theory holds that stock prices move at random and not in accord with predictable patterns of behavior. On this basis, stock market analysis is pointless as nothing can be gained from studying trends, patterns, or the inherent strength or weakness of individual securities.

Amateurs, no matter how successful they are in other fields, usually find it difficult to understand the strange, "unreasonable," sometimes drastic, seemingly random ways of the market. Academics are intelligent people, and to explain their own inability to predict market behavior, some of them simply assert that prediction is impossible. Many facts contradict this conclusion, and not all of them are at the abstract level. For instance, the mere existence of very successful professionals who make hundreds, or even thousands, of buy and sell decisions a year flatly disproves the

Random Walk idea, as does the existence of portfolio managers and analysts who manage to pilot brilliant careers over a professional lifetime.

Statistically speaking, these performances prove that the forces animating the market's progression are not random or due solely to chance. The market has a nature, and some people perceive enough about that nature to attain success. A very short term speculator who makes tens of decisions a week and makes money each week has accomplished something akin to tossing a coin fifty times in a row with the coin falling "heads" each time. David Bergamini, in Mathematics, stated, Tossing a coin is an exercise in probability theory which everyone has tried. Calling either heads or tails is a fair bet because the chance of either result is one half. No one expects a coin to fall heads once in every two tosses, but in a large number of tosses, the results tend to even out. For a coin to fall heads fifty consecutive times would take a million men tossing coins ten times a minute for forty hours a week, and then it would only happen once every nine centuries.

An indication of how far the Random Walk theory is removed from reality is the chart of the Supercycle in Figure 5-3 from Lesson 27, reproduced below. Action on the NYSE does not create a formless jumble wandering without rhyme or reason. Hour after hour, day after day and year after year, the DJIA's price changes create a succession of waves dividing and subdividing into patterns that perfectly fit Elliott's basic tenets as he laid them out forty years ago. Thus, as the reader of this book may witness, the Elliott Wave Principle challenges the Random Walk theory at every turn.
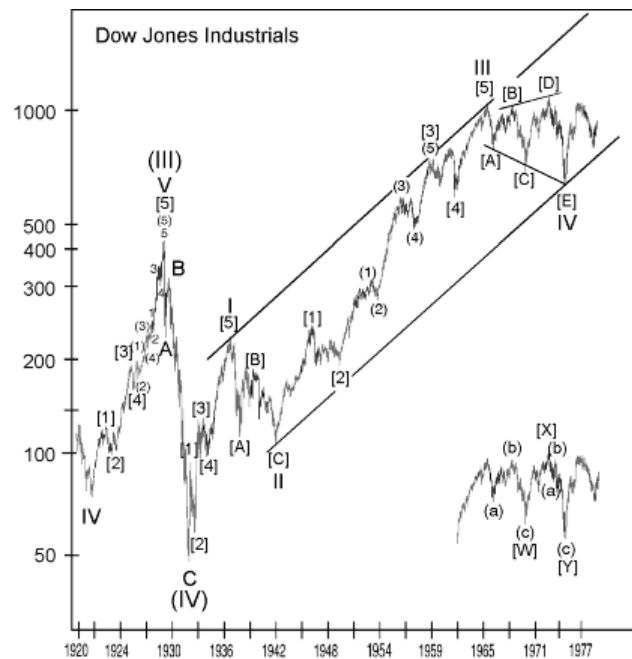
Figure 5-3

Lesson 31: Technical And Economic Analysis

The Elliott Wave Principle not only proves the validity of chart analysis, but it can help the technician decide which formations are most likely of real significance. As in the Wave Principle, technical analysis (as described by Robert D. Edwards and John Magee in their book, Technical Analysis of Stock Trends) recognizes the "triangle" formation as generally an intra-trend phenomenon. The concept of a "wedge" is the same as that for Elliott's diagonal triangle and has the same implications. Flags and pennants are zigzags and triangles. "Rectangles" are usually double or triple threes.

Double tops are generally caused by flats, double bottoms by truncated fifths.

