

PROFITS in the stock market

by H.M. GARTLEY

This Book is a MUST for all

Serious Stock Investors and Traders

Originally written in 1935, "PROFITS IN THE STOCK MARKET" had become a classic and a collector's item.

H.M. GARTLEY was a renowned market technician. In 1980, he posthumously received the MARKET TECHNICIANS ASSOCIATION ANNUAL AWARD for his contribution to technical analysis.

In "PROFITS IN THE STOCK MARKET," Gartley shares his knowledge of such topics as—

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TRIANGLES
MOVING AVERAGES
GAPS
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BREADTH-OF-THE- MARKET
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Harold M. Gartley, 1899-1972

Harold M. Gartley has long been a well-known name in the field of technical analysis. Beginning as a board boy and runner on Wall Street, he evolved into a master technician whose techniques on trading the markets are still used today.

Gartley wrote many articles on the stock market but his best work is considered to be his book *Profits in the Stock Market*. Of special interest to many traders is his chapter "Volume of Trading". Gartley is said to have done more work on volume than anyone else.

Born in 1899, Gartley grew up in Newark, New Jersey. He attended the Newark Technical School and then New York University where he received his Bachelor's Degree in Commercial Science and a Master's Degree in Business Administration. He began on Wall Street in 1912. Over the years he was a broker, a security analyst, and a financial advisor. In addition, Gartley gave lecture tours and private courses on the stock market that were attended by many of the prominent people of Wall Street.

Gartley was one of the founders and an active member of the New York Society of Security Analysts. He also founded the Wall Street Forum for younger analysts.

From 1947 (in), Gartley worked in the field of financial and shareholder public relations. In his later years he was chairman of his own financial public relations Firm until he retired in 1969.

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INTRODUCTION

"Profits in the Stock Market" by H.M. Gartley was originally published in 1935. At this time the book was contained in a three-ring binder. Less than 1000 copies were originally sold.

I purchased the copyrights from Mrs. Gartley in 1979. After a long, tedious job of getting this classic reprinted, "Profits in the Stock Market" is finally complete in this hardbound edition.

All of the original charts are enclosed in a separate envelope which accompanies the book. In order to retain authenticity, we have not redrawn any of the charts but have made reproductions from the originals.

It may interest you to know that the Market Technicians Association, at its Florida meeting recently, gave its annual award to H.M. Gartley for his contributions to the field of technical analysis.

I believe you will find this book was worth waiting for.

Billy Jones, Publisher
Lambert-Gann Publishing Co.
Pomeroy, Washington, 1981

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CHAPTER I

THE TECHNICAL APPROACH TO THE PROBLEM OF STOCK TRADING

REFERENCES

"Business and Investment Forecasting"	R. Vance
"Business of Trading in Stocks, The"	J. Durand
"Business Cycles: The Problem and Its Setting"	W.C. Mitchell
"Business Forecasting"	L.H. Haney
"Business Statistics"	J.L. Snider
"Economic Cycle, The"	F.Y. Presley
"Financial and Business Forecasting"	W.F. Hickernell
"Forecasting Business Conditions"	R.N. Owens & CO. Hardy
"Forecasting Stock Market Trends"	K.S. Van Strum
"Interest Rates and Stock Speculation"	R.N. Owens & CO. Hardy
"Investment For Appreciation" (1936)	L.L.B. Angas
"Practical Application of Investment Management, The"	D.C Rose
"Practical Business Forecasting"	D.F. Jordan
"Principles of Investment"	J.E. Kirschman
"Scientific Approach to Investment Management, A"	D.C. Rose
"Security Analysis"	Graham & Dodd
"Security Price Movements"	K.G. Karsten
"Statistical Methods"	F.C Mills
"Stock Market, The"	C.A. Dice
"Stock Market, The"	S.S. Huebner
"Stock Market Profits"	R.W. Schabacker
"Stock Market Tactics"	L.L.B. Angas
"Stock Market Theory and Practice"	R.W. Schabacker
"Tape Reading and Market Tactics"	H.B. Neill
"Truth of the Stock Tape, and the Wall Street Selector"	W.D. Gann

This Course, concerning the technical approach to the business of trading in stocks, is not to be considered as the philosophers' stone of the stock market.¹ It does not, by any means suggest a perfect solution to the problem of stock trading which will enable every reader to begin making handsome stock market profits as soon as he has read the last word.

