

Chart Analysis As An Aid To Commodity Price Forecasting

By WILLIAM L. JILER

Chart analysis is a study of market action. The chartist attempts to anticipate the future direction of prices by appraising the trends of the past and the present. His working tool is a graph or chart showing the movement of prices over a specified period of time. He arrives at his conclusions by diagnosing the formations or patterns that appear on the charts.

There is a considerable difference of opinion as to the value of charts. Much of this disagreement probably stems from misconceptions as to what chart interpretation actually is and what it should accomplish. Some of its opponents are prone to regard chart analysis as a form of crystal ball gazing, or some similar pursuit. The other extreme is found in those enthusiasts who adhere rigidly to charts to the exclusion of all other factors and who regard chart interpretation as the "open sesame" to success in price forecasting.

Actually, it is neither. It is a market technique used by many speculators, commodity market analysts and others whose business necessitates anticipation of price trends. But it is one of the many implements at the disposal of the student of commodity economics and not by any means the only one.

There is no easy road to price forecasting and no single key that will open the door to complete accuracy. A forecaster must take into account a number of fundamental considerations such as supply and demand for particular commodities and the question as to whether the economy is passing through a period of inflation or deflation (expressed by the trend of the commodity price level as a whole). Political moves, seasonal influences and international developments are among other factors to be considered.

However, chart analysis can be very helpful in developing good market judgment. It can be used as a "check" on the accuracy of conclusions that are derived from a study of fundamentals. Moreover, a commodity analyst may at times have ignored certain conditions in a particular commodity. Examination of a chart may suddenly disclose a pattern that looks fairly conclusive. This can stimulate him to look into the fundamentals of a situation that otherwise would have passed by him.

The Philosophy of Chart Analysis

The purpose of chart reading is to measure the relative strength of buying and selling pressures. If it can be demonstrated that buying pressure at the prevailing price level is more

powerful than selling pressure, it is logical to assume that prices will rise. On the other hand, if selling pressure overpowers buying pressure, the assumption is that prices will fall.

If we substitute the word, supply, for selling pressure and, demand, for buying pressure, we can reduce the measurement to that of supply and demand. Accordingly, chart analysis seeks to determine at what point supply exceeds demand and vice versa; also, when they are in approximate balance.

The actual forecasting process consists of identifying the various patterns established by prices as they pursue their various trends and sidewise formations. These patterns disclose the relative strength of supply and demand forces. Each formation has its own significance which the chartist coordinates with various other technical considerations in arriving at market conclusions.

Limitations of Chart Reading

Chart analysis is an inexact science and considerable allowance must be made for errors. Dynamic and unexpected occurrences suddenly may reverse trends without warning. Rains or other weather developments, overnight governmental activities, wars and any number of unpredictable events can disrupt completely any forecasts made on the basis of established chart patterns. Very often, price movements may not conform to predictions stemming from chart behavior for reasons that are difficult to explain.

Another limiting influence is the fact that *chart formations often are very indecisive*. Under such conditions, chartists usually maintain a neutral attitude until the appearance of patterns that are clearly discernible.

No two patterns form in exactly the same manner even though the overall form is discernible and the basic characteristics easily identified.

The reader is urged never to take any conclusions about chart reading for granted. He should test the various theories of chart analysis and see how they measure against his own experiences.

Types of Charts

There are various charting systems employed to forecast price movements. Some charts consist of either lines, bars, step diagrams or different symbols plotted on either logarithmic, square root, or arithmetic scale. The two most accepted methods are the vertical line charts and the point and figure charts. These methods are described in detail on the following pages.

Forecasting Commodity Prices With Vertical Line Charts

By WILLIAM L. JILER

Since the turn of the century, vertical line charts have become increasingly important, not only as excellent graphic descriptions of past commodity futures market activity, but also as implements for predicting price trends. Vertical line charts, which are merely a kind of price diagram, are probably the most widely used charts for forecasting purposes. Popularity of this type of chart may be attributed to three main qualifications. In the first place, they have withstood the onslaught of time. Charts have been referred to for many years and the use of vertical line charts has gained in acceptance. Secondly, they are simple to construct and easy to maintain, or keep up to date. Because forecasting methods depend upon the study of any number of charts, this maintenance feature is a significant consideration. And finally, they portray the most pertinent price action—the highest price, the lowest price, and the closing price.

This price information, in the form of vertical lines, or light bars, is really the substance of vertical line charts. Lines are customarily plotted on arithmetically ruled paper with the vertical scale referring to price and the horizontal scale to time. The charting of three days price action for March 1965 wheat is illustrated in the daily chart in fig. 1. Charts may be drawn on a weekly or monthly basis, as well.

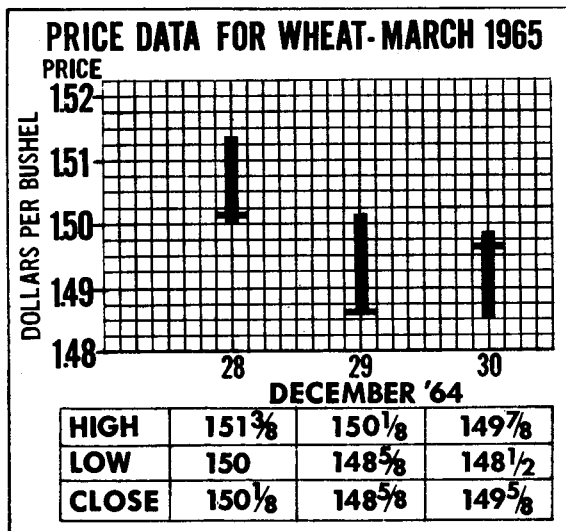


FIG. 1 CONSTRUCTING A VERTICAL LINE CHART

On a daily chart, each vertical line or bar would signify one day's action of a specific futures delivery. Generally, the length of the line corresponds to the price range for the day, with the top of the line marking the highest price of the day, the bottom the lowest price, and a lighter cross line indicating the closing price for the day. Weekly and monthly charts are drawn in the

same way, with each bar corresponding to the price action for either the week or the month, as the case may be.

There is one notable difference between the daily charts on the one hand, and the weekly and monthly on the other, which should be thoroughly understood. Weekly and monthly charts are used for the study of long range trends. For practical purposes, some method had to be decided upon to continue the charts after any one particular commodity futures contract expires. The easiest and most logical solution is to continue the chart by recording the nearest contract after the expiration of the old one.

