The Cyclic Forecast

PREDICTING MARKET TRENDS WITH PERIODIC NUMBER CYCLES

INTRODUCTION

In this special report you will learn about one of the most accurate forecasting tools that has ever been developed for predicting trend changes in stocks and commodities. Very few people have ever heard of "periodic number cycles," and even fewer have seen them in action or know how to use them. Yet periodic number cycles are the key to understanding and anticipating the unexpected trend reversals which make trading the stock and commodity markets so difficult.

There is a fundamental difference between a market analysis based upon periodic number cycles and one based upon more traditional methods of cycle analysis. Ordinary cycles, such as those derived from a Fourier decomposition of market prices, are waves of fixed time length and price amplitude. Thus one usually identifies an ordinary cycle by its length, as for example the "8 week cycle" or "4 year cycle," etc. Unlike ordinary cycles, periodic number cycles have variable time length; in fact repetitions of the same "cycle" take successively longer periods of calendar time. Thus periodic number cycles cannnot be identified by any fixed wave length (they have none); instead a number cycle is identified by the original major top or bottom which started the series of number cycles to which the cycle in question belongs. You will begin to appreciate this as well as many of the other unique features of number cycles as you study this report.

In Chapter 1 you will learn how to construct the Octagon Chart. This is a table which assigns, explicitly or implicitly, an angle between 0° and 360° to every positive whole number (like 1, 2, 3, 4, ..., 65, etc.). This correspondence between angles and numbers is the key to the construction and use of periodic number cycles. Chapter 2 explains the simplest of the forecasting tools you will learn. This is the method of Natural Angles which uses only weekly and monthly time measurements to predict the specific days on which trend changes are likely. A more sophisticated forecasting method is explained in Chapter 3. There you will discover how to directly compare time measurements to price measurements through the Octagon Chart and thus arrive at predictions of future trend reversal dates. Chapter 4 discusses several methods for using the Octagon Chart to project future support and resistance levels and thus to estimate the extent of the current move. In this chapter you will also learn about calendar support and resistance levels and how they can be used to predict both the prices and times of future trend changes. Chapter 5 explains how you can combine what you have learned about periodic number cycles with some simple trend following, technical rules to improve your trading results. Finally, in the appendix you will find not only a number of market charts referred to in the text but also lists of historical tops and bottoms in the Dow industrials, May soybeans, February pork bellies, March sugar, and May wheat. These tables provide all the information you need to get started with your own number cycle analysis.

It's very likely that you will find the ideas in this report strange and exotic. But I speak from experience when I say they really do work. Try them and I think you will be amazed at the help periodic number cycles give you in timing market trend changes!

Carl A. Futia

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Figures and Charts

All charts are courtesy of the Commodity Research Bureau.

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Chapter 1 - THE OCTAGON CHART

1.1 The Basic Idea

Periodic number cycles are based upon the hypothesis that each positive whole number (1, 2, 3, 4, etc.) corresponds to some angle between 0° and 360°. This correspondence is defined by what is called a periodic number table. There are many different types of periodic number tables and among them is the Octagon Chart. In this chapter you will learn how to construct and read the Octagon Chart as well as other useful periodic number tables.

The Octagon Chart is based upon the division of the 360° of the circle into 8 (remember, octagon) equal sectors of 45° each. In figure 1 you will find a table listing the first 18 cycles of the Octagon Chart. Each cycle corresponds to a single column and the cycles are numbered across the top of the chart. Note that each column has 8 rows (remember there are 8 45° angles in 360° and this is the Octagon Chart.)

The next thing to notice is that each row in the chart corresponds to a specific angle between 0° and 360°. These angles are labeled along the left hand side of the chart. Thus row 1 of the chart corresponds to the 0° angle, row 2 to the 45° angle, row 3 to the 90° angle, etc.

Now pick an angle, say 135°, and a cycle, say cycle 6. The 135° angle in the Octagon Chart is row 4 while cycle 6 is column 6 in the chart. Notice that the number 145 is in row 4, column 6 of the Octagon Chart. We express this fact by saying that the number 145 is on the 135° angle in the Octagon Chart. Of course there are many other numbers in this chart that are on the 135° angle; in fact all of the numbers in row 4 are on that angle. Similarly, all the numbers in row 5 are on the 180° angle, all the numbers in row 3 are on the 90° angle, etc.

Thus far we have seen how the Octagon Chart tells us which numbers correspond to each of the eight angles listed along the left hand side of the chart. But you will notice that not every number appears in this chart. For example, in cycle (column) 6 the number 145 is on the 135° angle while the number 151 is on the 180° angle. What happened to the numbers in between: 146, 147, 148, 149, 150? To which angle do these correspond?

There are two ways to answer this question. The first is the theoretically correct way, but it is a bit cumbersome for practical applications. This is the method of interpolation. In the example above, to find the angle corresponding to 147 (for example) we would proceed as follows. The distance between 151 (on the 180° angle) and 145 (on the 135° angle) is 6 units. This corresponds to the angular distance between these two numbers of 45°. Thus each of these 6 units is equivalent to $\frac{45}{6}$ or 7½°. Since 147 is 2 units above 145, it must be 2 x (7½) degrees from the 135° angle which corresponds to 145. Thus 147 is on the 150° angle.

The second method is less cumbersome and suffices for practical applications. In this method we "round off to the nearest $22\frac{1}{2}°$." With this method each number gets assigned to one of the angles 0°, $22\frac{1}{2}°$, 45°, $67\frac{1}{2}°$, 90°, $112\frac{1}{2}°$, 135°, $157\frac{1}{2}°$, 180°, $202\frac{1}{2}°$, 225°, $247\frac{1}{2}°$, 270°, $292\frac{1}{2}°$, 315°, or $337\frac{1}{2}°$. Notice that each of these angles appears on the left hand side of the Octagon Chart or is exactly $\frac{1}{2}$ way between two angles which do appear. For example, $67\frac{1}{2}°$ does not appear in the chart, but it is exactly $\frac{1}{2}$ way between 45° and 90°. Now let's apply the "round off" method to the above example. Recall that 145 is on the 135° angle and 151 is on the 180° angle. Halfway between these two angles is $157\frac{1}{2}°$ and halfway between 145 and 151 is 148. Thus 148 is on the $157\frac{1}{2}°$ angle. Now in the "round off" method each number between 145 and 151 is assigned either the angle 135° (if it is closest to 145) or $157\frac{1}{2}°$ (if it is closest to 148) or 180° (if it is closest to 151.) Since 147 is closer to 148 than it is to 145 the number 147 is assigned to the $157\frac{1}{2}°$ angle in this "round off" method. On the other hand, 146 is closer to 145 than to 148 so 146 is on the 135° angle. Similarly 149 is closer to 148 than to 151 so it too must be on the $157\frac{1}{2}°$ angle.

One more point needs to be made with the round off method. Look in cycle 7 (column 7). Note that 197 is on the 135° angle while 204 is on the 180° angle. The difference between 204 and 197 is 7 units and this is not evenly divisible by 2. Nonetheless, 7 ÷ 2 = $3\frac{1}{2}$ so that $200\frac{1}{2}$ is the "ideal" number which corresponds to the $157\frac{1}{2}°$ angle in cycle 7. To apply the "round off" method to compute the angles for numbers between 197 and 204 proceed as in the last paragraph. Use 197, $200\frac{1}{2}$ and 204 as the "test numbers." Thus 199 is closer to $200\frac{1}{2}$ than it is to 197 so 199 is on the $157\frac{1}{2}°$ angle according to the round off method.

1.2 Constructing the Octagon Chart

You will notice that the portion of the Octagon Chart which is reproduced in figure 1 ends with the number 1369. Of course, the chart can be extended as far as you want to go. But in order to do this you must first learn how to construct the Octagon Chart.

The construction is simplicity itself. Because the Octagon Chart is based upon the 8 angles of 45° in the 360° circle, each cycle or column in the chart has 8 rows or entries, one for each of the 8 angles. The first angle, 0°, in cycle 1 is assigned the number 2. Each succeeding entry in cycle 1 is obtained by adding 1 to the entry above it; the "add-factor" of 1 unit is derived from the fact that we are working in column or cycle 1.

Now let's obtain the entries in column or cycle 2. Because this is cycle 2 the "add-factor" becomes 2 units. Thus the first (or 0° entry) in cycle 2 is obtained by adding 2 (the "add-factor") to the last (or 315° entry) in cycle 1. Thus 2 + 9 = 11, the 0° entry in cycle 2. Each succeeding entry in cycle 2 (column 2) is obtained from the one above it by adding 2.

How do we get the entries in cycle 3? First find the add-factor.

Since we are constructing column 3 this add-factor must be 3. The 0° entry in column 3 is obtained from the 315° entry in column 2 by adding 3. Thus 25 + 3 = 28. Each succeeding entry in cycle 3 (column 3) is obtained by adding 3 to the entry above it.

The general rule to follow should now be clear. The add-factor for any cycle n (column n) is the number n. The 0° entry in column n is obtained from the 315° entry in column n-1 by adding n. Each succeeding entry in column n is obtained by adding n to the one above it. In this rule the symbol "n" represents any chosen whole number.

In this construction I have tried to communicate the idea that each column of the Octagon Chart should be thought of as a cycle. Note that cycles with higher numbers have greater lengths. For example, the length of cycle 3 is obtained by subtracting the 0° entry in cycle 3 (namely 28) from the 0° entry in cycle 4 (namely 53). Its length is therefore 25 units. The same type of calculation shows that cycle 4 has length 33, cycle 5 has length 41, etc. Cycle lengths grow by 8 units (remember, Octagon) with each repetition. This is one important difference between periodic number cycles and more common forms of fixed length time cycles.

1.3 What It All Means

So far you have learned to read the Octagon Chart and to construct it, but I haven't explained what the numbers in the chart mean. Do they represent, time intervals, prices or what?

The beauty and power of periodic number tables is that their entries can represent all of these things plus many more. The point is that all market technical action is expressed in terms of numbers and measured by numbers. Depending upon the application you have in mind, the numbers in the Octagon Chart can represent days, weeks, or months between highs and lows, or price levels, or price changes. In fact, the most powerful use of a periodic number table interprets the numbers as measuring both price and time. In other words, the number table can connect both price and time measurements into angular measurements. In this way, price and time measurements can be directly compared through the angles to which they correspond.

No doubt you find the very idea of measuring price and time on the same scale a bizzare notion. But I intend to convince you in Chapter 3 that it is an invaluable forecasting technique.

1.4 Constructing Other Periodic Number Tables

Using the method described in section 1.2 you can construct any other periodic number table you might want to study. One of the most useful of these is the Hexagon Chart. This table is based upon the 6 angles of 60° (hexagon) in the 360° circle. Thus each column of the Hexagon Chart has 6 entries which correspond to the angles 0°, 60°, 120°, 180°, 240° and 300°. The entries in the Hexagon Chart are

obtained by exactly the same procedure as those in the Octagon Chart. The only difference is that each column in the Hexagon Chart has only 6 entries.

In a similar way one could construct a periodic number table based upon the 12 angles of 30° in the 360° circle. Each cycle or column in this table would have 12 entries. Just as in the Octagon and Hexagon Charts, the 0° entry in column 1 is 2 and the rest of the entries are obtained by using the column's add-factor in the way described in section 1.2.

In the following chapters the discussion will be focused solely on the Octagon Chart. This is for convenience only. Similarly excellent results could have been obtained by using the Hexagon Chart instead. As you gain experience you may want to experiment along these lines using different kinds of number tables. The possibilities are endless.

Just remember this. Don't mix apples and oranges. Forecasts made by using one chart are separate from forecasts made by using another. In other words, a weak signal from each of two charts, say the Octagon and Hexagon Charts, is not equivalent to a strong signal obtained from any one chart alone. Beginners sometimes make the mistake of trying to combine the indications of two different charts. Until you gain some practice using one of these periodic number tables it is probably best not to confuse yourself by using others. For starters the Octagon Chart can fill most of your forecasting needs.

Chapter 2 - THE NATURAL ANGLE METHOD

2.1 Data Required to Get Started

In this chapter you will learn how to use the weekly and monthly Natural Angle methods to predict the times when significant trend changes are most likely to occur.

To apply this method you must first obtain a list of important historical highs and lows in the market you are studying. For a commodity market first choose an active contract month and then develop a list of the important highs and lows in that contract month only as far back in time as you can get data. To get you started I have included in the appendix a list of the important highs and lows in the Dow industrials, May soybeans, May wheat, February pork bellies and March sugar.

As a general rule it is best to use only the 15-30 most important historical highs and lows in any given market. A high or low is important if it "sticks out" or is prominent on a monthly chart. The more highs and lows on your list the greater the number of trend reversals you will wind up predicting in a given year. If you use more than 30 highs and lows (especially if most of them have occurred during the last 10 years or so) then you will predict so many trend reversals as to make the predictive method of no practical value. On the other hand, using fewer than 15 highs and lows will lead to too few trend reversal predictions and will again cause the method to have little practical value.