The famous "head and shoulders" pattern can be discerned in a normal Elliott top (see Figure 7-3), while a head and shoulders pattern that "doesn't work out" might involve an expanded flat correction under Elliott (see Figure 7-4). Note that in both patterns, the decreasing volume that usually accompanies a head and shoulders formation is a characteristic fully compatible with the Wave Principle. In Figure 7-3, wave 3 will have the heaviest volume, wave 5 somewhat lighter, and wave b usually lighter still when the wave is of Intermediate degree or lower. In Figure 7-4, the impulse wave will have the highest volume, wave b usually somewhat less, and wave four of c the least.
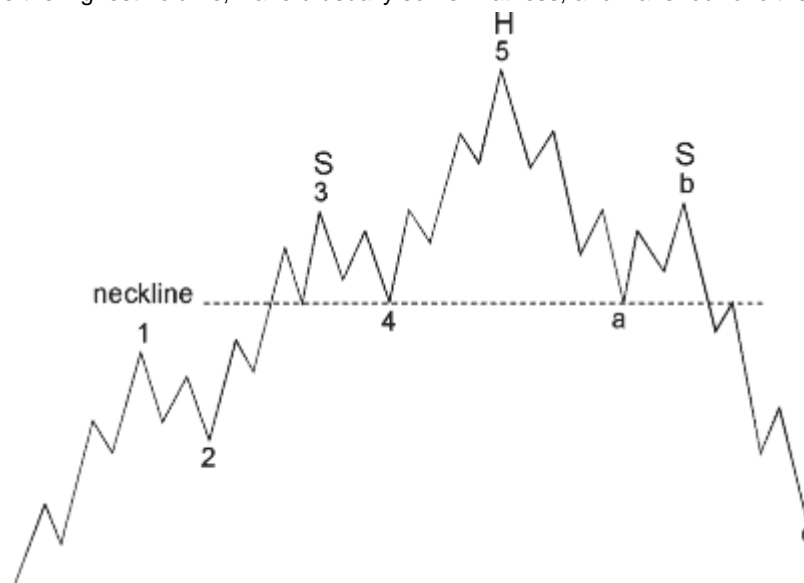

Figure 7-3

Trendlines and trend channels are used similarly in both approaches. Support and resistance phenomena are evident in normal wave progression and in the limits of bear markets (the congestion of wave four is support for a subsequent decline). High volume and volatility (gaps) are recognized characteristics of "breakouts," which generally accompany third waves, whose personality, as discussed in Lesson 14, fills the bill.
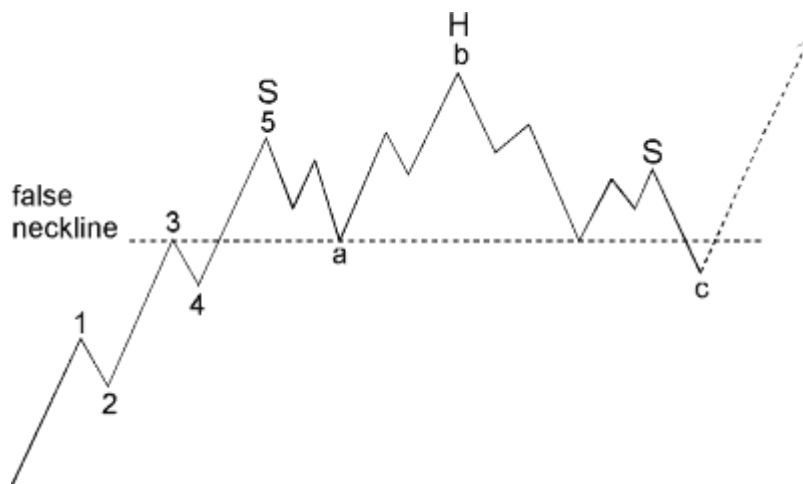
Figure 7-4

Despite this compatibility, after years of working with the Wave Principle we find that applying classical technical analysis to stock market averages gives us the feeling that we are restricting ourselves to the use of stone tools in an age of modern technology.

The technical analytic tools known as "indicators" are often extremely useful in judging and confirming the momentum status of the market or the psychological background that usually accompanies waves of each type. For instance, indicators of investor psychology, such as those that track short selling, option transactions and market opinion polls, reach extreme levels at the end of "C" waves, second waves and fifth waves. Momentum indicators reveal an ebbing of the market's power (i.e., speed of price change, breadth and in lower degrees, volume) in fifth waves and in "B" waves in expanded flats, creating "momentum divergences." Since the utility of an individual indicator can change or evaporate over time due to changes in market mechanics, we strongly suggest their use as tools to aid in correctly counting Elliott waves but would not rely on them so strongly as to ignore wave counts of obvious portent. Indeed, the associated guidelines within the Wave Principle at times have suggested a market environment that made the temporary alteration or impotence of some market indicators predictable.

The "Economic Analysis" Approach

Currently extremely popular with institutional fund managers is the method of trying to predict the stock market by forecasting changes in the economy using interest rate trends, typical postwar business cycle behavior, rates of inflation and other measures. In our opinion, attempts to forecast the market without listening to the market itself are doomed to fail. If anything, the past shows that the market is a far more reliable predictor of the economy than vice versa. Moreover, taking a long term historical perspective, we feel strongly that while various economic conditions may be related to the stock market in certain ways during one period of time, those relationships are subject to change seemingly without notice.