However, this continuation method commonly results in apparently erratic fluctuations on the chart which have raised objections to its use. One of the criticisms arises from the abnormalities that may occur when one delivery expires and another is continued in its place. Different contracts or deliveries of the same commodity may differ greatly in price. The expiring May 1964 potato contract traded on the New York Mercantile Exchange is an outstanding case in point. On the last day of the contract (May 8), potatoes traded as low as \$4.10 while the nearest contract, the November delivery, closed at \$2.17. These contracts actually represent different crop seasons. On the continuation chart which follows, such changeover appears as a dynamic rally and decline on the week of the change-over, even though the November potato contract held relatively stable for several months. Accordingly, a continuation chart does not always give an accurate picture of the trend.

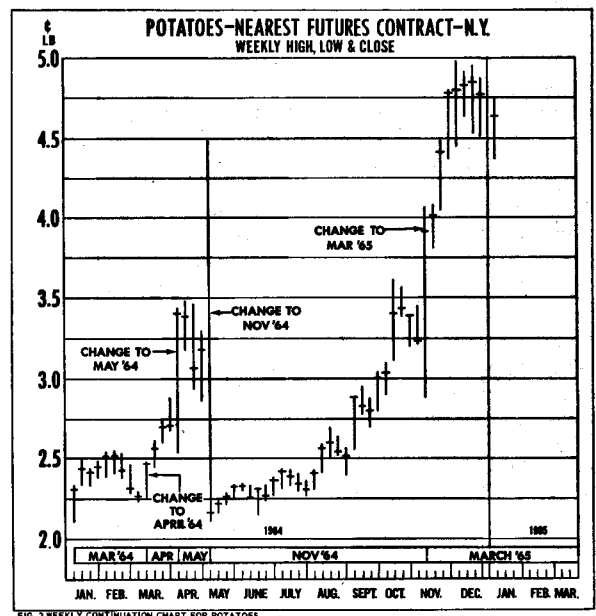


FIG. 2 WEEKLY CONTINUATION CHART FOR POTATOES

In fig. 2 on page 24, the weekly continuation chart for potatoes drawn there, reveals how this change appeared. Note how the chart developed as the nearest potatoes contracts were recorded upon expiration of the previous ones. During the week of the change-over, the price action of both the expiring contract and the next nearest delivery are included in the week's price action.

A second abnormality occurs when the expiring contract is subject to violent movements because of the thinness of the market. Here, relatively few transactions may cause large swings.

Some chartists, who object to the nearest contract method, have developed their own systems, such as averaging prices of several contracts, averaging all contracts, or a change-over to the nearest contract at some date prior to expiration, in order to avoid these extra moves. However, adherents to the system described previously maintain that these so-called erratic moves are especially significant and that forecasting techniques can be derived from them.

Chart Formations

The art of forecasting from vertical line charts, both daily and continuation types, is dependent on the proper recognition and interpretation of formations which are associated historically with a subsequent movement in a particular direction. A comprehensive study of commodity futures price charts representative of every commodity traded on futures markets and, in some instances covering a span of as much as 54 years, have left certain impressions with the writer. There were sufficient outstanding situations where familiar patterns were clearly defined and ultimately resulted in indicated advances or declines of major proportions to lend validity to chart reading as a forecasting method. However, there were also enough examples of unexpected developments and unusual forms which seemed to rule out the possibility of regarding this method as an infallible forecasting device. In searching for basic patterns, it was possible to locate examples in all commodities, and in the three types of charts studied—daily, weekly and monthly—as well.

Although dozens of patterns known to the "pure" chartists were looked for, only those considered as the most discernible and practical for forecasting will be enlarged upon in the following pages.

Trend Lines and Channels

An obvious presumption derived from chart studies is that prices have a prevailing tendency to move in a particular direction. This tendency or trend frequently assumes a definite pattern which evolves about a straight line. In fact, the ability of prices to adhere extremely close to an imaginary straight line is one of the most extraordinary characteristics of chart movements. One financial writer likes to regard markets in terms of a moving train on tracks—sometimes speeding up or slowing down, but usually along a well-defined course.

At least three points are necessary to establish a trendline; however, additional guideposts are needed more often than not. In referring to fig. 3, observe that in the uptrend, the third point C. becomes fixed at a higher level than the first point, A. while in the downtrend, C. is lower.

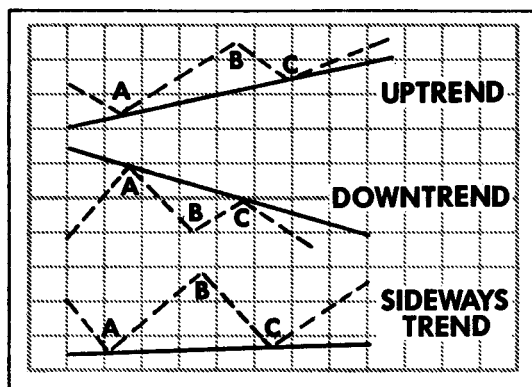


FIG. 3 TRENDS

Horizontal or sideways trend lines may occur when the third point C. is even with the first. An uptrend line is drawn by connecting the lower points of the overall movements as illustrated in fig. 3. The downtrend line must be drawn by connecting the higher points. It is very important to make this distinction. When a sideways trend develops both upper and lower points often conform to a horizontally straight line.

Some idea of how trendlines actually develop may be gained by studying the three recent examples of price action depicted in fig. 4. The solid lines are the trendlines, while the broken lines parallel to the trendlines help to outline the channels.

Briefly, channels are the ducts through which prices pass as they move along the trendline. The dashed lines in fig. 4 on page 26 outline the channel. An uptrend channel is plotted by drawing a line on the charts parallel to the uptrend line, along the tops of the various upswings within the trend. Similarly, downtrend and horizontal trend channels may be constructed. So long as price activity continues within the trend channels, these channels are useful for suggestive buying and selling levels and also for indicating important trend reversals.

Of all the major chart configurations, trendlines were easily the most consistent and recognizable patterns. One cannot help but be impressed with their frequency of occurrence. Any number of trendlines may be pinpointed in the figures 12 through 19 at the end of this article. Many others, though not labeled are also easily recognized.