The average reader should leave the stock market alone, or learn enough about its intricacies so that intelligent action can be taken in trading stocks. It is the purpose of this Course to provide a means of learning some of the important essentials in a study of the market.

The Primary Objective

It is assumed that the reader takes up this work

PHILOSOPHERS' STONE: AN IMAGINARY STONE, OR SOLID SUBSTANCE OR PREPARATION, BELIEVED TO HAVE

THE POWER OF TRANSMUTING THE BASER METALS INTO GOLD OR SILVER. WEBSTER.

W.D. Gann

with one primary objective, namely *to make money* by using intelligent understanding instead of ignorant gambling. The objective is easy to define. However, the procedure of accomplishing it is far from simple, in that it requires a detailed presentation of the factors which appear to make, as well as the manner in which, stock prices advance and decline.

Gambling or Speculation

There are two channels of approach which may be taken in attempting to make stock market profits. We may approach the problem as a gambling proposition, as unfortunately (for them) all too many persons attempt to do. Or we may approach the problem as a business proposition, involving greater than usual risk, but paying greater than usual profits to intelligent and patient participants.

In suggesting the second and more logical of these two approaches, it might be well to point out the difference. In a gambling operation, the participant depends almost wholly upon chance (assuming that it

is honestly run), as one of two or more unpredictable developments governs the determination of profits or losses. In many gambling operations, the risk is reduced to one of two chances, as both the maker and the acceptor of a given wager assume exactly the same risk. For the most part, intelligence is not the governing factor. Every time a roulette wheel turns, there is an equal chance that red or black will turn up.

Quite different from gambling is speculation, wherein the participant depends (if he is to profit) upon a reasonably precise knowledge of the conditions which govern price trends. In speculation, the participant relies upon changes in the price level (stocks, commodities, services, et cetera), and not the mere operations of chance. These changes have their root in some specific cause. Many such causes may be studied and understood, and thus reasonable judgment may be applied.

Unfortunately for most dabblers in Wall Street, the gambling approach is most often used. The reason is simple. The average person is too often governed first by downright laziness, and secondly by the silly desire to gain something for nothing. The intelligent approach, wherein stock trading is counted to be a business, requiring careful attention, robs the stock market of its romantic appeal to many people. It takes most of the fun out of it, if it becomes a job requiring patience and application.

How futile it is to enter the stock market without fully recognizing that profits can be only a matter of chance, unless the market is patiently and carefully studied. The market is a complicated mechanism. Although man-made, and thus logically subject to interpretation by other men, its complex workings require a systematic study, if losses are to be prevented, and profits made.

Haphazard or Systematic?

The difference between losses and profits frequently hinges upon trading in a hit-or-miss fashion, or systematizing one's speculation by studying the problem, estimating the risks, selecting what appears to be the most profitable opportunities, and adhering to a pre-conceived policy.

The difference between the average investment counsellor and the average customers' man in a broker's office, is the fact that the former conceives a plan of operation, based upon a systematic approach to all the various angles of the problem including the requirements of the customer, and consistently pursues this policy; while the latter vaguely attempts "to make money."

Our Purpose

It is the purpose of this course to encourage the reader to study the market and train himself to arrive at his own decisions as to the probable future course of stock prices, by using certain systematic methods which have proved profitable to successful traders.

Matter has been collected from many sources. The

phenomena explained and illustrated represent many years' work on the part of many market students. They should be the means of saving the reader many hours of personal research.

However, thumbing through the pages which follow will not make-a-successful trader of any reader. To take some single idea which is presented, because it seems to have special appeal, and expect to make consistent profits by using it alone, is a dangerous procedure. Throughout the chapters which follow, it will be noted that there are constant warnings that the various technical phenomena suggested must be used, not singly, but as part of a program involving many different angles.