For example, sometimes recessions begin near the start of a bear market, and sometimes they do not occur until the end. Another changing relationship is the occurrence of inflation or deflation, each of which has appeared bullish for the stock market in some cases and bearish for the stock market in others. Similarly, tight money fears have kept many fund managers out of the market at the 1984 bottom, just as the lack of such fears kept them invested during the 1962 collapse. Falling interest rates often accompany bull markets but also accompany the very worst market declines, such as that of 1929-1932.

While Elliott claimed that the Wave Principle was manifest in all areas of human endeavor, even in the frequency of patent applications, for instance, the late Hamilton Bolton specifically asserted that the Wave Principle was useful in telegraphing changes in monetary trends as far back as 1919.

Walter E. White, in his work, "Elliott Waves in the Stock Market," also finds wave analysis useful in interpreting the trends of monetary figures, as this excerpt indicates:

The rate of inflation has been a very important influence on stock market prices during recent years. If percentage changes (from one year earlier) in the consumer price index are plotted, the rate of inflation from 1965 to late 1974 appears as an Elliott 1-2-3-4-5 wave. A different cycle of inflation than in previous postwar business cycles has developed since 1970 and the future cyclical development is unknown. The waves are useful, however, in suggesting turning points, as in late 1974.

Elliott Wave concepts are useful in the determination of turning points in many different series of economic data. For instance, net free banking reserves, which White said "tend to precede turning points in the stock market," were essentially negative for about eight years from 1966 to 1974.

The termination of the 1-2-3-4-5 Elliott down wave in late 1974 suggested a major buying point.

As testimony to the utility of wave analysis in the money markets, we present in Figure 7-5 a wave count of the price of a long term U.S. Treasury bond, the 8 and 3/8 of the year 2000. Even in this brief nine-month price pattern, we see a reflection of the Elliott process. On this chart we have three examples of alternation, as each second wave alternates with each fourth, one being a zigzag, the other a flat. The upper trendline contains all rallies. The fifth wave constitutes an extension, which itself is contained within a trend channel. This chart indicates that the biggest bond market rally in almost a year was to begin quite soon. (Further evidence of the applicability of the Wave Principle to forecasting interest rates was presented in Lesson 24.)
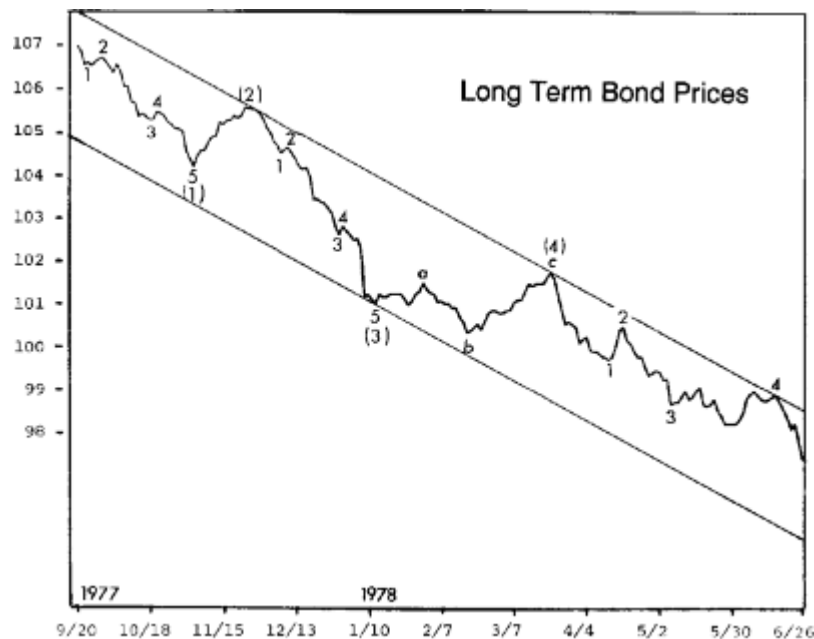
Figure 7-5

Thus, while expenditures, credit expansion, deficits and tight money can and do relate to stock prices, our experience is that an Elliott pattern can always be discerned in the price movement. Apparently, what influences investors in managing their portfolios is likely influencing bankers, businessmen and politicians as well. It is difficult to separate cause from effect when the interactions of forces at all levels of activity are so numerous and intertwined. Elliott waves, as a reflection of the mass psyche, extend their influence over all categories of human behavior.