It should be emphasized, however, that it is not an easy matter to clearly identify a trend until it is fairly well established. Many trendlines, both minor and major, may have to be drawn and studied before they can be accepted with confidence as representing the true trend. Each break of a minor trendline, as well as a

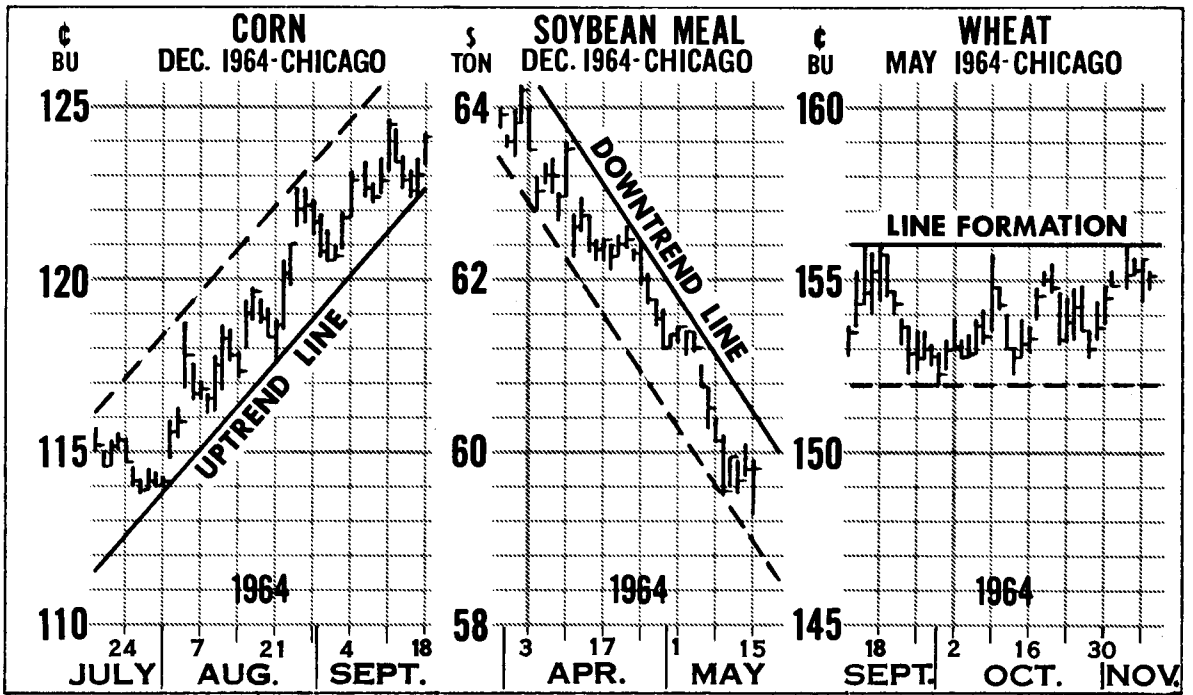


FIG. 4 TRENDLINES & CHANNELS

violation of a major trendline, is a danger signal to the chartist following the development, even though time and again it may only require a re-drawing of the trendline. The breaking of a major trend by about three per cent is often indicative of a change in trend.

Imagination must be exercised at all times and precise rules and measurements shunned (as in all chart forms), but, in the writer's opinion, the trendline should be the first and foremost picture looked for in any systematic approach to chart reading.

Head and Shoulders Formations

After a trend has been established and has continued for varying periods of time, certain chart diagrams that signal a reversal in trend are drawn. The oldest, most popular, and possibly the most reliable reversal pattern is called the Head and Shoulders formation. It can signal a downtrend just as the inverse Head and Shoulders can signal an uptrend. A change from an uptrend to a downtrend as illustrated in fig. 5 would present the following market description:

A rally and a decline of equal proportions within an uptrend would constitute the left shoulder. A second rally carrying beyond the first rally and a reaction back to the starting point would outline the head. The right shoulder would be formed by a third rally which falls short of the previous rally and a decline which extends well below the three earlier stopping points, or neckline. (A line connecting these points is called the neckline.)

A Head and Shoulders formation is never completed until the neckline is decisively broken. Indeed, until the neckline is broken the pattern is not a Head and Shoulders formation and there is no indication of a trend reversal.

It should be noted that after a significant breakthrough of the neckline, prices often make a return move to the neckline, or at least an attempt, before the major movement again gets under way.

A sound fundamental background can be very helpful in anticipating the completion of formations. Another useful consideration is the habit trait of specific commodities. At certain times of the year and in specific commodities, a particular formation may be expected. For example, wheat has formed head and shoulder patterns around February in a number of years under review.

A common measuring rule applied to Head and Shoulders formations is that once the neckline is broken the extent of the subsequent move will at least equal the distance from the top of the head to the neckline. A sagging right shoulder foretells a more drastic decline. (Rule applies conversely for up signals as well.)

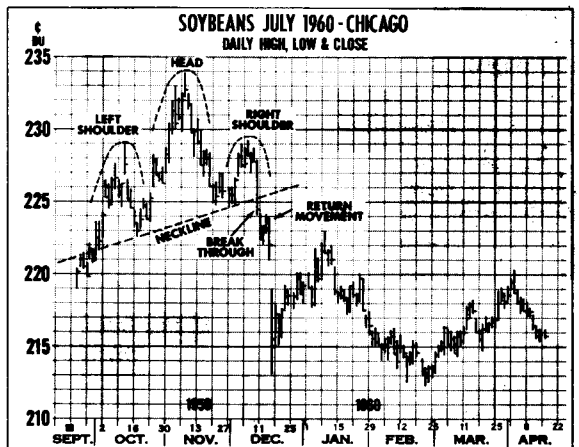


FIG. 5 HEAD & SHOULDERS FORMATION

There are many manifestations of the Head and Shoulders picture. Double, and triple shoulders, or combinations of these variances still make the formation a true head and shoulders. These complex formations are noted for their symmetry—a double left should precede a double right shoulder. An example of a complex head and shoulders may be found in figs. 17 and 18. In fig. 18, only a single right shoulder followed a double left shoulder.

Triangles

Triangles of different shapes and sizes are readily distinguishable in all commodity futures charts. The name and the chart illustrations of triangles would seem to provide enough of an explanation for the formation. From the standpoint of occurrence, triangles rank with the trendlines in consistency of appearance. Sometimes referred to as coils, triangles rate highly as important indications of new or renewed market action. Two definite impressions about triangles were formed as a result of the chart research carried on in connection with this article.

1. Triangles figured prominently as signs of impending activity in the majority of commodity charts studied.

2. They were among the most untrustworthy forms as far as their ability to predict trends. It was extremely difficult to anticipate the move out of the triangle and frequently the breakout proved to be false and the trend was quickly reversed.