Some commodity markets have been open for too short a time to establish even 15 important tops and bottoms (as examples, gold, interest rate futures, foreign currencies and heating oil come to mind.) For these markets I use the 15 or 20 most recent important intermediate term highs and lows (rather than using only long term, bull and bear market tops and bottoms as I do for the other commodities.)

2.2 The Weekly Natural Angle Method

The idea behind the Natural Angle method is simplicity itself. To determine whether or not a trend reversal should be expected during the current week you must first calculate the number of weeks which have elapsed between the current week and the week of each of the highs and lows on your list of highs and lows for the market in question. For example, if we wanted to know whether a trend change was due in Dow industrials during the week ending April 3, 1981 you would calculate as follows. The week ending April 3, 1981 is 53 weeks from the low on March 27, 1980, 160 weeks from the low on February 28, 1978, 236 weeks from the high on September 21, 1976, 329 weeks from the low on December 6, 1974 etc.

Once you have done these calculations you are ready to determine how many weekly natural number cycles terminate during the current

week. A weekly natural number cycle is an interval of time which can be measured by a number on the 0°, 90°, 180° or 270° angles of the Octagon Chart. Thus 69 weeks is a natural number cycle because the number 69 is on the 180° angle in the Octagon Chart. Similarly, 249 weeks is a natural number cycle because the number 249 is on the 90° angle.

A weekly natural number cycle always starts from the week of one of the historical highs and lows on your list for the market in question. For example, 53 weeks is a natural number cycle because 53 is on the 0° angle. If we count forward 53 weeks from the March 27, 1980 Dow low we arrive at the week ending April 3, 1981. Therefore we can say that the natural number cycle of length 53 weeks, which starts from the March 27, 1980 low, terminates during the week ending April 3, 1981. Similarly, 163 weeks is a natural number cycle because 163 is on the 270° angle. If we count forward 163 weeks from the Dow low on February 28, 1978 we arrive at the week ending April 24, 1981. Therefore we can say that the natural number cycle of length 163 weeks, which starts from the February 28, 1978 low, terminates during the week ending April 24, 1981.

A trend reversal is likely to occur during the current week if at least two weekly natural number cycles, which start from highs and lows on your list, terminate during the current week. This is the basic rule to remember, so read it over once again to be sure you understand it.

Let us illustrate this rule by showing why a trend reversal in the Dow industrials could have been expected during the week ending April 3, 1981. As we pointed out above, that week was 53 weeks from the March 27, 1980 Dow low. This is one natural number cycle which terminates that week. As a short hand I like to say that the week ending April 3, 1981 is 0° from March 27, 1980 low because 53 is on the 0° angle. There is another natural number cycle which terminates that week. Counting forward from the May 26, 1970 Dow low we find that the week ending April 3, 1981 is 565 weeks from that low. Note that 565 is on the 90° angle. Therefore the natural number cycle of length 565 weeks, which starts from the May 1970 low, terminates that week. In other words, the week ending April 3, 1981 is 90° from the May 1970 low. It is also easy to discover a third number cycle which terminates then. For that week is also 431 weeks from the January 11, 1973 Dow high. Thus the week ending April 3, 1981 is also 270° from the January 1973 high.

So far we have found three natural number cycles which terminate during the week ending April 3, 1981. That week is 0° from the March 1980 low, 90° from the May 1970 low and 270° from the January 1973 high. Only two cycle terminations are required to forecast a trend change, so one is indeed projected for that week. For the exact date of the predicted trend change we select the midpoint of the trend change period, i.e. Wednesday, April 1. You will recall that on that day the Dow closed within 1 point of the exact top of its February-March 1981 rally.

You now have learned the essence of the weekly Natural Angle method. Before illustrating this technique with further examples we should first discuss some important details.

First, do not use the natural number cycles of lengths 2, 4, 6, 8, 15 or 23 in your calculations. The cycle lengths of 2, 4, 6, and 8 weeks are too short to be meaningful; 15 and 23 are on the 90° and 270° angles in cycle 2 of the Octagon Chart and are therefore of less importance. However you should use the cycles on the 0° and 180° angles in column 2, namely those of lengths 11 and 19. Starting with column 3 you can use all cycle lengths which appear on the 0°, 90°, 180° and 270° angles as discussed above.

Secondly, when using the weekly Natural Angle method you will occasionally find spans of 2 or sometimes even of 3 consecutive weeks, each of which is a predicted trend reversal week. When is the ideal trend change day in this situation? I have found it best to select the trading day as close as possible to the middle of the trend change period.

2.3 Time-Saving Hints

The calculations described above may sound tedious, but if you organize your worksheets carefully you can do all the necessary calculations required to predict an entire year's worth of trend change dates in just a couple of hours. Of course the calculations could be done in a few seconds on a personal computer, but I will assume that you want to do the work by hand, at least at the start. Here's what you should do to calculate the trend changes predicted during a given year by the weekly Natural Angle method.

You will need two worksheets. Each sheet should have as many columns as you have historical highs and lows on your list. Label each column at the top by the date of one of the highs or lows on your list. Along the far left hand side of each worksheet list in a vertical column the weeks of the current year; do this by writing down in order the date of the Friday of each week. You should now have two worksheets; the columns of each sheet correspond to each of the historical highs and lows on your list; the rows correspond to the weeks of the current year for which you are making predictions.

On worksheet #1 you will first keep a count of the number of weeks which separate the first week of the year from each of the historical highs and lows on your list. Put these numbers in row 1 of worksheet #1; obviously the count from a particular high or low should go in the column labeled by that high or low at the top of the sheet. For convenience, you should also count forward from week 1 in the year and enter at, say, week 26, the number of weeks week 26 of the current year is from each of the historical highs and lows. These numbers can then be entered in row 26. To save time when preparing next year's worksheets you will also want to calculate these counts for week 52 of the current year and enter them in row 52.

Now you can calculate natural number cycles on worksheet #2. Pick one column corresponding to a given high or low. Look on worksheet #1 to see how many weeks the first week of the year is from the high or low which corresponds to the column you have picked. Starting with this number, count forward the weeks of the year; enter a mark (either 0, 90, 180 or 270) each time you come to a week whose count is a weekly natural number cycle from the high or low. The mark should be entered in the row corresponding to that week and in the column corresponding to the high or low you started from.

If you repeat this procedure for each column, when you finish you will at a glance be able to tell which natural number cycles expire in which weeks. It is then easy to see visually which weeks are trend reversal weeks and then to calculate the ideal trend change day. Trend reversals can be expected in those weeks which correspond to the rows having two or more marks in them in worksheet #2.

2.4 The Weekly Natural Angle Method Applied to Stock Prices

In this section I will illustrate the weekly Natural Angle method in action by applying it to predict trend changes in the stock market averages during 1981. All of these trend reversals could have been predicted using data available at the start of that year. In fact, at that time I actually performed the calculations I'm about to describe to get a better picture of the important dates to watch in 1981.

These trend changes are all calculated using the dates of historical bull market tops and bear market lows in the Dow Jones industrial average going back to 1900. A list of these highs and lows appears in the appendix to this report.

To follow the results of the trend change predictions, see figure 2. This is a daily chart of the NYSE composite average during that year. I am using this chart instead of a chart of the Dow to show you that predictions made on the basis of Dow highs and lows apply equally well to all the market averages. It is not necessary to use a separate list of highs and lows for each average you want to predict.

The week ending January 2, 1981 is 316 weeks from the bear market low on December 6, 1974 and is also 40 weeks from the March 27, 1980 low. That week is therefore 90° from the 1974 low and 180° from the March 1980 low. This follows from the fact that 316 is on the 90° angle in the Octagon Chart and 40 is on the 180° angle. Since at least two weekly, natural number cycles expire during the week ending January 2 we conclude that we should expect a trend change at the midpoint of that week, namely on December 31, 1980. This is point A in figure 2 and occurs 3 trading sessions prior to the exact high for all of 1981 in the NYSE composite. The top was followed by a drop of about 10% during the next 7 weeks.

The next intermediate trend reversal projected in the stock market in 1981 by the weekly Natural Angle method occurs during the week ending April 3. That week is 565 weeks or 90° from the 1970 low, 431 weeks or 270° from the 1973 top, and 53 weeks or 0° from the March 1980 low. A trend change would therefore be predicted for April 1, 1981, point B in figure 2. This was the exact top of a 3 day rally which brought the NYSE index to within less than 1% of its March rally top. A drop of 5% lasting 5 weeks then followed.

By this time you will have noticed one distinctive feature of the Natural Angle method and of the periodic number cycles it uses. This predictive method, as well as the others which will be explained in the following pages, predicts trend changes, not tops or bottoms. In other words, it tells you to expect a trend change at a certain point in time, but not whether the trend change will be a top or a bottom. This is one of the great differences between periodic number cycles and ordinary, fixed length, time cycles. At first, one might be tempted to believe that the inability to know in advance whether a trend change will be a top or a bottom would be a handicap in practical market situations. But nothing could be further from the truth. In fact 70% of the time the market itself will tell you, just before the trend change is due to occur, whether it will be a top or a bottom. How? Most of the time it will then be in a very visible uptrend or downtrend as the date for the trend reversal approaches. Since the current trend will be reversed on or about the trend change date, you should be expecting a high point if the trend is currently up and a low point if the trend is currently down.

Some techniques for determining whether the current trend (the trend which will be reversed) is up or down will be discussed in Chapter 5. Most of the time this is easy to do at a glance. For example, look at the predicted trend changes due at points A and B in figure 2. First cover up the chart to the right of point A. On December 31, 1980 the NYSE composite had been rising sharply for more than 2 weeks. If this trend was to be reversed, you would have been looking for a top as December 31 approached. The situation was equally clear at point B. Cover up the chart to the right of point B. Prices had been rising sharply for the 4 previous weeks. Clearly the trend reversal due on April 1 had to be a top, and it was.

Now let's return to our stock market trend reversal projections for 1981. The week ending April 24, 1981 was 1009 weeks or 90° from the 1961 top and 163 weeks or 270° from the February 1978 low. The ideal date for the trend reversal was therefore April 22, (point C in figure 2) the midpoint of the week. At that time would you have been expecting a top or a bottom on or about the trend change date? Cover up the chart to the right of point C. The direction of the then current trend was not as clear as it was at point A and B. Prices had rallied about a week after a modest 2½ week decline. The mechanical method discussed in Chapter 5 would have correctly determined that this trend reversal would be a top. The really convincing evidence, however, was given by the Dow industrials. The Dow was in the process of establishing its bull market high at 1024 on April 27,

the highest level it had closed at in more than 8 years. Clearly the current trend was up and the reversal had to be a high point. This example illustrates how looking at other market averages can sometimes clarify the direction of the current trend. In doubtful cases, looking at the technical indicators will often help too; if they are "oversold," the trend reversal should be a low; if they are "overbought" the reversal should be a high.

By this point you should understand how to apply the weekly Natural Angle method to predict trend reversal dates. This method predicted 6 additional trend reversals in the stock market averages during 1981: May 27 (D), June 10 (E), July 27 (F), September 14 (G), November 18 (H) and December 22 (I). Only the reversals due on September 14 and December 22 failed to materialize. In both cases you would have been looking for a low point, but prices soon dropped to new low levels for the move by a substantial margin. Such failures of the trend to reverse when expected underline the importance of coordinating the Natural Angle method with some simple technical indicators in order to determine the exact times to buy or sell. This subject is discussed in some detail in Chapter 5.

The accuracy exhibited by the weekly Natural Angle method in projecting trend reversals for stock prices during 1981 is typical year in, year out, in all markets (commodities as well as stocks). In my experience 70% of the trend reversals predicted by this method are within just a few (2 or 3) days of a significant top or bottom.

2.5 A Soybean Example

The Natural Angle method works as well, if not better, in the commodities markets. In this section we shall apply the weekly Natural Angle method to predict trend reversal dates in soybean futures during 1981. To do this I use a list of historical tops and bottoms in May soybeans going back to the start of future trading in 1936. This list can be found in the appendix. The trend reversals projected on the basis of the highs and lows in May beans can be used to trade all contract months, not just the May contract.

The first trend reversal projected by the weekly Natural Angle method for soybean futures in 1981 is February 9 (point A in figure 3). This date is calculated as follows. The week ending February 6 is 352 weeks or 270° from the May 1974 low and 11 weeks or 0° from the November 1980 top. The following week, which ends February 13, 1981, is 391 weeks or 90° from the August 1973 top and 86 weeks or 0° from the June 1979 top. The midpoint of this two consecutive week trend change period is Monday, February 9. Note that July '81 beans formed the first of 2 tops at the 820 level on the preceding trading session, February 6. If you had been using the mechanical trend recognition method described in Chapter 5, you would have been expecting this trend reversal to be a top because the current trend was clearly upwards.