Exogenous Forces

We do not reject the idea that exogenous forces may be triggering cycles and patterns that man has yet to comprehend. For instance, for years analysts have suspected a connection between sunspot frequency and stock market prices on the basis that changes in magnetic radiation have an effect on the mass psychology of people, including investors. In 1965, Charles J. Collins published a paper entitled "An Inquiry into the Effect of Sunspot Activity on the Stock Market." Collins noted that since 1871, severe bear markets generally followed years when sunspot activity had risen above a certain level. More recently, Dr. R. Burr, in Blueprint for Survival, reported that he had discovered a striking correlation between geophysical cycles and the varying level of electrical potential in plants. Several studies have indicated an effect on human behavior from changes in atmospheric bombardment by ions and cosmic rays, which may in turn be effected by lunar and planetary cycles. Indeed, some analysts successfully use planetary alignments, which apparently affect sunspot activity, to predict the stock market. In October 1970, The Fibonacci Quarterly (issued by The Fibonacci Association, Santa Clara University, Santa Clara, CA) published a paper by B.A. Read, a captain with the U.S. Army Satellite Communications Agency. The article is entitled "Fibonacci Series in the Solar System" and establishes that planetary distances and periods conform to Fibonacci relationships. The tie-in with the Fibonacci sequence suggests that there may be more than a random connection between stock market behavior and the extraterrestrial forces affecting life on Earth. Nevertheless, we are content for the time being to assume that Elliott Wave patterns of social behavior result from the mental and emotional makeup of men and their resulting behavioral tendencies in social situations. If these tendencies are triggered or tied to exogenous forces, someone else will have to prove the connection.

Lesson 32: A Forecast From 1982, Part I

Elliott Wave Principle concluded that the wave IV bear market in the Dow Jones Industrial Average ended in December 1974 at 572. The March 1978 low at 740 was labeled as the end of Primary wave [2] within the new bull market. Neither level was ever broken on a daily or hourly closing basis. The wave labeling presented in 1978 still stands, except that the low of wave [2] is better placed in March 1980 or, labeling the 1982 low as the end of wave IV (see following discussion), in 1984.

<div align="center">

excerpt from The Elliott Wave Theorist
September 13, 1982
THE LONG TERM WAVE PATTERN — NEARING A RESOLUTION

</div>

This is a thrilling juncture for a wave analyst. For the first time since 1974, some incredibly large wave patterns may have been completed, patterns which have important implications for the next five to eight years. The next fifteen weeks should clear up all the long term questions that have persisted since the market turned sloppy in 1977.

Elliott Wave analysts sometimes are scolded for forecasts that reference very high or very low numbers for the averages. But the task of wave analysis often requires stepping back and taking a look at the big picture and using the evidence of the historical patterns to judge the onset of a major change in trend. Cycle and Supercycle waves move in wide price bands and truly are the most important structures to take into account.

Those content to focus on 100-point swings will do extremely well as long as the Cycle trend of the market is neutral, but if a truly persistent trend gets under way, they'll be left behind at some point while those in touch with the big picture stay with it.

In 1978, A.J. Frost and I forecast a target for the Dow of 2860 for the final target in the current Supercycle from 1932. That target is still just as valid, but since the Dow is still where it was four years ago, the time target is obviously further in the future than we originally thought.

A tremendous number of long term wave counts have crossed my desk in the past five years, each attempting to explain the jumbled nature of the Dow's pattern from 1977. Most of these have proposed failed fifth waves, truncated third waves, substandard diagonal triangles, and scenarios for immediate explosion (usually submitted near market peaks) or immediate collapse (usually submitted near market troughs). Very few of these wave counts showed any respect for the rules of the Wave Principle, so I discounted them. But the real answer remained a mystery. Corrective waves are notoriously difficult to interpret, and I, for one, have alternately labeled as "most likely" one or the other of two interpretations, given changes in market characteristics and pattern. At this point, the two alternates I have been working with are still valid, but I have been uncomfortable with each one for reasons that have been explained. There is a third one, however, that fits the guidelines of the Wave Principle as well as its rules, and has only now become a clear alternative.

Series of 1s and 2s in Progress

This count [see Figure A-2] has been my ongoing hypothesis for most of the time since 1974, although the uncertainty in the 1974-1976 wave count and the severity of the second wave corrections have caused me a good deal of grief in dealing with the market under this interpretation.

This wave count argues that the Cycle wave correction from 1966 ended in 1974 and that Cycle wave V began with the huge breadth surge in 1975-1976. The technical name for wave IV is an expanding triangle. The complicated subdivision so far in wave V suggests a very long bull market, perhaps lasting another ten years, with long corrective phases, waves (4) and [4] , interrupting its progress. Wave V will contain a clearly defined extension within wave [3], subdividing (1)-(2)-(3)-(4)-(5), of which waves (1) and (2) have been completed. The peak would ideally occur at 2860, the original target calculated in 1978. [The main] disadvantage of this count is that it suggests too long a period for the entire wave V, as per the guideline of equality.
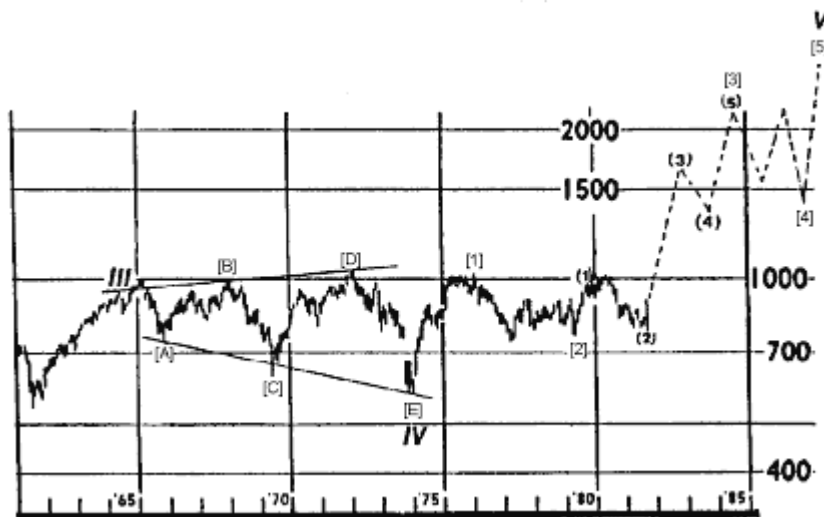