Triangles formed both as reversal symbols and

descending. The symmetrical triangle is the least dependable as an indicator. The ascending type often points to a breakout move upwards and the descending triangle points to a decline. Although they are by no means foolproof, the latter two perform as expected with a fair degree of success.

The breakout move from the apex of the triangle is explained as follows:

As the price movements narrow towards the apex of the triangle, buying and selling become so balanced that a minimum of extra force is required to upset the balance.

The breakout from a triangle often may be followed by a return move to the trend line and this second breakout then becomes the critical signal.

The most positive assertion about triangles is that they portend significant moves. The only measuring rule that can be applied to triangles is that prices may move a minimum of the vertical side distance from the apex. For example, the ascending triangle in figure 6 should move at least $7\frac{1}{2}$ cents per bushel (distance $248\frac{1}{2}$ to 256) from the breakout at 256.

Round Bottom or Top

The names, saucer and bowl, picturesquely describe a round bottom or top formation. Prices gradually curve up or down depending upon whether they are establishing a bottom or top and tip off the probable direction of the following move. Rounding tops and bottoms are esteemed as very reliable trend indicators for most

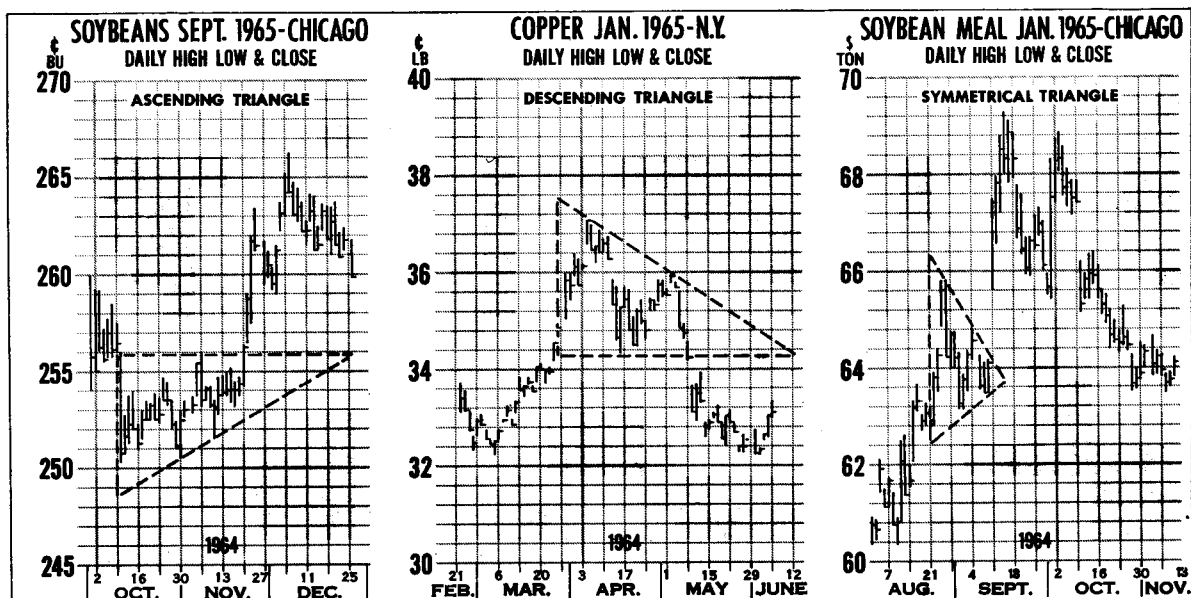


FIG. 6 TRIANGLES, ASCENDING, DESCENDING & SYMMETRICAL

continuation patterns, without apparent preference. To add to the difficulty in analyzing these forms, triangles often develop into other recognizable shapes. For example they may become shoulders of a Heads and Shoulders, or half of a Double bottom formation.

The three main triangular forms illustrated in fig. 6 are called symmetrical, ascending and

descending. They also imply that a move of major proportions is shaping up. Ordinarily, risk is reduced when taking a position in a formation of this type. The size of the saucer (extended time element or base) roughly indicates the extent of the major move. When a saucer formation portends a lengthy advance, a kind of platform or resting point may develop between the saucer

bottom and the main part of the move such as in figure 7.

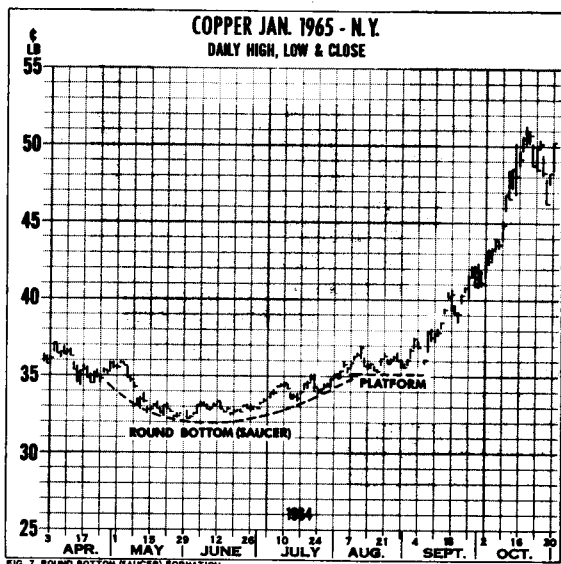


FIG. 7 ROUND BOTTOM (SAUCER) FORMATION

A series of saucers (either up or down) present a scalloping effect. Scalloping habits may be attributed to specific commodities such as cotton, while for most commodities scallops and even plain saucers are relatively infrequent in their occurrence. See fig. 13, page 31.

Double Tops and Bottoms

The outstanding implication of true double top and bottom constructions is that the subsequent move will be extensive. Double tops and bottoms may be formed according to the pattern which developed in fig. 8.