The next trend reversal date in soybeans is February 25, 1981 (point B in figure 3). The week ending February 27 is 916 weeks or 180° from the August 1963 low and 334 weeks or 180° from the October 1974 high. Three trading sessions prior to February 25 July '81 beans formed the second top at the 820 level. This reversal also had to be a top according to the mechanical trend recognition method discussed in Chapter 5.

The weekly Natural Angle method projected the next trend reversal in soybeans for April 6, 1981. The week ending April 3 is 204 weeks or 180° away from the April 1977 top, and 19 weeks or 180° from the November 1980 top. In addition, the week ending April 10 is 1041 weeks or 180° from the April 1961 high, 411 weeks or 180° from the May 1973 high, 371 weeks or 0° from the February 1974 high, 190 weeks or 90° from the August 1977 low, and 53 weeks or 0° from the April 1980 low. The midpoint of this two week trend change period is Monday, April 6. The exact top of a 90¢ rally occurred 3 trading sessions later on April 9.

The weekly Natural Angle method projected 9 other trend reversal dates for soybeans in 1981: May 5 (point D), June 1 (point E), June 17 (point F), July 1 (point G in figure 4), July 15 (point H), August 26 (point I), September 23 (point J), October 21 (point K) and November 23 (point L). Only the May 5, August 26 and October 21 dates failed to coincide with significant trend reversals.

At this point you should note another important aspect of the trend reversal prediction methods described in this report. One should not expect every important high or low in the market to be confirmed by a projected trend reversal date. For example, the March 4, 1981 low in soybeans was missed by the weekly Natural Angle method. Of course, some tops and bottoms which one method might miss are sometimes picked out by another (the March 4 low in soybeans was projected by the methods discussed in Chapter 3). Nonetheless, you should use projected trend reversal dates primarily as a method for timing market entry, rather than exit. In other words, don't insist upon a trend reversal date to occur before you close out a profitable position. This question is discussed in more detail in Chapter 5.

2.6 The Monthly Natural Angle Method

Thus far you have learned how to project trend reversals by calculating natural number cycles in terms of weeks. There is nothing special about using a week as a unit of time in the Octagon Chart. In this section I shall explain how to calculate natural number cycles in terms of months and how to project trend reversals based upon these calculations.

The procedure is very similar to that used in the weekly Natural Angle method described in section 2.2. A monthly natural number cycle is an interval of time, measured in months, which appears on the 0°, 90°, 180° or 270° angles of the Octagon Chart. For example, 34 is on

the 90° in that chart. Therefore 34 months is a monthly natural number cycle. Similarly, 218 is on the 270° angle; therefore 218 months is also a monthly natural number cycle.

A monthly natural number cycle always starts from the date of one of the historical highs or lows on your list for the market you are predicting. In the Dow industrials for example, a low occurred on December 6, 1974. Since 34 is a monthly natural number cycle, we can count forward 34 months from December 6, 1974 and arrive at October 6, 1977. Therefore, the monthly natural number cycle of length 34 months, which starts from the December 6, 1974 low, terminates on October 6, 1977.

In order to predict a trend reversal date two monthly natural number cycles must terminate no more than 8 calendar days apart. When this happens, the predicted trend reversal date is the trading session midway between the dates on which the two monthly cycles terminate. This rule is simple enough to use. Let's see how the monthly Natural Angle method works in practice.

2.7 Application to March Sugar

A complete list of the important highs and lows in March sugar going back to 1960 is contained in the appendix to this report. Let's use these highs and lows to project trend reversals in sugar during 1980 with the monthly Natural Angle method.

February 22, 1980 is 34 months or 90° from the April 22, 1977 high. February 25, 1980 is 19 months or 180° from the July 25, 1978 low. These termination dates are consecutive trading sessions and therefore within 8 calendar days of one another. Using the rule described in the last section we would project a trend reversal for February 25, 1980 (point A in figure 5). This date was the exact low of a 1 week, 3½¢ drop in sugar and preceded a sharp 5¢ advance.

The next trend reversal in sugar during 1980 projected by the monthly Natural Angle method is March 28. To see why note that March 29, 1980 is 218 months or 270° from the January 29, 1962 low. Note also that March 26, 1980 is 127 months or 0° from the August 26, 1969 low. The trading day midway between these termination dates is March 28. The next trading session, March 31, was an excellent buying opportunity. In July '80 sugar (note that it is the March '81 contract which appears in figure 5), March 28 was the exact low of a 6 week, 9¢ drop. Sugar prices almost doubled during the next two months.

The monthly Natural Angle method predicted 5 more trend reversal dates during the period of time covered by figure 5: July 28 (point C), August 20 (point D), October 27 (point E), November 24 (point F) and January 6, 1981 (point G). Of the seven dates projected in figure 5, five were successful trend reversal projections. As usual, one prediction method alone cannot be expected to catch all the important highs and lows in the market. Test your understanding of the monthly Natural Angle method by calculating these sugar reversal dates yourself.

Chapter 3 - THE PRICE ANGLE METHOD

In this chapter you will learn about an entirely new concept in cycle analysis. This concept is embodied in the Price Angle method for predicting trend reversals. It says that the price level at which a market established an important high or low actually determines the timing of later trend reversals. In other words, price determines time! Before you dismiss this idea as just too silly to consider, I suggest you read the rest of this chapter and look at the evidence carefully. I believe you will be convinced of the truth of this concept by its performance in predicting trend reversals. In my experience, the Price Angle method for predicting trend reversals is the most accurate method discussed in this report!

3.1 Finding the Price Angle

The basic approach taken by the Price Angle method is to relate price measurements to time measurements by using the Octagon Chart. The first step in this process is to find the angle determined by the price levels of all historical highs and lows on your list for the market you are predicting.

Given a price, how does one determine the angle to which it corresponds? The approach for doing this is to think of the price as a number and to find the number in the Octagon Chart. Then use the "round off" method described in section 1.1 to find the angle determined by this number.

It is usually obvious how to find the number associated with the price. For example, a Dow industrial price of 902.56 would be associated with the number 902. A price of 1024.56 would be associated with the number 1024. The 1932 low in the Dow at 41.22 is associated with the number 41. Similarly, a price of 637 3/4 in soybeans would be associated with the number 637.

The rule we were following in the last paragraph is to ignore the fractional part of the price (i.e. the numbers to the right of the decimal point) when associating a number with a price. In some markets however you will want to use one of the digits after the decimal point. This is the case for the meat complex, heating oil, sugar etc. For example, the number associated with a price of 54.73 would be 547. The number associated with a price of 9.86 would be 98. The number associated with a price of 102.31 would be 1023, etc.

Once you have found the number associated with the price you can then look up this number in the Octagon Chart. In most cases the number will not appear directly in the chart but will fall somewhere between two numbers which do. When this happens you must apply the "round off" method described in section 1.1 to find the angle determined by that number. If the number appears directly in the Octagon Chart

you can simply read off the corresponding angle at the far left of the chart in the same row as the number.

When you have completed this procedure you will have associated the price with one of the following 16 angles: 0°, 22½°, 45°, 67½°, 90°, 112½°, 135°, 157½°, 180°, 202½°, 225°, 247½°, 270°, 292½°, 315°, 337½°. Carry out this process for the price of each high and low on your list of historical highs and lows for the market you want to predict. The angle which is associated with the price of a particular high or low is called the price angle of that high or low. In the appendix you will find all the price angles for the Dow industrials, May soybeans, March sugar, February pork bellies, and May wheat. Test your understanding of the procedure for finding price angles by finding the price angles for the highs and lows on these lists and checking your answers against the price angles listed in the tables.

Here is one final note. Sometimes when applying the "round off" method you find that a number is exactly halfway between two angles, say halfway between 67½° and 90°. In this case you should always choose the angle which is a multiple of 45°; in the example just given you would choose 90° (= 2 x 45) instead of 67½. In other words, always choose the angle "without the ½°". Remember, this rule applies only when a number is exactly halfway between two angles which are 22½° apart.

3.2 Price Angles For Interest Rate Futures

The method described in the preceding section for finding the price angles of historical highs and lows does not work for interest rate futures. Why? I believe the reason is that interest rate futures are traded on an index basis and that these prices are not the natural units in which to measure their behavior. What are the natural units? Why, the answer should be obvious - interest rates. It is the interest rate determined by a high or low which determines the price angle in interest rate futures.

To calculate the price angle of a top or bottom in interest rate futures you proceed as follows. First convert the price at the high or low into an interest rate. For T bills or CD's this is easy to do. Just subtract the price from 100.00 and the answer is the interest rate. Thus a T bill price of 86.64 gives an interest rate of 13.36% since 100.00 -86.64 = 13.36. To find the interest rate for T bonds, T notes, GNMA futures, etc. you must obtain a table which converts prices into interest rates for these futures. Your broker should be able to supply you with one.

Once you have found the interest rate at the high or low you convert it into a number. Thus 13.36% becomes 1336, while 8.83% becomes 883. Then find this number in the Octagon Chart and calculate the corresponding angle just as before (using the "round off" method if necessary).

3.3 The Weekly Price Angle Method

The lengths of the number cycles used by the price angle method are different for each historical high or low. The price angle determined by a historical high or low in turn determines the lengths of all number cycles which start from that high or low.

The procedure for determining cycle lengths is simple. Suppose the price angle of a particular top or bottom is $22\frac{1}{2}°$. Find all angles which can be obtained from $22\frac{1}{2}°$ by adding and subtracting multiples of $90°$. Thus we obtain $22\frac{1}{2}°$, $112\frac{1}{2}°$, $202\frac{1}{2}°$, $292\frac{1}{2}°$. These 4 angles determine numbers in the Octagon Chart which are on these angles. For example 12 is on the $22\frac{1}{2}°$ angle, 63 is on the $112\frac{1}{2}°$ angle, 71 is on the $202\frac{1}{2}°$ angle, etc. Any number on one of these four angles in the Octagon Chart defines the length of a weekly number cycle which starts from this top or bottom. Thus, counting forward in time 12 weeks from this top or bottom we arrive at a week in which a number cycle of length 12 weeks terminates. Similarly, counting forward in time 63 weeks we come to a week in which the number cycle of length 63 terminates.

The important point to remember is that the length of any number cycle starting from a given high or low is determined by the price angle of that high or low. To determine these cycle lengths just add and subtract multiples of $90°$ (i.e. add $0°$, $90°$, $180°$ and $270°$) to the price angle of the high or low. The resulting four angles determine all the numbers in the Octagon Chart which are lengths of weekly number cycles starting from that high or low.

For example, suppose the price angle of a high or low is $135°$. Then adding and subtracting multiples of $90°$ we obtain $135°$, $225°$, $315°$ and $45°$. Any number on one of these four angles in the Octagon Chart then becomes the length of a weekly cycle starting from this high or low.

From this point forward the weekly Price Angle method works just like the weekly Natural Angle method. To predict a trend reversal using the weekly Price Angle method you must find two weekly number cycles terminating in exactly the same week. To follow up on the above examples, suppose the current week is 63 weeks from a top whose price angle is $22\frac{1}{2}°$, and 31 weeks from a bottom whose price angle is $135°$. Since 63 is on the $112\frac{1}{2}°$ angle and $112\frac{1}{2} = 22\frac{1}{2} + 90$, we know that the weekly number cycle of length 63, starting from a top on the $22\frac{1}{2}°$ angle, terminates this current week. Similarly, since 31 is on the $45°$ angle and $45 = 135 + 270$ (or $135 - 90$) we know that the weekly number cycle of length 31, which starts from a low on the $135°$ angle, terminates during the current week. Thus two weekly cycles determined by the price angles of old tops or bottoms terminate during the current week and so a trend reversal should be expected.

Before illustrating the Price Angle method on some actual examples I should make two further comments. Sometimes you will find that no

whole number is exactly on an angle like 67½°. For example, in
column 5 of the Octagon Chart the number 93½ is on the 67½° angle.
Should we use 93 weeks or 94 weeks as the cycle length determined by
such an angle? My rule is to round downwards; thus I would use 93
rather than 94 as the cycle length on the 67½° angle in column 5.
Secondly, just as in the Natural Angle method, don't use any cycle
lengths coming from column 1. In column 2, use only those lengths
which are 0° or 180° away from the price angle of the top or bottom.

3.4 Applications to the Dow Industrials

Let's now project some trend reversals for stock prices by applying
the weekly Price Angle method to the historical highs and lows of
the Dow industrials.