Figure A-2

Advantages

1) Satisfies all rules under the Wave Principle.
2) Allows to stand A.J. Frost's 1970 forecast for an ultimate low for wave IV at 572.
3) Accounts for the tremendous breadth surge in 1975-1976.
4) Accounts for the breadth surge in August 1982.
5) Keeps nearly intact the long term trendline from 1942.
6) Fits the idea of a four year cycle bottom.
7) Fits the idea that the fundamental background looks bleakest at the bottom of second waves, not at the actual market low.
8) Fits the idea that the Kondratieff Wave plateau is partly over. Parallel with 1923.

Disadvantages 1) 1974-1976 is probably best counted as a "three," not a "five." 2) Wave (2) takes six times as much time to complete as does wave (1), putting the two waves substantially out of proportion. 3) The breadth of the 1980 rally was substandard for the first wave in what should be a powerful Intermediate third. 4) Suggests too long a period for the entire wave V, which should be a short and simple wave resembling wave I from 1932 to 1937 rather than a complex wave resembling the extended wave III from 1942 to 1966 (see Elliott Wave Principle, page 155).

Lesson 33: a forecast from 1982, part II

excerpt from The Elliott Wave Theorist
September 13, 1982
THE LONG TERM WAVE PATTERN — NEARING A RESOLUTION
Continued from Lesson 32

Double Three Correction Ending in August 1982

The technical name for wave IV by this count is a "double three," with the second "three" an ascending triangle. [See Figure A-3; note: Figure D-2 places [W]-[X]-[Y] labels on this pattern.] This wave count argues that the Cycle wave correction from 1966 ended last month (August 1982). The lower boundary of the trend channel from 1942 was broken briefly at the termination of this pattern, similar to the action in 1949 as that sideways market broke a major trendline briefly before launching a long bull market. A brief break of the long term trendline, I should note, was recognized as an occasional trait of fourth waves, as shown in [R.N. Elliott's Masterworks]. [The main] disadvantage of this count is that a double three with this construction, while perfectly acceptable, is so rare that no example in any degree exists in recent history.
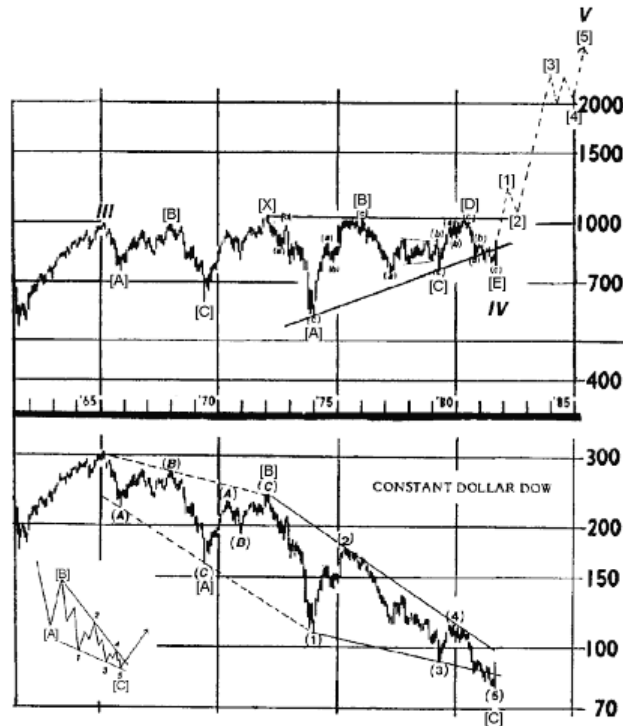

Figure A-3

A surprising element of time symmetry is also present. The 1932-1937 bull market lasted 5 years and was corrected by a 5 year bear market from 1937 to 1942. The 3S year bull market from 1942 to 1946 was corrected by a 3S year bear market from 1946 to 1949. The 16S year bull market from 1949 to 1966 has now been corrected by a 16S year bear market from 1966 to 1982!