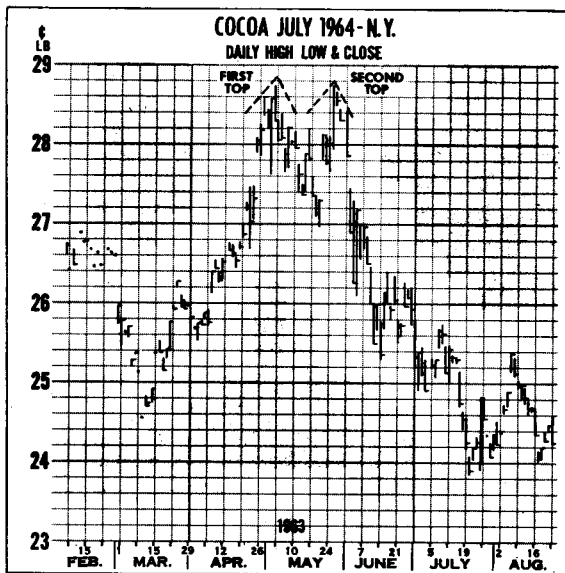


FIG. 8 DOUBLE TOP FORMATION

Notice how the second rally stopped at the same level as the first top. Then the subsequent decline went beyond the previous stopping point, (termed support area). Examples of a double

top and a double bottom appear in the same chart in fig. 16, page 32.

Real double tops and bottoms are fairly rare, although they may appear to be forming, but they soon become parts of other chart patterns.

Triple tops and bottoms may also form, but their occurrence is also rather infrequent. The May 1925 Corn chart in fig. 17 contains a pattern that may be called a triple bottom.

As a rule, double tops and bottoms are completed in a relatively short period of time. On daily charts, 3 to 5 weeks seem to be about average.

Flags and Pennants

Appropriately named, flags and pennants are beautifully drawn and they symbolically foretell and lead major advances and declines. They may form each time a movement breaks out into new ground and a series of flags and pennants decorate many of the rapid and extensive commodity price moves of the past 50 years. It will be noted from the illustrations in fig. 9 that flags and pennants must have a pole or a quick vertical movement to the body of the formation. Flags, as they develop, usually extend in the opposite direction of the major move. A flag which points in the same direction and is tightly constructed, is especially reliable. But loosely formed flags that point in the direction of the trend may be unreliable. Pennants usually conform to similar development.

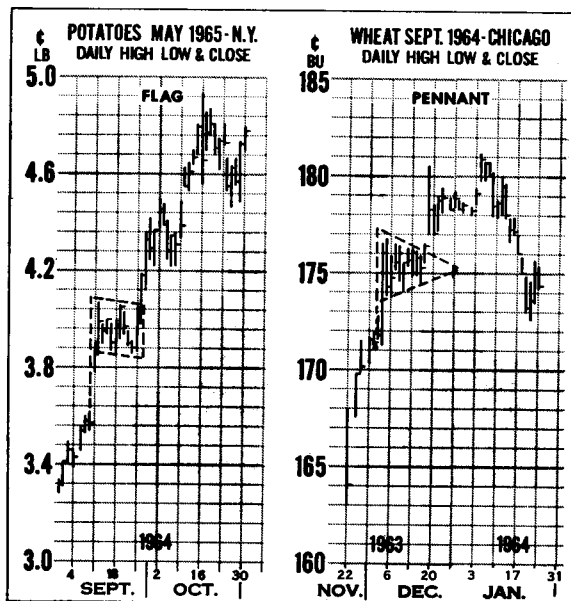


FIG. 9 FLAG & PENNANT FORMATIONS

Although these formations are subject to false breakouts and occasionally prove to be spurious, they are considered particularly valuable when used in conjunction with chart trading techniques. They are undoubtedly among the most vigorous and trustworthy of chart formations. Fig. 17 contains many examples of flags and pennants.

Flags and pennants form within confined intervals of time. Forms on a daily chart which have

not been completed within a month, should be viewed with suspicion for they may ultimately become part of another formation.

The measuring implications of flags and pennants are prodigious. In many examples studied, they accurately marked the midpoint of intermediate and major advances and declines.

Important Technical Chart Indicators

There are a great many chart patterns, which have attained acceptance by chart enthusiasts from time to time, aside from those described in the preceding pages. Spires, diamonds, bells, cornucopias, wedges and other real or imagined pictures are used in predicting price trends. A search among the hundreds of commodity price charts revealed that for the most part, these shapes are either rare, undependable, or require exceptional perceptive powers to pinpoint.

It would be more practical to suggest that each individual chartist should investigate and judge these configurations in the light of his own experience.

An experienced chart technician not only commands a working knowledge of the aforementioned shapes and some of his own design, but he relies also on an untold number of technical indications. Some of these are referred to as support and resistance points, gaps, islands, inside days, outside days, reversals, swings, climax selling and so forth.

Support and resistance are extremely useful concepts in chart analysis; however, space does not permit the thorough explanation that these indicators deserve. Support refers to that level on the chart where a decline may be expected to stop; while resistance is that level where advances are halted. Roughly, prices in an advancing market have a marked tendency to stop at the approximate levels of previous stopping points called resistance. A support level would be an earlier stopping point where a decline would be expected to hold.

Three signposts—gaps, reversals and islands—are especially conspicuous on commodity charts, and when properly interpreted, are important technical indicators.

Gaps

Gaps are nothing more than blank spaces on the chart representing a price area at which no real trading has taken place. In the daily chart, an up-side gap would occur when the lowest price on one particular day is higher than the highest price of the preceding day. In similar fashion, a down-side gap would appear when the highest price of one day's trading is lower than the lowest price of the preceding day.

Gaps may be classified into four types:

1. Common gap—may form at any time.
2. Breakaway gap—appears after formation is complete.

3. Runaway gap—forms as prices move rapidly in one direction.
4. Exhaustion gap—occurs at the end of a substantial move. See fig. 10.

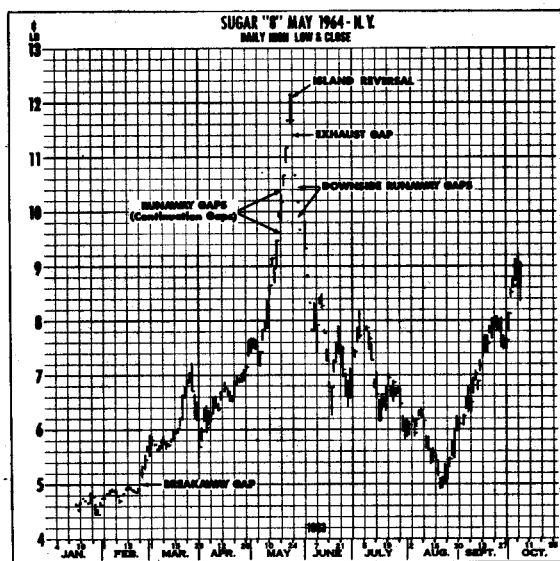


FIG. 10 GAP FORMATIONS

Common gaps are usually filled (or retraced) within a few days and have no special significance. They usually appear within the backdrop area of a consolidation. Breakaway gaps signal the completion of certain formations and are dependable indicators of a dynamic move to follow. Runaway gaps which appear after an extensive move is under way are supporting evidences that the move will be extensive. Runaway gaps are also called measuring gaps and can be figured as midpoints of the immediate move. Exhaustion gaps may be taken as warnings that the major move is near a temporary halt or in some instances, an end.