The week ending January 30, 1981 is 969 weeks from the June 1962
low in the Dow. That low occurred at 535.76. The number 535 does not
appear in the Octagon Chart directly, but note that it is exactly
halfway between 529, which is on the 315° angle, and 541, which is on
the 0° angle. Therefore the price angle of the June 1962 low is 337½°.
Next note that the time measurement, 969, is exactly halfway between
the numbers 961 (315°) and 977 (0°). Therefore 969 is also on the
337½° angle. This means that 969 is a weekly number cycle starting
from the June 1962 low because 969 is 0° away from the price angle
of the 1962 low, 337½°. In other words, the angle of 969, 337½°,
equals the price angle of the 1962 low, 337½°, plus 0°. Therefore the
number cycle of length 969 weeks, which starts from the 1962 low,
terminates during the week ending January 30, 1981.

There is another number cycle which terminates during that week.
It is 151 weeks from the February 28, 1978 low in the Dow. · That low
occurred at 742.12 and 742 is on the 0° angle according to the round
off method. The time measurement, 151, is on the 180° angle. Since
the time measurement is 180° away from the price angle we conclude
that there is a number cycle of 151 weeks which starts from the February
1978 low and which terminates during the week ending January 30, 1981.

There is yet a third number cycle which terminates that week.
Counting forward 1097 weeks from the top in January 1960 brings us
to the week ending January 30, 1981. The top in 1960 occurred at
the 685.47 level. According to the round off method 685 is on the
157½° angle and therefore the price angle of the 1960 top is 157½°.
Now note that 1097 is on the 337½° angle, making this time measurement
exactly 180° away from the price angle of the 1960 top. It follows
then that there is a number cycle of length 1097 weeks which starts
from the 1960 top and which terminates during the week ending January
30, 1981.

We have found 3 number cycles which terminate during the week
ending January 30. The projected trend reversal date is therefore
the midpoint of that week, or January 28. In figure 6 you will find

a graph of the NYSE composite index for 1981. The projected January 28 trend reversal is marked point B. Notice that this was only 3 trading sessions prior to the first low of a double bottom which preceded the strong February-March 1981 rally. If you had been using the mechanical trend recognition method described in Chapter 5 you would have been looking for a low point at that time.

Just to be sure that you understand the procedure for the weekly Price Angle method let's calculate another trend reversal date in stocks for 1981. The week ending September 25, 1981 is 1324 weeks from the April 1956 high at 521.05. According to the round off method the number 521 is on the $292\frac{1}{2}°$ angle, so this is the price angle of the 1956 top. The time measurement 1324 is on the $202\frac{1}{2}°$ angle. This is 90° away from the price angle of $292\frac{1}{2}°$. Therefore there is a number cycle of length 1324 weeks which starts from the 1956 top and which terminates during the week ending September 25, 1981.

Next note that the price angle of the 1960 top at 685.47 is $157\frac{1}{2}°$ according to the round off method. On the other hand, the number 1131 is on the $67\frac{1}{2}°$ angle. Since this is 90° away from the price angle we conclude that there is a number cycle of length 1131 weeks which starts from the 1960 top. This cycle terminates during the week ending September 25, 1981.

The week ending October 2, 1981 also saw two number cycle terminations. These cycles started from the December 1968 top and the January 1973 top. The first had length 670 weeks and the second had length 457 weeks. Test your understanding of the Price Angle method by writing down the reasons why there were indeed number cycles of these lengths starting from these highs.

The midpoint of the September 21-October 6 trend change period was the trading session of September 28, 1981. This was the date of the exact 1981 low point.

The weekly Price Angle method predicted 7 trend reversals in all for 1981. These were scheduled to occur on January 14 (A), January 28 (B), February 25 (C), April 29 (D), July 22 (E), September 28 (F) and November 4 (G). Only one of these projected reversals, January 14, failed to mark a significant trend change, thus showing the power and value of the weekly Price Angle method.

3.5 Application to Pork Bellies

The weekly Price Angle method works extremely well in the commodities markets also. Let's look at the trend reversal predictions it made for pork bellies in 1981. You will find a list of historical highs and lows in February bellies along with their price angles in the appendix to this report. Using these highs and lows the weekly Price Angle method predicted 1981 trend reversals in pork bellies on January 21 (A), February 18 (B), April 13 (C), April 29 (D), May 13 (E), June 17 (F), September 16 (G), October 21 (H) and November 11 (I).

These projected reversals are marked on figures 7 and 8. Five of these projected reversals were within 2 days of an important high or low while the September 16 projected reversal was only 4 trading sessions late.

Let's calculate the first two of these trend reversal dates so that you can sharpen your understanding of the weekly Price Angle method.

The week ending January 23, 1981 is 130 weeks from the August 1977 low at 43.50. According to the round off method 435 is on the 292½° angle and so this is the price angle of the 1977 low. The time measurement 130 is on the 22½° angle and is 270° away from the price angle. Therefore there is a number cycle of length 130 weeks which starts from the 1977 low and terminates during the week ending January 23, 1981.

That same week is 77 weeks from the August 1979 low at 37.20. According to the round off method the number 372 is on the 0° angle and this therefore is the price angle of the 1979 low. The time measurement 77 is on the 270° angle and so is 270° away from the price angle of the 1979 low. Thus there is a number cycle of length 77 weeks which starts from the 1979 low and which terminates during the week ending January 23, 1981.

The fact that we have two number cycles terminating during the same week allows us to project a trend reversal for the midpoint of that week, January 21, 1981. As you can see in figure 7 this was the exact low prior to an 8¢ rally in bellies.

The trend reversal projected for February 18, 1981 is calculated in a similar manner. The week ending February 20 is 124 weeks from the October 1978 high at 73.70. The number 737 is on the 337½° angle and this then is the price angle of the 1978 top. The time measurement 124 is on the very same angle. Thus there is a number cycle of length 124 weeks which starts from the October 1978 high and terminates during the week ending February 20.

That same week is also 792 weeks from the December 1965 high at 56.00. The number 560 is on the 67½° angle and this is the price angle of the high. The time measurement 792 is on the 157½° angle, 90° away from the price angle. Therefore there is a number cycle of length 792 weeks which starts from the December 1965 high and terminates during the week ending February 20, 1981.

The fact that at least two cycles terminate that same week allows us to project a trend reversal for February 18, 1981. In figure 7 you will see that this was the exact top prior to a 20¢ drop in bellies.

3.6 The Monthly Price Angle Method

The monthly Price Angle method differs from the weekly method in

only two ways. First, months are the units of time measurement, not weeks. Secondly, in order to project a trend reversal, two monthly number cycles must terminate within 8 calendar days of one another. This is the same rule you use in the monthly Natural Angle method discussed in Chapter 2. Reread that section on the monthly Natural Angle method to remind yourself how the termination dates of monthly number cycles are calculated.

The monthly Price Angle method is extremely useful and I calculate and track these monthly number cycles for stocks and commodities. This method predicted trend reversals in pork bellies during 1981 for June 8, July 3, December 4 and December 16. Only the December 4 prediction failed to coincide with a significant trend reversal. December 16 was the exact date of a low preceding a 30¢ rally which carried into the first half of 1982. See figure 8.

Chapter 4 - PROJECTING SUPPORT AND RESISTANCE LEVELS
USING THE OCTAGON CHART

In the last two chapters you learned how to use the number cycles defined in the Octagon Chart to determine the times when significant trend reversals are likely to occur. These very same number cycles can be used to measure price as well as time. When used in this way the Octagon Chart becomes an invaluable tool for predicting the support and resistance levels at which the price trend is likely to be reversed. In this chapter you will learn three ways to project support and resistance using the Octagon Chart.

4.1 The Trend Level Method

In this section you will learn how the price levels at which tops or bottoms occur can actually be used to calculate the levels at which future tops or bottoms are likely to occur. The price attained at an intermediate top can be used to calculate the levels at which the ensuing downtrend is likely to stop. Similarly, the price attained at an intermediate bottom can be used to calculate the levels at which the ensuing uptrend is likely to stop.

The first step in applying the trend level method is to convert the price of the top or bottom on which you want to base your projection into a number. This step is the same as you used in the last chapter when finding the price angle of a top or bottom. For the Dow industrials, the Amex index, wheat, soybeans, gold, silver and all other commodities that are normally quoted in hundreds of cents, dollars, points, etc., you will want to use only the digits which appear to the left of the decimal point. For example, a Dow close at 834.76 corresponds to the number 834, a top in soybeans at 677¼ corresponds to the number 677, a bottom in gold at 421.70 corresponds to the number 421 etc. For the NYSE composite the S&P 500, the Value Line average, pork bellies and meats, sugar, copper, cotton, heating oil and all other commodities which are normally quoted in tens of cents, dollars or points you will want to keep the first digit to the right of the decimal point also. For example, a close in the NYSE index at 68.24 corresponds to the number 682, a top in the S&P 500 at 119.73 corresponds to the number 1197, a top in pork bellies at 88.38 corresponds to the number 883, a low in sugar at 9.83 corresponds to the number 98 (although when sugar is not too volatile it is best to use all three digits instead, hence 983).

The rule for converting prices into numbers just given generally associates a 3 or 4 digit number to a price. When making long term support and resistance projections, it is often helpful to drop the last digit from the number and to base the projection on a 2 or 3 digit number instead. Thus instead of using the number 1024 for the April 1981 Dow top you could have used 102 to make a long term projection. No hard and fast rules can be given for this particular wrinkle, but you should quickly develop a feel for what can be accomplished after a little experimentation on your long term charts.

Once you have converted the price at the top or bottom into a number you locate the position of this number in the Octagon Chart and find its angle using the round off method. In other words, you are finding the price angle of the top or bottom just as you did when applying the Price Angle method described in Chapter 3.

You are now ready to apply the Trend Level method to compute support and resistance. Suppose you are projecting support levels on the way down from a top. You have already found the price angle of the top. The Trend Level method then tells you to expect support at those prices which are on the same angle as the top or which are 180° away from the price angle of the top. Let's illustrate this with some simple examples. Suppose there was a Dow top at 813.42. The number 813 is on the 225° angle in the Octagon Chart and so the price angle of the top is 225°. The Trend Level method then projects support levels for the ensuing decline at those prices which are on the 225° angle or the 45° angle (180° away from 225°) in the Octagon Chart. Thus the first support level on the way down should be expected at approximately 757 (on the 45° angle), the next at 703 (on the 225° angle), the next at 651 (on the 45° angle), etc.

Next, suppose you are projecting resistance levels on the way up from a bottom. The Trend Level method then tells you to expect resistance at those levels which are on the same price angle as the bottom from which you are projecting or which are 180° away from that price angle. For example, suppose you are projecting resistance levels up from a low at 44.65 in pork bellies. The number 446 is on the $337\frac{1}{2}°$ angle and so this is the price angle of the low. You would be looking for resistance on the way up at those prices which are either on the $337\frac{1}{2}°$ angle or on the $157\frac{1}{2}°$ angle (180° away from $337\frac{1}{2}°$). The first resistance level is 49.00 on the $157\frac{1}{2}°$ angle, the second is 53.50 on the $337\frac{1}{2}°$ angle, the third is 58.30 on the $157\frac{1}{2}°$ angle, etc.

If you are a very short term commodity trader you will probably also want to keep in mind the levels which are 90° and 270° away from the price angle. These price levels are usually not as strong support or resistance as the levels which are 0° and 180° away from the price angle, but they stop enough short term moves to make them worth knowing about.

4.2 Projecting Support and Resistance in the Dow During 1978

The best way to learn how to apply the Trend Level method is to work through a number of practical examples. To get you started I will do the calculations as they applied to the Dow industrials during 1978.

The Dow industrials established a closing low at 742.12 on February 28, 1978. The price angle of this low is 0° because 742 is on the 0° angle in the Octagon Chart according to the round off

method. The Trend Level method tells us to expect resistance on the
way up from this low at prices on the 0° angle and at prices on the
180° angle (which is 180° away from the price angle of the low).
These resistance levels are 799 (on the 180° angle), 856 (on the 0°
angle and 916 (on the 180° angle).

The Dow was in a bear market during 1977 and early 1978. A
bear market rally normally carries prices up to the first resistance
level up from the low, or in other words up 180° from the low price.
This first resistance level according to the Trend Level method is
799. The Dow reached this level in mid April and broke through it
on very heavy volume. This was a sure sign that the advance would
continue to the next resistance level, namely 856. In fact the Dow
formed a minor top at 858 in May 1978 and a slightly higher inter-
mediate top at 866 in June of that year.

The decline which started from the June top carried the Dow
down to 806 and a low in early July. Could you have predicted this
low if you had determined that 866 was an intermediate top? Since
the top at 866 occurred close to the predicted 856 resistance level,
you would expect that the Dow would continue to bounce between the
support and resistance levels calculated by the Trend Level method
from the 742 low. On this basis the downside target would be 799.
You would not figure on a drop all the way back to 742 because by
May 1978 the advance had developed all the characteristics of a bull
market rise. The 799 target could be refined a bit by doing a Trend
Level method calculation based upon the intermediate top at 866.51.
According to the round off method the number 866 is on the $22\frac{1}{2}°$ angle.
The Trend Level method then tells us to expect the first support
level below 866 on the $202\frac{1}{2}$ degree angle at 806. Averaging the two
targets 806 and 799 gives 803 as a target for the decline. As it
turned out the bottom actually occurred at 806.