The Constant Dollar (Inflation-Adjusted) Dow

If the market has made a Cycle wave low, it coincides with a satisfactory count on the "constant dollar Dow," which is a plot of the Dow divided by the consumer price index to compensate for the loss in purchasing power of the dollar. The count is a downward sloping [A]-[B]-[C], with wave [C] a diagonal triangle [see Figure A-3]. As usual in a diagonal triangle, its final wave, wave (5), terminates below the lower boundary line.

I've added the expanding boundary lines to the upper portion of the chart just to illustrate the symmetrical diamond shaped pattern constructed by the market. Note that each long half of the diamond covers 9 years 7S months (5/65 to 12/74 and 1/73 to 8/82), while each short half cover 7 years 7S months (5/65 to 1/73 and 12/74 to 8/82). The center of the pattern (June-July 1973) cuts the price element in half at 190 and the time element into two halves of 8+ years each. Finally, the decline from January 1966 is 16 years, 7 months, exactly the same length as the preceding rise from June 1949 to January 1966. [For the full story on The Elliott Wave Theorist's long term assessment of this index, see Chapter 3 of At the Crest of the Tidal Wave.]

Advantages

1) Satisfies all rules and guidelines under the Wave Principle.
2) Keeps nearly intact the long term trendline from 1942.
3) A break of triangle boundaries on wave E is a normal occurrence [see Lesson 1].
4) Allows for a simple bull market structure as originally expected.
5) Coincides with an interpretation for the constant dollar (deflated) Dow and with its corresponding break of its lower trendline.
6) Takes into account the sudden and dramatic rally beginning in August 1982, since triangles produce "thrust" [Lesson 1].
7) Final bottom occurs during a depressionary economy.
8) Fits the idea of a four year cycle bottom.
9) Fits the idea that the Kondratieff Wave plateau has just begun, a period of economic stability and soaring stock prices. Parallel with late 1921.

10) Celebrates the end of the inflationary era or accompanies a "stable reflation."

Disadvantages

1) A double three with this construction, while perfectly acceptable, is so rare that no example in any degree exists in recent history.
2) A major bottom would be occurring with broad recognition by the popular press.

Outlook

Triangles portend "thrust," or swift moves in the opposite direction traveling approximately the distance of the widest part of the triangle. This guideline would indicate a minimum move of 495 points (1067-572) from Dow 777, or 1272. Since the triangle boundary extended below January 1973 would add about 70 more points to the "width of the triangle," a thrust could carry as far as 1350. Even this target would only be a first stop, since the extent of the fifth wave would be determined not merely by the triangle, but by the entire wave IV pattern, of which the triangle is only part.

Therefore, one must conclude that a bull market beginning in August 1982 would ultimately carry out its full potential of five times its starting point, making it the percentage equivalent of the 1932-1937 market, thus targeting 3873-3885. The target should be reached either in 1987 or 1990, since the fifth wave would be of simple construction. An interesting observation regarding this target is that it parallels the 1920s, when after 17 years of sideways action under the 100 level (similar to the recent experience under the 1000 level), the market soared almost nonstop to an intraday peak at 383.00. As with this fifth wave, such a move would finish off not only a Cycle, but a Supercycle advance.

October 6, 1982

This bull market should be the first "buy-and-hold" market since the 1960s. The experience of the last 16 years has turned us all into [short-term market timers], and it's a habit that will have to be abandoned. The market may have 200 points behind it, but it's got over 2000 left to go! The Dow should hit an ultimate target of 3880, with interim stops at 1300 (an estimate for the peak of wave [1], based on post-triangle thrust) and 2860 (an estimate for the peak of wave [3], based on the target measuring from the 1974 low).

November 29, 1982

A Picture Is Worth A Thousand Words

The arrow on the following chart [see Figure A-7] illustrates my interpretation of the position of the Dow within the current bull market. Now if an Elliotter tells you that the Dow is in wave (2) of [1] of V, you know exactly what he means. Whether he's right, of course, only time will tell.
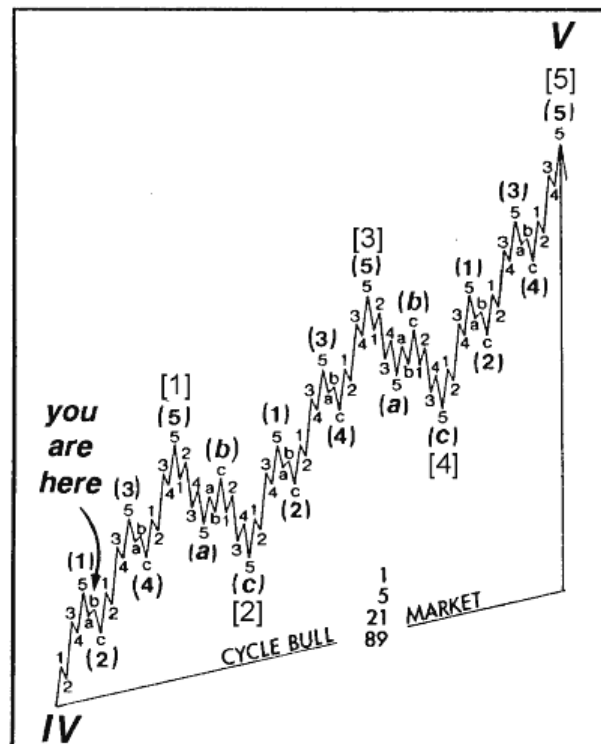