Reversals

Reversal days occur when prices, after making a new low for the near term move, suddenly turn around and close higher than the previous day's close, or after a new high is made, a sharp reversal results in a lower close than that of the previous day. When a reversal day occurs after a relatively large move and prices start to move away on subsequent days, the reversal is called a "key" reversal and may presage an important advance or decline. Attention is called to the "key" reversal in the chart appearing in fig. 14, page 31.

When a key reversal day, which signals an advance, is marked by exceptionally wide price fluctuations and very heavy volume, it may be termed climax selling. Refer to fig. 15.

All reversal days should be regarded as warnings and when considered with other price factors may be consequential.

Islands are self-descriptive. They consist of small constructions which are set off from the main body of prices by gaps. Like reversals, they should be considered warnings of potentially large moves. Island reversals are labeled in figs. 10 and 17.

The above short descriptions are intended to just introduce the idea of the technical chart indicator. The ability to recognize and to utilize them for analytical purposes can only be gained by study and usage.

After a thorough knowledge of the various kinds of formations that are common to commodity price charts is gained, the question arises—How can one best apply this learning towards predicting price trends? An obvious answer is by dint of cold, hard experience. However, there are two invaluable guideposts worthy of investigation—characterization and confirmation.

Characterization

One of the most significant and intriguing conceptions derived from intensive chart studies by this writer is that of characterization, or habit. Generally speaking, charts of the same commodity tend to have similar pattern sequences which may be different from those of another commodity. In other words, charts of one particular commodity may appear to have an identity or a character peculiar to that commodity. For example, cotton charts display many round tops and bottoms, and even a series of these constructions which are seldom observed in soybeans or wheat. The examination of soybeans charts over the years reveals that triangles are especially favored. Heads and Shoulders formations abound throughout the wheat charts. All commodities seem to favor certain behaviour patterns.

It should be emphasized that an intelligent approach to the study of charts should take nothing for granted and the reader should investigate the following observations himself. With that idea in mind, the following brief characterizations are presented.

COTTON: Generally speaking, price moves are slower than in many commodities. Round tops and bottoms habitually appear throughout the years in cotton charts. A series of round bottoms or a scalloping effect are as common in cotton as they are rare in practically all other commodity charts. Head and Shoulders formations are impressive when they appear.

WHEAT: Wheat characteristically follows straight trend lines and channels. Wheat moves are dotted with many flags and pennants. Head and Shoulders and double tops and bottoms are frequent reversal patterns while saucers and triangles are rare as reversal signals. At some time or other, almost every major chart configuration has appeared in wheat.

CORN, OATS, BARLEY: These feed grains characteristically behave similarly. Like wheat, trend lines and channels out-perform all other chart formations, and Head and Shoulders and

double tops and bottoms signify important reversals in trend.

SOYBEANS and EGGS: An outstanding trait of soybean charts, is the great preponderance of triangular reversal forms. Major reversal tops which were completed in the delivery contracts, of May 1935, May 1940, Dec. 1941, May 1942, May 1949, and November 1950 may be identified as possible triangles. Triangular shaped bottoms were observed in May 1936, May 1939, December 1948 and May 1951. Eggs also appear to consistently form triangular reversal patterns.

Space does not permit a more comprehensive presentation of all commodities and their traits, but it is sufficient to report that comparable sketches may also be drawn for those not listed here.

Confirmation

The idea of confirmation may prove to be the most consequential chart reading guide of all. The constant process of confirming each chart formation as it evolves cannot be stressed too positively. Confirmation is accomplished by comparing as many charts that are related to the commodity being analyzed as possible. For example, when attempting to determine whether a head and shoulders is developing in March wheat, every other wheat contract traded should be studied for confirmation. The weekly and monthly continuation charts should always be consulted as well to affirm the longer range trend. All the well known formations that appear in the daily