After the intermediate low at 806 had been established you
could begin to predict the next upside target in the bull market.
Thus far the Dow had been stopping at the support and resistance
levels derived by applying the Trend Level method to the 742 low.
On this basis the next upside target would be the next resistance
level above 856, namely 916. Again, this target could be refined a
bit by calculating a second target based upon the 806 intermediate
term low. The price angle of this low is $202\frac{1}{2}°$ and 923 is also on
the same angle. Averaging 923 and 916 gives 920 as an upside target.

The Dow actually topped out at 908 on September 11. This was
close to the 920 target but short of it. This was a sign of weak-
ness in the price trend; the previous intermediate upmoves had
stopped a bit above their upside targets (866 vs 856) and the down-
trend in June had also stopped above its downside target 803. The
Dow was thus acting less bullishly than one would expect on the
basis of the Trend Level projections than more bullishly. This
failure to reach a logical upside target was a sign that a decline
more severe than the 7% June drop was in store.

It is interesting to note that a 910 upside target could have been projected based upon the 742 low by "dropping a digit" as discussed in section 4.1. Suppose you had associated the number 74 to the 742.12 low instead of the number 742. Now 74 is on the 225° angle in the Octagon Chart according to the round off method (it is halfway between 225° and 247½° and so is assigned to 225° because the latter is a whole multiple of 45°). The next resistance level up from 74 is 91 on the 45° angle. If 74 corresponds to the price of 742 then 91 corresponds to the price of 910. This then would have been a long-term resistance level projection based upon the 742 low. Of course the actual top occurred at 908.

The exact level of the September 11, 1978 top was 907.74. The number 907 is on the 157½° angle and this then is the price angle of the top. The first two support levels down from 907 are 848 and 792. The Dow had not yet stopped respecting the support resistance levels calculated from the 742 low. Therefore averaging these levels (856 and 799) with those projected from the 907 top gives 852 and 796 as downside targets. The actual low of the subsequent decline occurred on November 14 at 785.

4.3 Calculations for the 1980 Bull Market in Soybeans

Needless to say the Trend Level method for projecting support and resistance levels applies equally well to all of the commodity markets. To illustrate this point let's look at the bull market advance that took place during 1980 in soybeans (see figure 9).

November '80 beans established a low at 631 on April 2, 1980. The price angle of this low is 337½°. The Trend Level method projects resistance levels at 684 (157½°), 736 (337½°), 792 (157½°), 848 (337½°), 908 (157½°) and 969 (337½°). Initially beans acted very poorly, failing to rally even the normal 180° of a bear market rally to the 684 level. Prices remained in a narrow trading range during April and May. But in late June prices penetrated the 684 level on heavy volume, leading one to look next at the 736 target. This level was reached on July 2. Would it have been appropriate to sell out there?

No. The advance to the 736 level occurred without any decline of more than 2 days. Intermediate term tops rarely occur until at least one substantial, 2 day decline first interrupts the upmove. Since 736 was therefore unlikely to be the top you would next look to the 792 level to stop the advance. On July 14 prices gapped and closed limit up substantially above 792 at 804. Even though a two day decline had occurred the previous week it was unlikely that the top would occur on a limit up day during which no significant amount of trading had occurred. However, since a substantial 2 day decline had already occurred you would be ready to sell on the first significant technical signal, especially if it occurs after prices hit an important resistance level.

This event occurred 4 days later. The 840 level had been reached

but on that day prices had failed to close above the last minor high. The ideal resistance level was 848, within 1% of the actual high. Technical confirmation was given the next day when prices dropped below the low of the high day.

How far down might prices be expected to fall during the subsequent decline? Two previous minor declines had averaged about 40¢ each, so one would anticipate a greater decline this time. Thus the support level at 792 (calculated from the 631 low) was unlikely to hold and the first likely downside target was the next level down or 736. It would have been possible to refine this target slightly by using the 840 high as a basis for calculation instead of the 631 low. 840 is on the 315° angle and 729 is on the same angle. Averaging 729 and 736 gives 733 as a target. The drop ended on July 25 at 740.

November beans resumed their advance and established their final high at 931 on November 5, 1980. This level was nowhere near any target you could have computed based upon the Trend Level method. The 631 low projected a target at 908 while the 740 low projected a target at 916. Here is a situation which demonstrates the danger of attempting to trade using only the Trend Level method for projecting support and resistance. It is extremely important to factor into your buy-sell decisions the evidence provided by the market's technical action as well as the projections of trend reversals made by methods discussed in previous chapters. In the case of November beans you would have been alert for a sell signal as soon as prices rose above 900 and came within 1% of the targets cited earlier. The move above 900 occurred during a sharp, uncorrected, 4 day advance, and so it was unlikely that the top was at hand just yet. The earliest time you would have sold was October 30. A new high had been made by a small margin but then prices broke below the previous day's low. This would have been a good place to sell long positions, but short positions would have been stopped out for a small loss. The final top at 931 came 3 days later.

4.4 The Trend Change Method

Thus far we have seen how the numbers in the Octagon Chart can be interpreted as prices and how this allows the price angle of a top or bottom to determine subsequent support and resistance levels.

In the Trend Change method, on the other hand, the numbers in the Octagon Chart are interpreted as price changes, not price levels. To apply the Trend Change method you first must find the price angle of the top or bottom from which you are projecting support and resistance. Next, look at the numbers in the Octagon Chart that are on this price angle or 180° away from this price angle. These numbers tell you how many price units the trend is likely to carry before encountering support or resistance.

Let me clarify this rule with a hypothetical example. Suppose a top occurs in wheat at 490. This top would then correspond to a

price angle of 157½°. How far down will the move be likely to carry
before encountering support? To answer this question look at the
numbers in the Octagon Chart which are either on the 157½° angle, or
180° away from this angle on the 337½° angle. Of these numbers
ignore those which occur in the first 2 columns of the Octagon Chart.
In this example, the numbers we want are 38 (157½°), 51 (337½°),
67 (157½°), 83 (337½°), 103 (157½°), etc. To obtain likely support
levels on the way down, subtract each of these numbers from the price
at the top, 490. Thus 490 -38 =452, 490 -51 =439, 490 -67 =423,
490 -83 =407, 490 -103 -387. The support levels obtained in this way
are thus 452, 439, 423, 407, 387. If you are projecting resistance
levels up from a low, just reverse this procedure by <u>adding</u> (instead
of subtracting) the numbers to the price at the low.

You will notice that the distance between successive support or
resistance levels calculated by the Trend Change methods is very short
initially, but then gradually lengthens. I have found that those
levels obtained by adding or subtracting numbers which are on the
same price angle as the top or bottom to be more significant than
those obtained from numbers which are 180° away from the price angle.
In the example discussed above this rule makes the 452, 423 and 387
levels stronger support levels than 438 or 407.

In practical applications it is usually best to combine the
Trend Level and Trend Change methods for projecting support and
resistance levels. Do this by using the levels projected by the
Trend Level method as starting points. Then see if these levels are
near any of the levels projected by the Trend Change method. If
they are, average the two levels in question to arrive at your final
estimate of the relevant support or resistance zone.

4.5 Calculating Support and Resistance in the Dow During 1981

Let's illustrate the combined use of the Trend Change and Trend Level
methods by calculating support and resistance in the Dow during 1981.
The 1981 top occurred at 1024 which corresponds to a price angle of
135°. The Trend Change method tells us to look at the numbers in
the Octagon Chart which are not in columns 1 or 2 and which are on the
135° angle or the 315° angle. These numbers are 37, 49, 65, 81, 101,
121, 145, 169, 197, 225 etc. Subtracting each of these numbers from
the 1024 high gives a list of potential support levels for the sub-
sequent decline. These are 987, 975, 959, 943, 923, 903, 879, 855,
827, 799. These levels are quite close together and therefore by
themselves are not very helpful. To clarify the situation we apply
the rules set down in the last section.

First, the levels obtained from numbers on the 135° angle are
the more important ones, other things being equal. This rule thus
singles out the 987, 959, 923, 879, 827 levels as ones to watch.

Secondly, we should also compute the support levels given by the

Trend Level method and compare them to those given by the Trend Change method. These levels are 961, 901, 841 and 785.

We now combine this information as follows. The 961 level is obtained from the Trend Level method while 959 is an important level given by the Trend Change method. Averaging these two gives the first important support level on the way down, 960. Next we note that 901 is a Trend Level projection. Note also that 903 is a Trend Change projection, but not one of the strong ones. Even so, because these levels are so close together we average them to obtain 902 as the next support level on the way down. Considerations similar to these tell us to average the 841 and 827 levels to obtain 834 as the next support level. Finally we average 785 and 799 to obtain 792 as a support level.

With the exception of 902, each of these levels proved to be important support-resistance zones during the decline from the 1024 top. The May '81 low occurred at 963, the August '81 top at 954, the September low at 824, the October low at 836, and the March '82 low at 794.

4.6 Calendar Support-Resistance Levels

This section will explain a surprisingly effective tool which enables you to calculate support and resistance levels using only the calendar. Once you understand this method you can turn it "upside down" to use support-resistance projections to predict the times that trend changes are likely.

The key to the calendar method is the observation that angles in the Octagon Chart correspond to certain calendar dates as shown in the following table:

Angle	Date	Angle	Date
0°	March 21	180°	September 22
22½°	April 12	202½°	October 16
45°	May 5	225°	November 8
67½°	May 27	247½°	November 30
90°	June 21	270°	December 31
112½°	July 14	292½°	January 13
135°	August 5	315°	February 4
157½°	August 31	337½°	February 28

To calculate the calendar support and resistance levels which correspond to any date just look at the prices in the Octagon Chart which are on the same angle as that date or which are 180° away from

that angle. It is also sometimes useful to look at prices which are 90° or 270° away from the angle corresponding to the date.

As a hypothetical example, suppose you wanted to calculate the calendar support and resistance corresponding to August 5. From the preceding table you know that August 5 corresponds to the 135° angle. Therefore you would look at all prices which are on the 135° angle or on the 315° angle. For example 677 is on the 135° angle. This corresponds to a price of 677 in the Dow or 67.70 in cattle or 6.77 in sliver, etc. According to the calendar method, if the price in the market you are following is within 1% of 677 on August 5 you should look for a change in trend. Of course, there is nothing special about 677; any other price on the 135° or 315° angles would have served as well since they are all support resistance levels corresponding to August 5.

The only difficulty you are likely to encounter is that of computing calendar support or resistance for dates not in the preceding table. Notice that as we move from one date to the next in the preceding table, we actually drop down one entry to the next angle in the Octagon Chart. For example, moving from August 5 to August 31 corresponds to a move from 677 to 683 since 683 is on the 157½° angle and 677 is on the 135° angle. The 677 level moves upwards over time until it reaches 683 on August 31. One can then draw a straight line on your chart connecting 677 on August 5 to 683 on August 31 and read off the support-resistance levels for the dates in between from this line. Follow this graphical "interpolation" procedure for any date not in the preceding table.

The calendar method just described often gives remarkably accurate results. In the November '80 soybean example discussed in section 4.3 the 834 level is on the 292½° angle. This is 180° away from the 112½° angle which itself corresponds to July 14. By interpolation, July 17 corresponds to the 835 level and November beans topped out that day at 840 before dropping to 740 in 5 days. The November 5 high in November beans was at 931. Note that 931 is on the 225° angle and the corresponding date is November 8! On March 8, 1982 the Dow established a closing low at 794 and then sallied 80 points. By interpolation it is easy to see that 794 is 180° away from the angle (about 348°) which corresponds to March 8.

Countless examples of this sort of action abound in stock and commodity charts as you will soon discover when you start doing your own calculations. But remember - do not use the calendar method in isolation - be sure to coordinate it with the other methods discussed in this chapter.

4.7 Predicting the Times of Trend Reversals Using Calendar Support and Resistance Levels

Suppose you could estimate with reasonable accuracy the level at which a market move is likely to stop. Suppose you also knew that

it was likely to stop at a clanedar support or resistance level. This information would then tell you when the coming top or bottom should occur. All you would have to do is find the calendar dates which are either on the same angle as your price target, or 90°, 180° or 270° away from this angle. The correspondence between dates and angles is contained in the table in section 4.6. In this way you would come up with four possible termination dates for the move, spread around the coming year at 3 month intervals from one another. In most cases you can make a "ball park" estimate of the speed with which prices will reach your target, and this will usually be enough to pick only one of the four dates as the likely time for the top or bottom.