Figure A-7

Lesson 34: Nearing the Pinnacle of a Grand Supercycle

Real time forecasting is an immense intellectual challenge. Mid-pattern decision making is particularly difficult. There are times, however, as in December 1974 and August 1982, when major patterns reach completion and a textbook picture stands right before your eyes. At such times, one's level of conviction rises to over 90%.

The current juncture presents another such picture. Here in March 1997, the evidence is compelling that the Dow Jones Industrial Average and the broad market indices are registering the end of their rise. Because of the large degree of the advance, a sociological era will end with it.

Elliott Wave Principle, written in 1978, argued that Cycle wave IV had finished its pattern at the price low in December 1974. Figure D-1 shows the complete wave labeling up until that time.
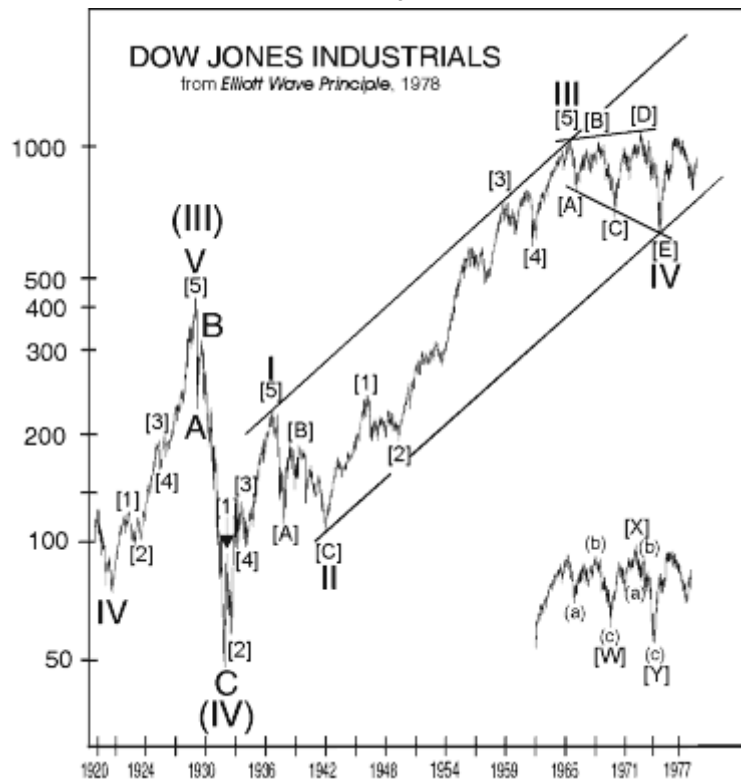

Figure D-1

Figure D-2 shows the same labeling updated. The inset in the lower right corner shows the alternative count for the 1973-1984 period, which The Elliott Wave Theorist began using as its preferred count in 1982 while continually reiterating the validity of the original interpretation. As shown in Lesson 33, the count detailed on the inset called the 1982 lift-off, the peak of wave [1], the low of wave [2], the peak of wave [3], and by Frost's reckoning, the low of wave [4]. Wave [5] has carried over 3000 points beyond EWT's original target of 3664-3885. In doing so, it has finally met and surpassed in a throw-over its long term trendlines.
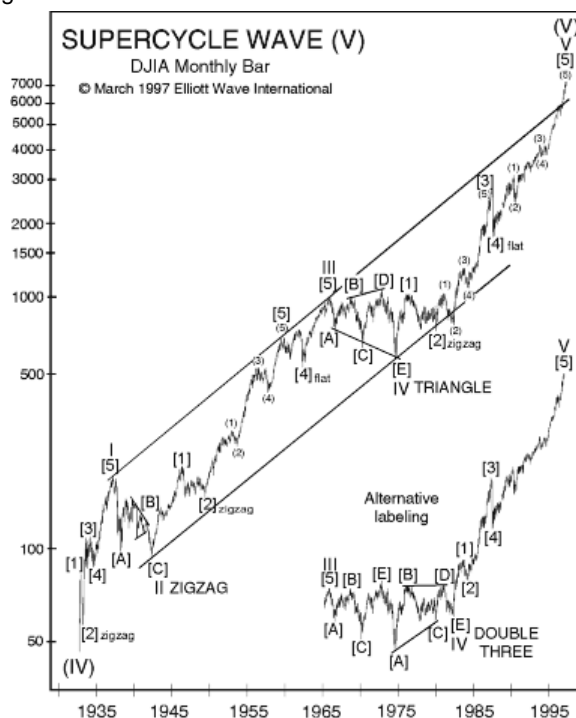