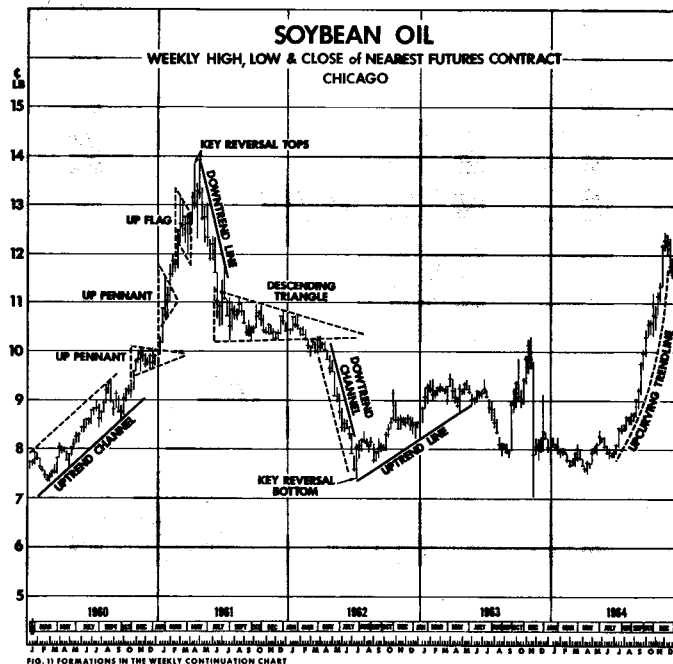


FIG. 11 FORMATIONS IN THE WEEKLY CONTINUATION CHART

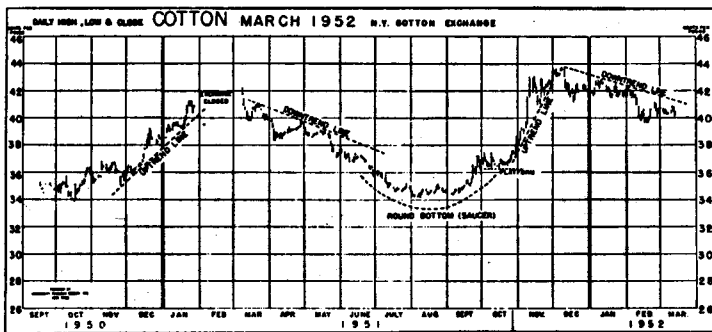


FIG. 12

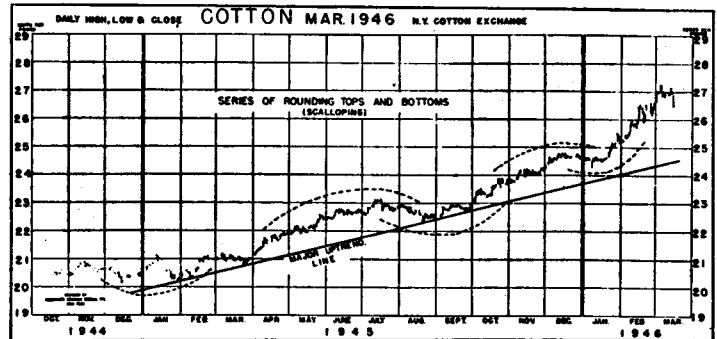


FIG. 13

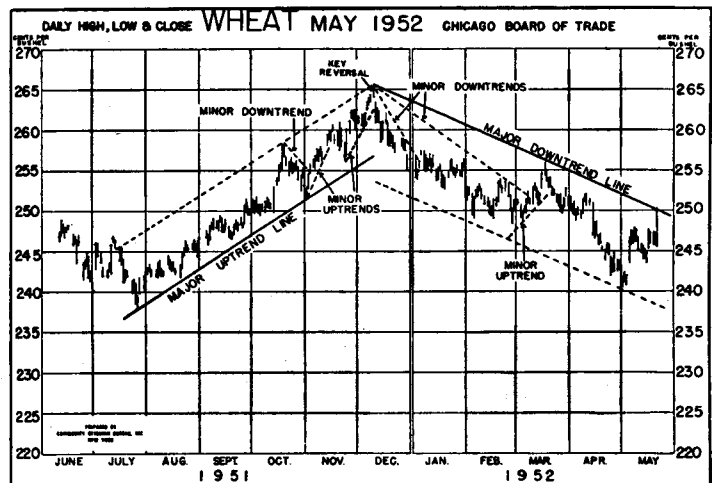


FIG. 14

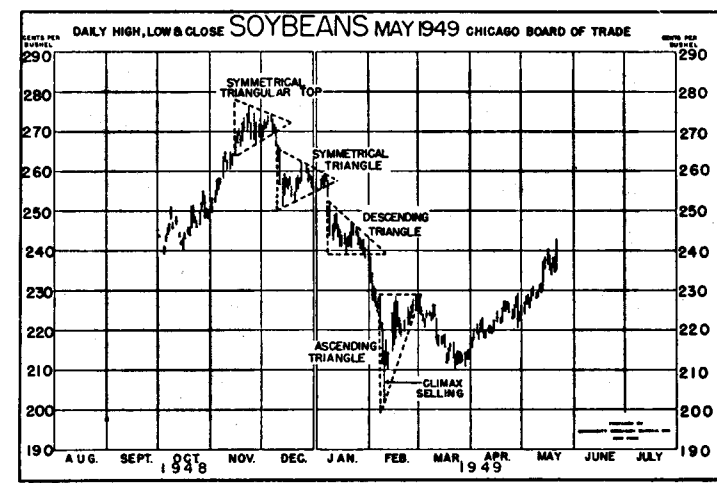


FIG. 15

charts may also appear in the longer range weekly and monthly charts. This can be observed by consulting the weekly continuation chart for Soybean Oil in fig. 11. When a commodity such as soybean oil is under scrutiny, as much confirmation as possible should be accomplished by studying closely all related commodities like soybeans, soybean meal and cottonseed oil.

It is not at all uncommon to observe an almost perfect picture develop in one contract while an entirely different form takes shape in another delivery of the same commodity. Its subsequent move usually invites confusion. As a rule of thumb, regard all formations suspiciously when a majority of all charts examined fail to confirm, unless fundamental factors suggest that there should be a divergency. Also, the more complete the confirmation, the more dependable may be the

predicted trend. Figs. 12 through 19 consist of various commodity vertical line charts with a partial analysis by the writer of the popular formations covered within the text.

Conclusion

As stated at the beginning of the article, chart interpretation is often open to debate, but it is a matter of widespread interest and, in the writer's opinion, can be of considerable value to the analyst of price trends if used properly.

There are so many aspects to vertical line chart analysis that it would take volumes to cover them in detail. However, it is hoped that this article will give the reader an introduction to chart interpretation and that it will provide the springboard from which he can enlarge his own studies.