Let's illustrate this procedure with a calculation I made recently for June '82 Comex gold. June gold was in a bear market and established an intermediate low at the 319 level on March 15, 1982. Note that 319 is on the $112\frac{1}{2}°$ angle and that an upmove of 180° from 319 (a normal bear market rally) would carry prices to 356 according to the Trend Level method. The Trend Change method shows that 35 is on the $112\frac{1}{2}°$ angle also and so 319 + 35 = 354 is a likely resistance point. Averaging these two levels gives 355 as a reasonable target for the bear market rally. If 355 is also a calendar resistance level we can calculate the dates on which the top is likely to occur. Since 355 is on the $292\frac{1}{2}°$ angle the dates for the top are those which correspond to the $22\frac{1}{2}°$, $112\frac{1}{2}°$, $202\frac{1}{2}°$ and $292\frac{1}{2}°$ angles. These are January 13, April 12, July 14 and October 16. A rally from 319 to 356 would only take a few weeks at most and so April 12 becomes the target date for the top.

The actual top occurred on April 14 at the 377 level. Note that the time projection was accurate but the price projection on which it was based was not. This happens frequently enough so that you should be prepared when it does. Note however that 377 was itself on the $22\frac{1}{2}°$ angle which corresponds to April 12!

The possible uses of calendar resistance levels to compute both price and time objectives are limited only by your imagination. Experiment with these ideas and you are likely to discover new approaches which will be invaluable in your own trading.

Chapter 5 - SOME PRACTICAL TRADING HINTS

In the previous chapters you have learned some new methods for predicting the times and the prices at which important trend reversals are likely to occur. In this chapter I will discuss some simple-to-use trading rules which I have developed over the years to help me take advantage of these trend reversal predictions. The next few pages do not constitute a complete treatise on commodity and stock trading techniques, but they will give you some simple rules-of-thumb to follow in the markets. These rules will help you to make profitable use of the Octagon Chart in day-to-day trading.

5.1 Identifying Tops and Bottoms - The Trend Recognition Method

To most people the strangest aspect of periodic number cycles is their inability to tell you far in advance whether a predicted trend reversal will be a top or a bottom. But for practical trading purposes you do not need this information in advance at all. In fact, it suffices to be able to recognize a trend reversal as a top or a bottom at the time it occurs to make profitable use of the trend reversal predictions.

Here is the method I use to determine whether a trend reversal is going to be a top or a bottom. The main idea is to devise a rule which will classify the current trend of the market as up or down. If this can be done successfully then the fact that a trend reversal is due will tell us that it must be a top if the current trend is up and a bottom if the current trend is down.

The Trend Recognition method works as follows: First wait until you are 5 trading sessions away from the trend reversal date (do not count the reversal date itself). Then wait for the first day within this period which you can label as a New High day or a New Low day. A New High day is a trading session for which the daily high is above the daily highs of all of the preceding four trading sessions. A New Low day is a trading session for which the daily low is below the daily lows of all of the preceding four trading sessions. In narrow markets it is possible for the same day to be both a New High and a New Low day. In this case label it as neutral.

Starting 5 trading sessions prior to the projected trend reversal, if the first day you can label turns out to be a New High day then the current market trend is up. If it is a New Low day then the current market trend is down. If the current trend is up the trend reversal should be a high and you should be preparing to sell on the first technical signal the market gives. If the current trend is down the trend reversal should be a low and you should be preparing to buy on the first technical signal the market gives.

The mechanical Trend Recognition method just described works beautifully about 70% of the time. But there will be times when the

market's action will be ambiguous. For example, a New High day might
be followed a day later by a New Low day. As another example, the
market may have declined steeply for several weeks and then formed
a narrow trading range right near the lows. Two days before the trend
reversal date the market breaks upward out of the trading range and
establishes a New High day. Is the trend reversal a top or bottom?

Unfortunately, there are no simple answers to this kind of
problem. Ultimately you are forced to rely upon your own judgement
in such situations. I always find it very useful to look at other
contract months or related commodities because they sometimes present
a clearer picture and thus can resolve the ambiguity. In the stock
market it is often useful to look at other market averages and at
the technical indicators for help in identifying the reversal as a
top or bottom. For example, if most of the technical indicators are
in "oversold" territory you would probably conclude that the reversal
will be a low. If they are in "overbought" territory the reversal will
probably be a high.

5.2 Screening Out False Entry Signals

I have found the following rule invaluable in my own stock and
commodity trading:

> don't take a new position unless the market
> is within 3 or 4 days of a trend reversal date.

Following this rule religiously has the effect of eliminating many
of the false buy and sell indications given by various technical
indicators and mechanical trading systems. Since there are usually
not very many trend reversals predicted during a given year, this
rule will also prevent you from overtrading. Taking positions too
frequently is almost a sure sign that you have lost perspective on the
markets and shouldn't be trading at all.

Of course there will be times when the technical evidence seems
to point to a top or a bottom, yet none of the methods we have dis-
cussed predicts a nearby trend reversal. This is a very rare occurrence.
In any given market it happens perhaps once in two or three years.
If the technical evidence is truly overwhelming then my rule is to
take a position despite the lack of a trend reversal date. But be
careful, for it's easy to let wishful thinking carry the day and to
persuade yourself that the technical evidence is very strong when in
fact it isn't.

5.3 Taking a Position

Once you have determined that a predicted trend reversal will
be a top or a bottom you have the problem of deciding when and at
what prices to establish a long or short position. Your choice of
technical rule to follow for doing this has to be guided by the

strength of the evidence which points to a trend reversal. If several different methods described in previous chapters all point to the same or nearly the same date (within 3 or 4 days of one another) for a trend reversal, and if the market has reached a level calculated to be important support or resistance, then it makes sense to use a very sensitive entry rule which will get you in very near the top or bottom. On the other hand, if only one method predicts a trend reversal date, and if the market is not near any calculated support or resistance, then you would want to follow a very cautious entry rule which sacrifies the initial part of the move just to be sure the trend really has reversed.

Clearly some judgement is involved in choosing the entry rule to use in any given situation. This is unavoidable, but you will acquire the right feel for the strength of the trend reversal evidence fairly quickly if you do the calculations for several markets over a period of time.

Here are the most important entry rules I use when trading stocks and commodities.

1. The most sensitive entry procedure is to buy slightly above the previous day's high and sell slightly below the previous day's low. This will get you in very near the top or bottom, but the danger of a whipsaw and consequent loss is great unless the trend reversal evidence is very strong.

2. A less sensitive entry procedure is to buy near the close of the second consecutive day on which the market moved above the previous day's high. Sell near the close on the second consecutive day on which the market moved below the previous day's low.

3. Still less sensitive than 1 or 2 is the use of a moving average of length anywhere from 5 to 10 days (10 days is best for stocks, but shorter lengths work better for most commodities). With this procedure you buy on a close above the moving average or sell on a close below it.

4. This entry technique is similar to 3 but requires less calculation. Sell on a close which is below the previous 4 closes and which is also below the steepest, short term uptrend line connecting short term bottoms. Buy on a close above the previous 4 closes and which is also above the steepest, short term downtrend line connecting short term tops.

5. In general, this is the least sensitive entry procedure of all. Buy on a breakout above the high of the last

two day rally. Sell on a breakout below the low of
the last two day decline. This procedure won't get
you in near the top or bottom but it will avoid the
false and unprofitable entries the other methods can
cause when the number cycle evidence is weak.

5.4 The Secret of Proper Stop-Loss Placement

The principle I'm about to explain can turn you from a loser
into a winner in the commodity markets. If you follow it you will be
able to trade with close stop-loss orders which will greatly reduce
your losses on losing trades without making you take losses anymore
frequently.

Always try to buy or sell when the market is moving in the
direction you want it to go. Choose your entry level in such a way
that you will show an immediate profit <u>if you are going to be right.</u>

If you follow this rule when taking a position and the market
begins to move against you almost immediately (i.e. during the same
or the next trading session), you <u>know you are wrong,</u> so get out
immediately. In such circumstances, stop-loss orders can be kept
very close ($300-$500 per contract) below or above entry, and many
losing trades will be terminated even before the top is caught, thus
further reducing the loss.

Let me illustrate the application of this principle in my own
trading. I have found that when the trend reversal evidence is strong
I can buy slightly above the previous day's high or sell slightly
below the previous day's low. From experience I know that if I am
correct in taking my position I should show a profit by the close of
trading on the entry day. If I don't I get out of my position by the
close. The ratio of gains to losses on trades initiated in this way
has been extremely high (better than 5 to 1).

One more word about stop loss orders is appropriate here. There
will be times when you are reading the market correctly but nonethe-
less get stopped out in your initial entry attempt. After getting
stopped out once I am always ready to re-enter (the next day if necessary)
provided conditions remain favorable. After two successive losses
I am sometimes willing to try a third time with a smaller position.
But after three failed entry attempts (and often after only two) I
always look for opportunities elsewhere. This procedure will keep
you from "fighting the trend" during those times when trend reversal
predictions do not work out.

5.5 Closing Out the Trade

As a general rule you should not wait for a number cycle indication
before closing out a profitable trade. Such indications will often
occur, but don't insist on waiting for them. The reason for this is
simple. Number cycles do not predict <u>every</u> significant high or low.

Figure 1

The Octagon Chart

	1	2	3	4	5	6	7	8	9
0°	2	11	28	53	86	127	176	233	298
45°	3	13	31	57	91	133	183	241	307
90°	4	15	34	61	96	139	190	249	316
135°	5	17	37	65	101	145	197	257	325
180°	6	19	40	69	106	151	204	265	334
225°	7	21	43	73	111	157	211	273	343
270°	8	23	46	77	116	163	218	281	352
315°	9	25	49	81	121	169	225	289	361

	10	11	12	13	14	15	16	17	18
0°	371	452	541	638	743	856	977	1106	1243
45°	381	463	553	651	757	871	993	1123	1261
90°	391	474	565	664	771	886	1009	1140	1279
135°	401	485	577	677	785	901	1025	1157	1297
180°	411	496	589	690	799	916	1041	1174	1315
225°	421	507	601	703	813	931	1057	1191	1333
270°	431	518	613	716	827	946	1073	1208	1351
315°	441	529	625	729	841	961	1089	1225	1369

In fact, they can best be thought of as predicting low risk entry times. Therefore the right time for closing out a profitable trading position can come and go without any number cycle indication.

There are two basic procedures one can use for taking profits. One method involves trailing a stop order beneath a profitable long position and raising it as the market advances. The order can be placed below the current level of an appropriate moving average, below the last minor low, below a short term rising trendline, below the lowest price of the last 2 or 3 days, etc. When a trend reversal is imminent it is often best to raise the stop loss order to the point at which you are prepared to reverse your position and go short. Reverse this procedure for a short position in a falling market.