Figure D-2

Take a look at the main chart in Figure D-2. Those familiar with the Wave Principle will see a completed textbook formation that follows all the rules and guidelines from beginning to end. As noted back in 1978, wave IV holds above the price territory of wave I, wave III is the extended wave, as is most commonly the case, and the triangle of wave IV alternates with the zigzag of wave II. With the last two decades' performance behind us, we can record some additional facts. Subwaves I, III and V all sport alternation, as each Primary wave [2] is a zigzag, and each Primary wave [4] is an expanded flat. Most important, wave V has finally reached the upper line of the parallel trend channel drawn in Elliott Wave Principle eighteen years ago. The latest issues of The Elliott Wave Theorist, with an excitement equal to that of 1982, focus sharply on the remarkable developments that so strongly suggest that wave V is culminating (see Figure D 3, from the March 14, 1997 Special Report).

This is a stunning snapshot of a market at its pinnacle. Whether or not the market edges higher near term to touch the line again, I truly believe that this juncture will be recognized years hence as a historic time in market history, top tick for U.S. stocks in the worldwide Great Asset Mania of the late twentieth century.
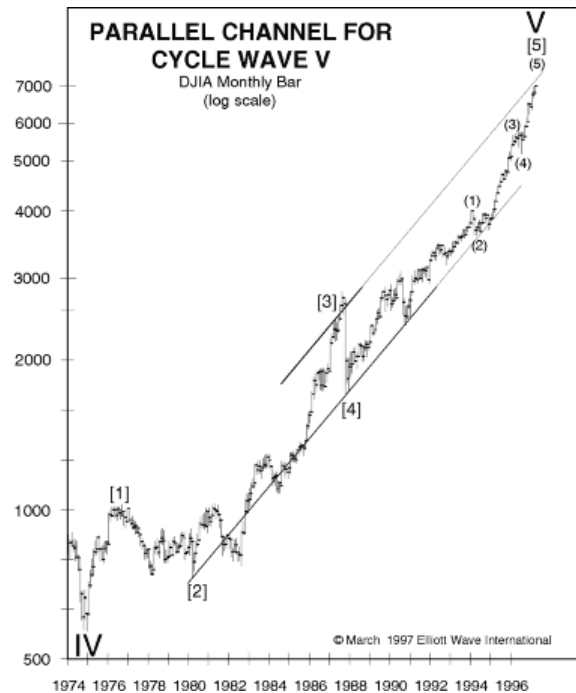

Figure D-3

Epilogue

Until a few years ago, the idea that market movements are patterned was highly controversial, but recent scientific discoveries have established that pattern formation is a fundamental characteristic of complex systems, which include financial markets. Some such systems undergo "punctuated growth," that is, periods of growth alternating with phases of non-growth or decline, building fractally into similar patterns of increasing size. This is precisely the type of pattern identified in market movements by R.N. Elliott some sixty years ago. The stock market forecast in Elliott Wave Principal the thrill of bringing the reader to the pinnacle of a sociological wave of Cycle, Supercycle and Grand Supercycle degree as revealed by the record of the stock market averages. It is a vantage point that affords remarkable clarity of vision, not only concerning history, but the future as well.

The future is the subject of Robert Prechter's new book, At the Crest of the Tidal Wave. It presents a highly detailed elaboration of the second half of the authors' forecast, i.e., that a record-setting bear market is now due.

At this time, half of our great journey is over. That first leg, upward, was both personally and financially rewarding in fulfilling the authors' sober expectations, which were simul- taneously beyond most market observers' wildest dreams of riches. The next move, which will be downward, may not be as rewarding in either way, but it will probably be far more important to anticipate. Being prepared the first time meant fortune and perhaps a bit of fame for its forecasters. This time, it will mean survival, both financial and (based upon Prechter's work correlating social and cultural trends with financial trends) ultimately physical for many people as well. Although it is generally believed (and tirelessly reiterated) that "the market can do anything," our money is once again on the Wave Principle. In the sixty years since the first forecast based on the Wave Principle was issued by R.N. Elliott, it hasn't failed yet in providing the basis for an accurate long term perspective. We invite you to stay with us for the next leg of our great journey through the patterns of life and time.