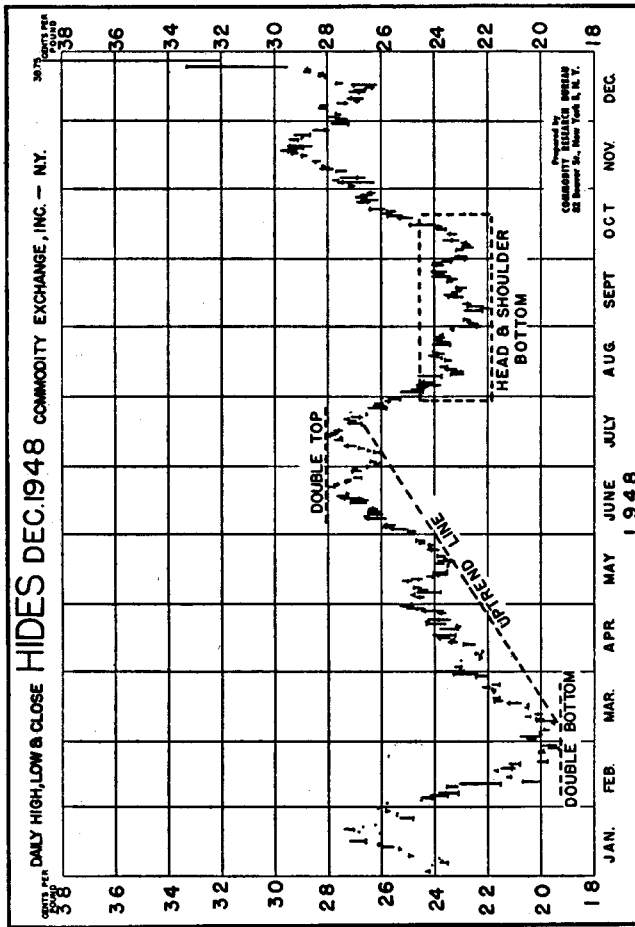


FIG. 16

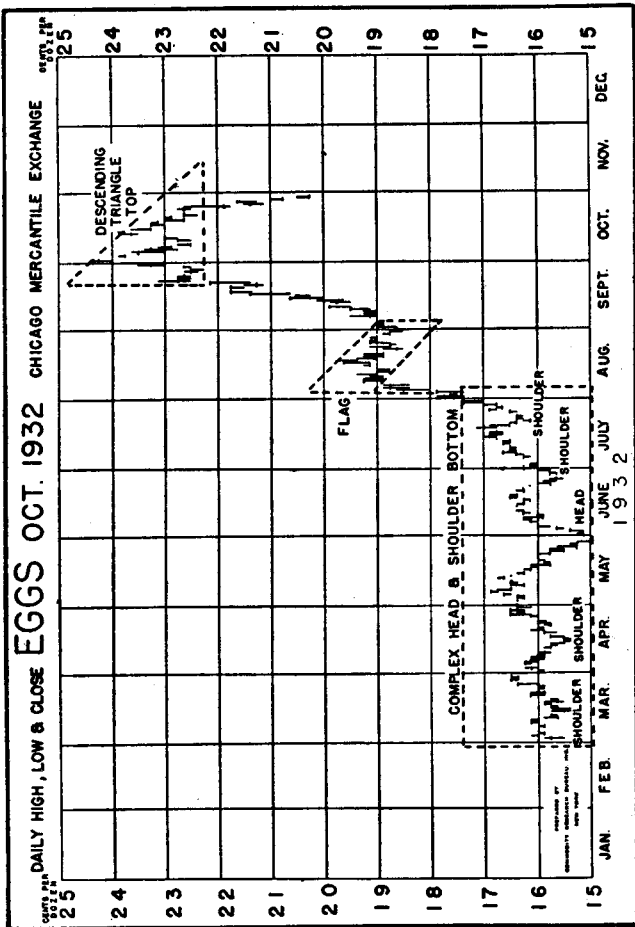


FIG. 18

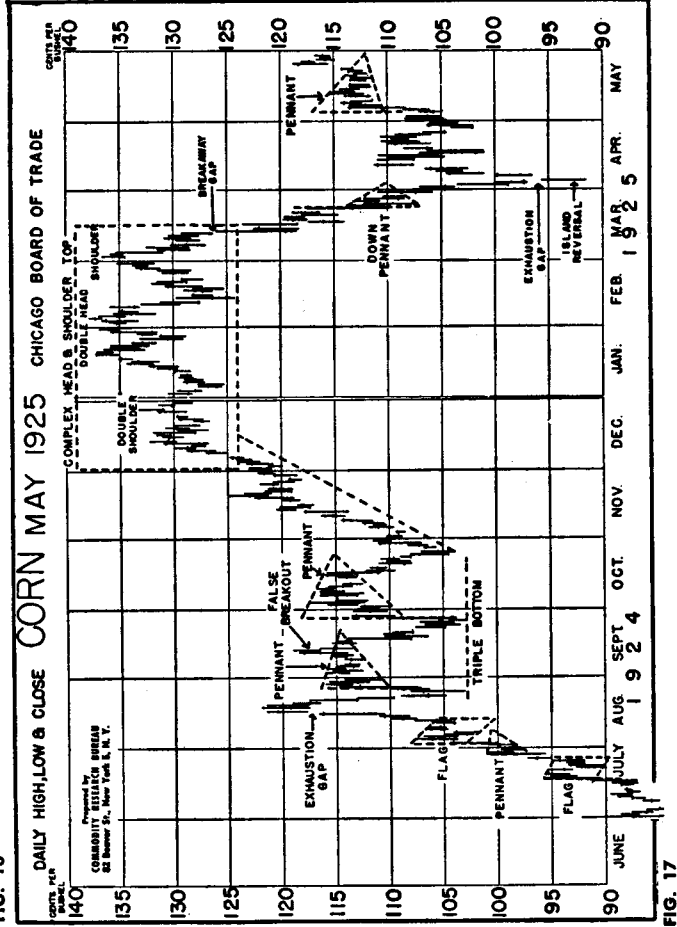


FIG. 17

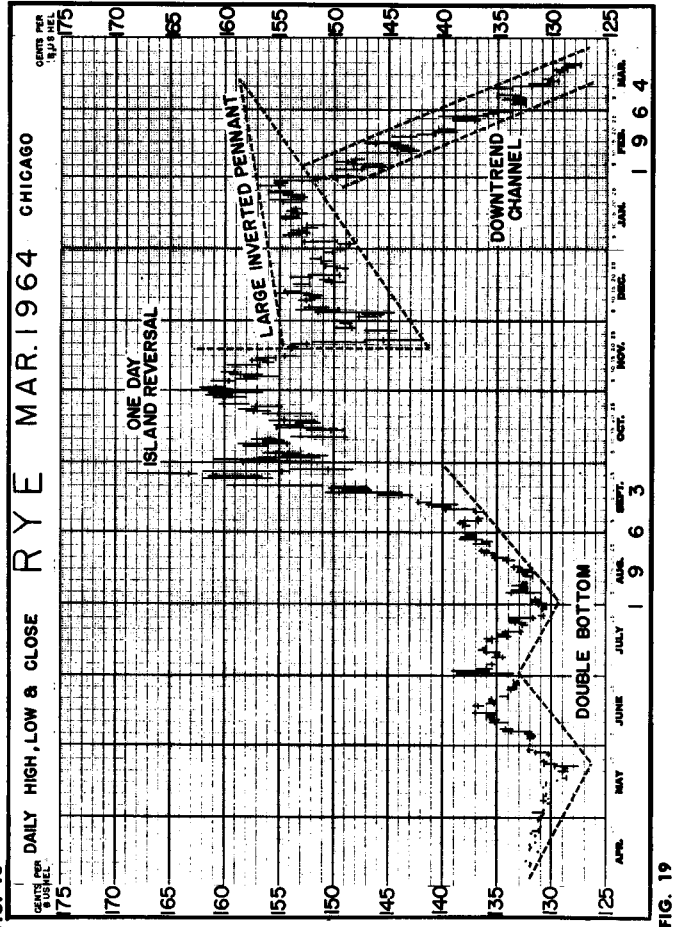


FIG. 19