The second exit procedure involves taking profits at prespecified price targets. These targets are usually slightly above or below the levels of previous tops or bottoms or are given by support-resistance calculations which were described in Chapter 4.
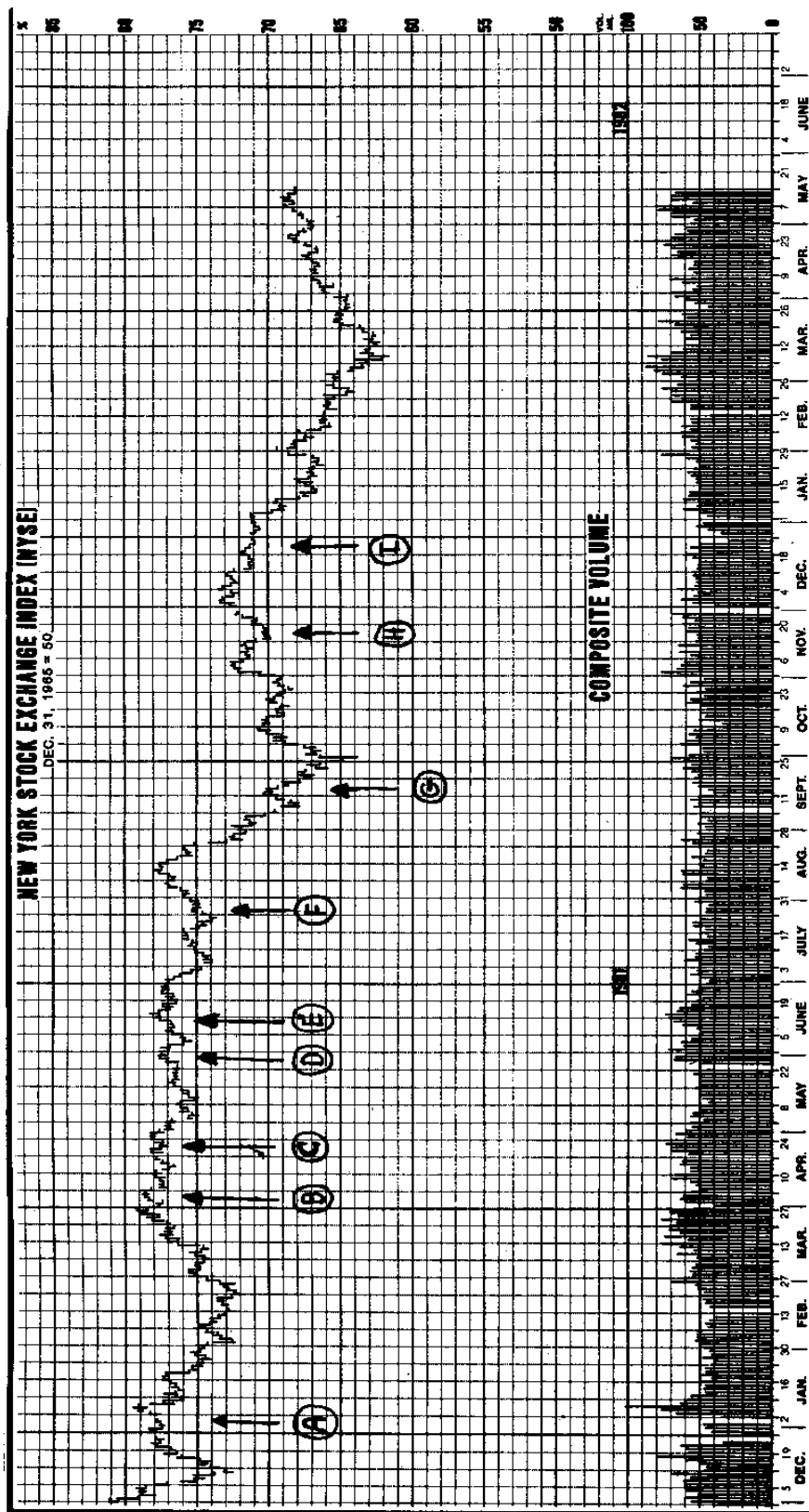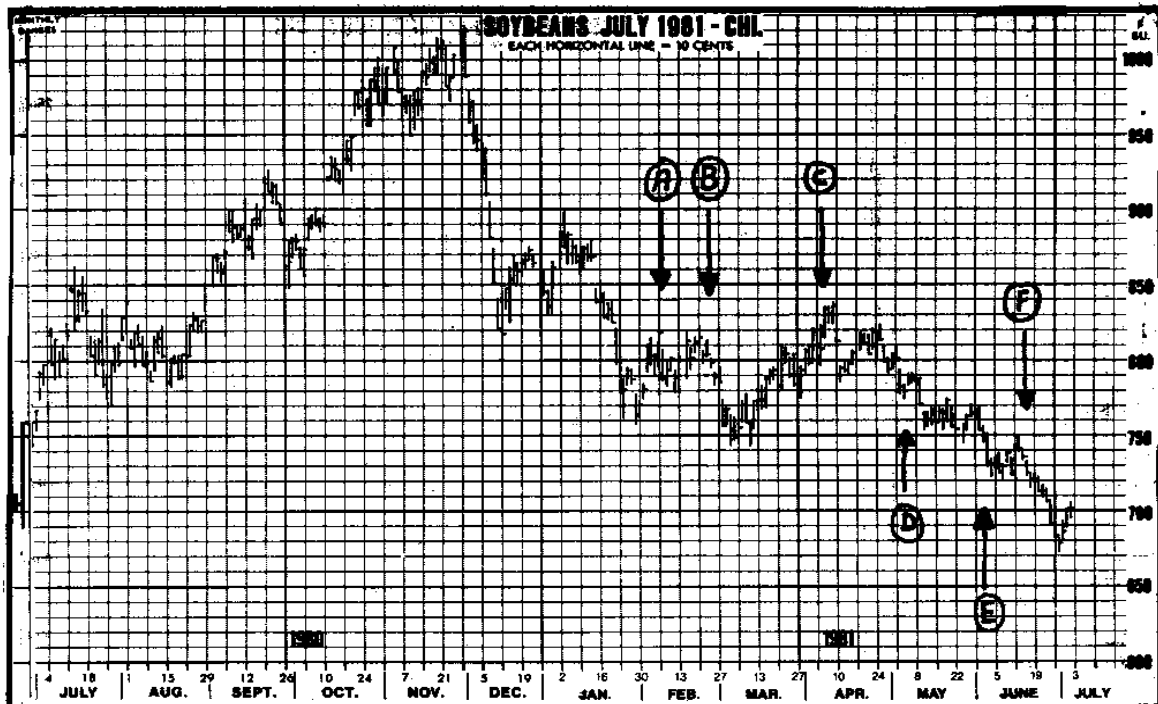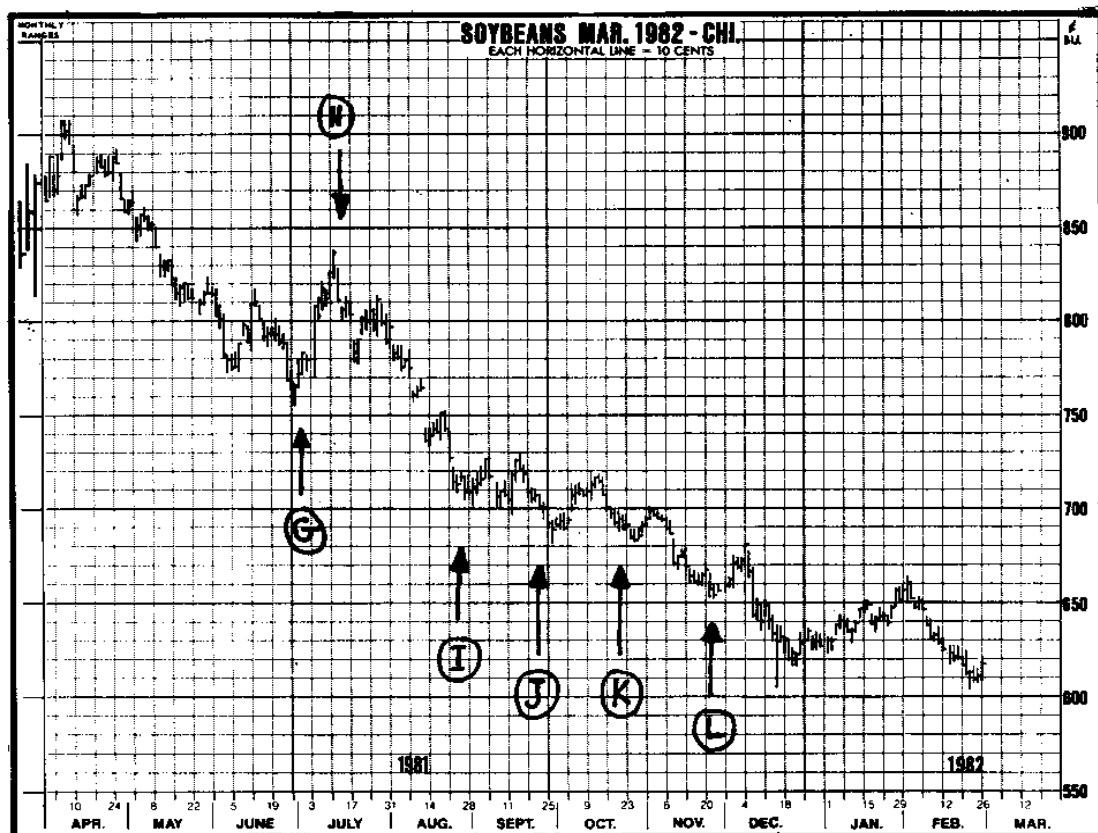
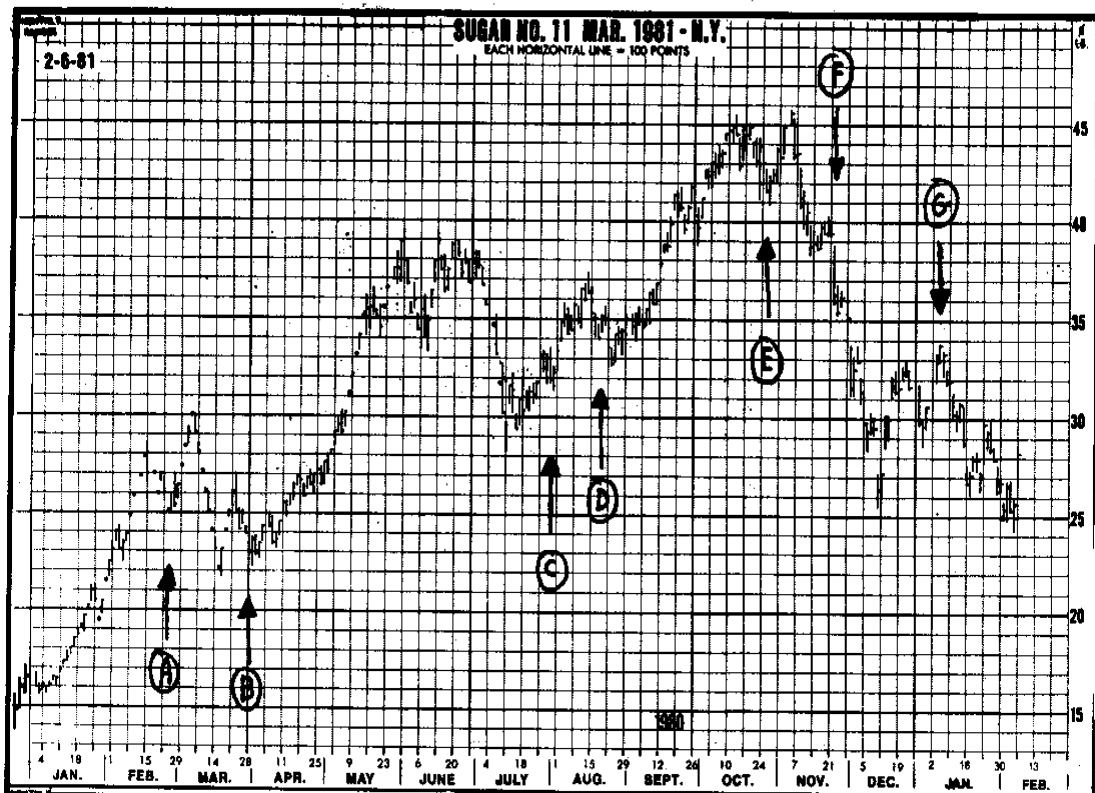FIGURE 2

FIGURE 3

FIGURE 4

FIGURE 5

FIGURE 7

NEW YORK STOCK EXCHANGE INDEX (NYSE)
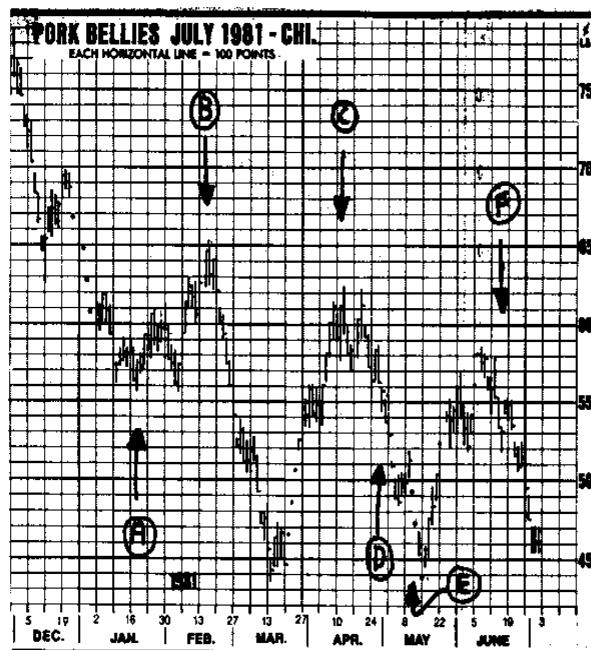DEC. 31, 1965 = 50

NYSE VOLUME
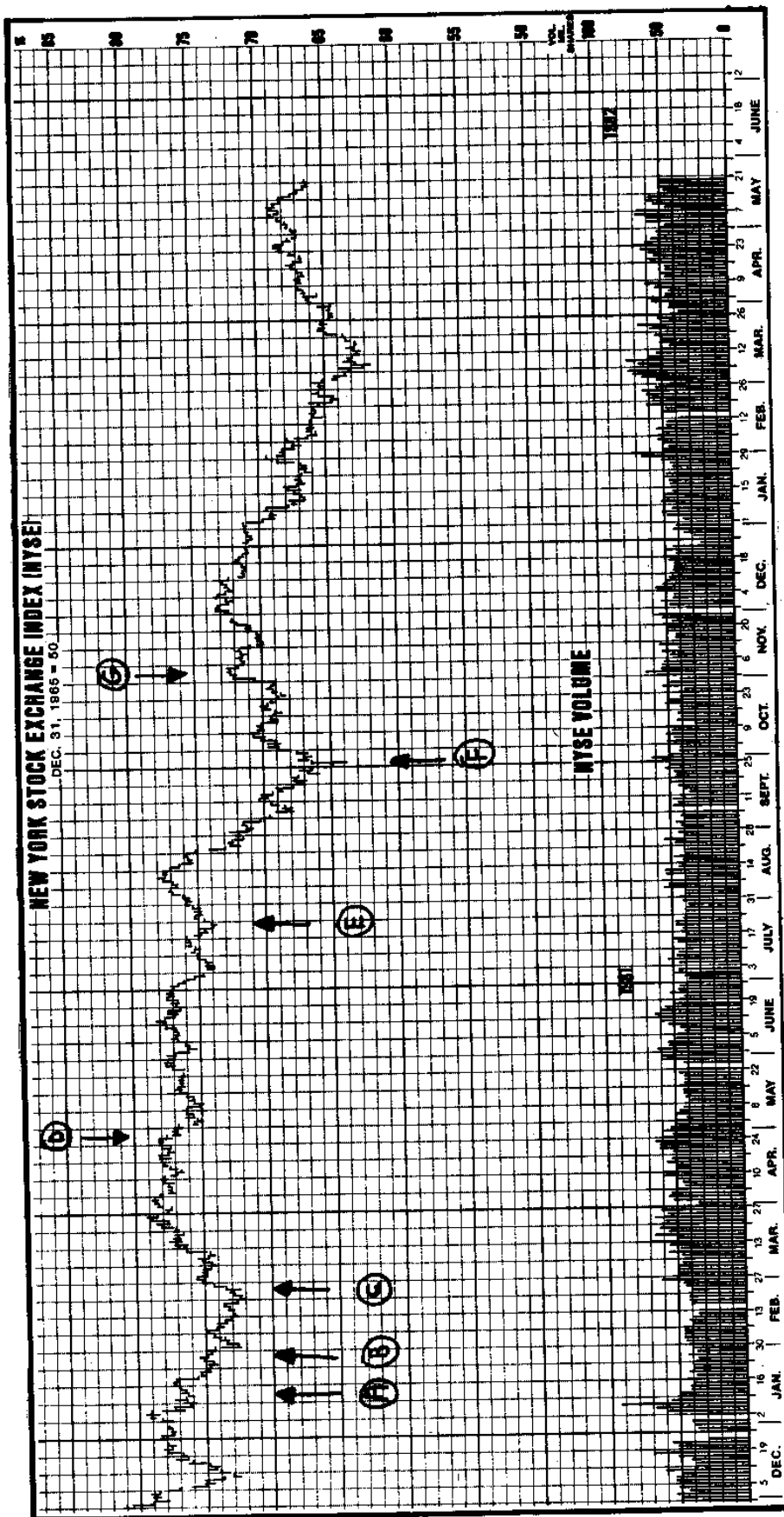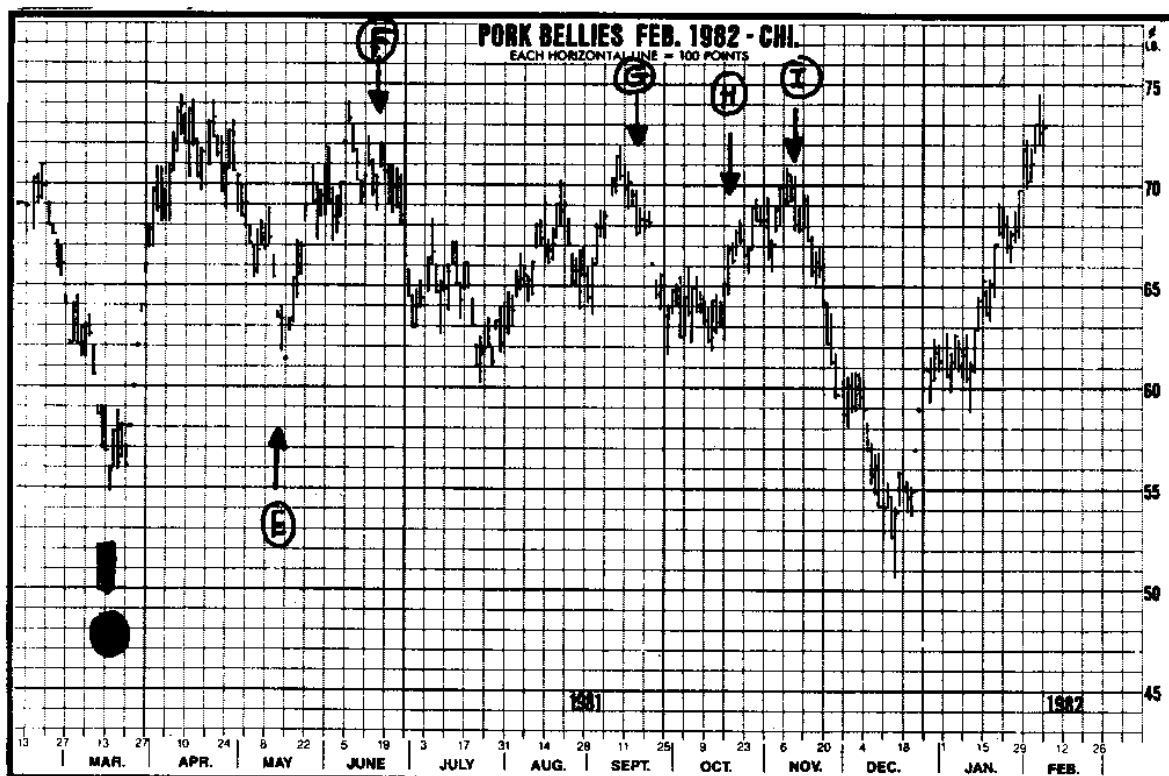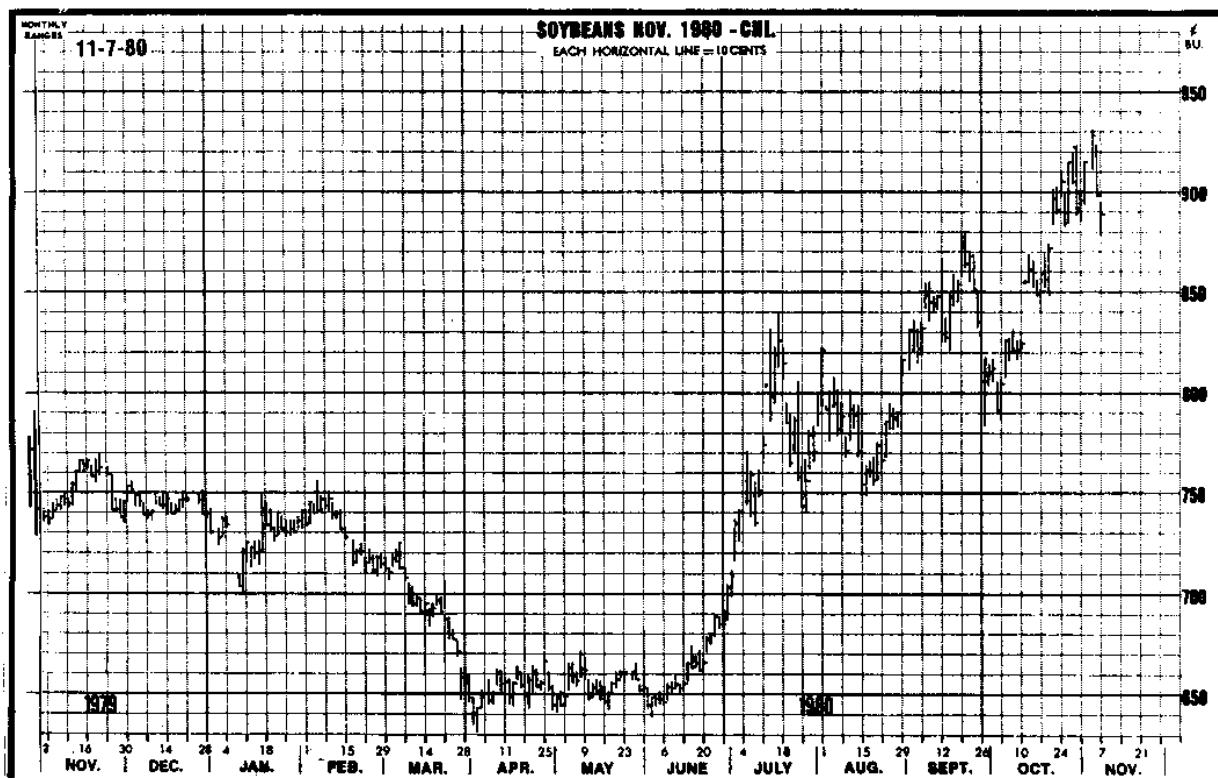
FIGURE 6

FIGURE 8

FIGURE 9

APPENDIX

Highs and Lows for the Dow Industrials

Date	Price	Price Angle
9-24-1900	52.96	0°
7-17-1901	78.26	292½°
11- 9-1903	42.15	225°
1-19-1906	103.00	157½°
11-15-1907	53.00	0°
11-19-1909	100.53	135°
7-30-1914	71.42	202½°
11-21-1916	110.15	225°
12-19-1917	65.95	135°
11- 3-1919	119.62	292½°
8-24-1921	63.90	112½°
9- 3-1929	381.17	45°
7- 8-1932	41.22	202½°
3-10-1937	194.40	112½°
4-28-1942	92.92	67½°
5-29-1946	212.50	225°
6-13-1949	161.60	270°
1- 5-1953	293.79	337½°
9-14-1953	255.49	135°
4- 6-1956	521.05	292½°
10-22-1957	419.79	225°
1- 5-1960	685.47	157½°
10-25-1960	566.05	90°
12-13-1961	734.91	337½°
6-26-1962	535.76	337½°
2- 9-1966	995.15	45°
10- 7-1966	744.32	0°
12- 3-1968	985.21	22½°
5-26-1970	631.16	337½°
1-11-1973	1051.70	202½°
12- 6-1974	577.60	135°
9-21-1976	1014.79	112½°
2-28-1978	742.12	0°
3-27-1980	759.98	45°
4-27-1981	1024.04	135°

Highs and Lows for May Soybeans

Date	Price	Price Angle
10-17-38	68	180 °
1-15-48	436	292½°
2- 9-49	201	157½°
4-27-54	422	225 °
8-11-55	221	292½°
5- 3-56	340	202½°
5-11-60	211	225 °
4-26-61	337	202½°
8- 8-63	239	45 °
8-17-66	343	225 °
6- 5-69	244	67½°
5-21-73	1020	112½°
8-14-73	906	157½°
11- 5-73	521	292½°
2-26-74	690	180 °
5- 8-74	521	292½°
10- 4-74	971	337½°
12-15-75	458	22½°
4-22-77	1077	270 °
8-16-77	520	270 °
6-22-79	859	0 °
4- 2-80	570	112½°
11-20-80	1006	90 °

Highs and Lows for May Wheat

Date	Price	Price Angle
12-28-32	43	225 °
1-16-48	306	45 °
7- 5-49	191	90 °
12-10-51	265	180 °
8-18-55	190	90 °
10-31-56	245	67½°
5- 4-65	143	112½°
9-14-66	207	202½°

Date	Price	Price Angle
3-28-69	125	337½°
2-26-74	636	0°
8-22-77	239	45°
6-22-79	514	247½°
4-21-80	376	22½°
10-22-80	571	112½°

Highs and Lows for February Pork Bellies

Date	Price	Price Angle
12-16-65	56.00	67½°
6-20-66	29.50	337½°
5- 9-67	40.00	135°
8-12-68	29.52	337½°
2- 2-70	48.87	157½°
1-11-71	22.57	315°
8-22-73	83.80	315°
6-12-74	36.30	315°
10- 3-75	104.10	180°
8- 3-77	43.50	292½°
10- 6-78	73.70	337½°
8- 2-79	37.20	0°
6- 6-80	40.60	157½°
12- 1-80	74.50	0°

Highs and Lows for March Sugar

Date	Price	Price Angle
1-29-62	1.95	180°
5-23-63	12.33	337½°
8-20-63	4.91	315°
10-24-63	12.04	315°
1- 3-67	1.23	22½°
6- 5-67	3.75	135°
9-16-68	1.78	157½°
4-22-69	4.19	202½°
8-26-69	2.76	0°

Date	Price	Price Angle
2- 7-72	9.14	45 °
7-28-72	5.41	22½°
11-21-74	66.00	67½°
1- 6-77	7.43	247½°
4-22-77	11.06	225 °
9-23-77	7.96	292½°
12-30-77	11.03	225 °
7-25-78	6.55	135 °
11- 5-80	45.50	22½°