Two Primary Problems

Reduced to its final analysis, successful stock trading boils down to the matter of answering two questions, namely:

1. WHEN to buy or sell; and
2. WHAT to buy or sell.

At first thought, and to hear some of the hangers-on in the brokerage offices tell the story, making money in Wall Street is all very simple, if you know "when to get in and when to get out". Although, as we shall learn, the solution to the "When" question is extremely important, it is also a fact that a trader can be fairly right in judging the reversals in the trends of stock prices, and yet make only a fraction of the potential profits available, because he is ignorant of systematic methods to assist him in the selection of the right stocks.

The "When" question may be classified as a study of trends. Except for short periods of time, usually ranging for less than two weeks, stock prices have a habit of going somewhere. During the vast majority of the time, they are either advancing or declining. The successful trader must be conscious of a change in trend. Thus a continual knowledge of stock price trends is essential to the successful timing of commitments.

The "What" question, on the other hand, depends chiefly on observation of the specific characteristics of individual stock price movements, and may be classified as a study of comparisons.

The solution of each of these two problems, which are about of equal importance, requires equal attention. However, as the "What" to buy or sell problem usually covers a much broader scope, it requires a greater amount of time.

Usually, the "When" question, that is the timing of commitments, is studied by observing the trends in the market as a whole, or at least its major parts. The "What" question, which is the selection of stocks, is observed by studying small groups and individual issues.

Two Approaches

It is the custom of those interested in stock prices trends to approach the solutions of these two primary

problems from two totally different angles, each of which may be logically subdivided into the same two categories, namely, "When" and "What". These two approaches are:

1. The FUNDAMENTAL approach; and
2. The TECHNICAL approach.

Fundamental Approach

The fundamental approach, which will be reviewed only briefly, because this course concerns the technical approach, may be classified in two general categories, namely:

1. The ECONOMIC; and
2. The STATISTICAL.

The economic factors may be designated as those which deal with the "When" to buy or sell question, while the statistical factors are those which concern the "What" to buy or sell question. The broad economic trends are studied to learn the causes, and anticipate the reversals in stock price cycles, while the statistical factors are studied to determine the industries and particular companies which appear more or less attractive at successive intervals.

Economic Factors

Stock prices are the means by which investors and traders appraise the effects of prosperity and depression. During periods of prosperity, when the general level of trade and industry is high, the prices of shares rise to reflect that condition. Conversely in periods of depression, the price level of shares falls to reflect the converse condition. As the economic cycle goes, so goes the trend of stock prices.

Primarily, the changes in the economic cycle are caused by the relation of supply and demand for goods and services. When these factors are more or less in balance, the state of trade and industry carries on at a level often vaguely termed normal.

The factors which make up the economic picture are both foreign and domestic, and cover a wide range. The average stock trader who has not had the special training of an economic background, is naturally greatly handicapped in being able to reduce the effects of numerous economic changes to a practical working basis for trading stocks. The economic facts which appear on the financial pages of the metropolitan newspapers are hardly sufficient for the purpose, because they are not sufficiently comprehensive or related according to their importance.

In combing the field of information available, the author has found that the most complete presentation of organized economic facts, in convenient graphic form, appears in the publications of Economics Statistics, Inc.² Because this service appears to merit the attention of those stock traders who feel the need of concisely summarized, but comprehensive economic data, which have a bearing upon stock prices, the author presents, in Appendix I of this

chapter, a brief discussion of this service, which is believed to be worthy of the attention of the reader. Unless some such source of organized information is employed, the average stock market trader is probably better off to leave the economic side of the fundamental approach out of his calculations except in a very general way.

Statistical Factors

The investigation of the conditions of particular industries, and companies in such industries, is the method which the fundamental student employs in selecting the best mediums for investment or speculation. This study requires trained consideration, a multitude of facts concerning the management and operation of many large and complex corporations.

To reduce the information to a concrete basis, from which to make commitments, it is necessary that the financial history of the various corporations be studied. In addition, current changes must be constantly scrutinized, and recognized relations between gross and net earnings, profits and losses, assets and liabilities, as compared with stock price trends, must all be carefully considered.

A substantial part of this information can be conveniently charted. When the average trader starts out to master this large volume of information, he soon finds that an intelligent study of it is beyond his ability, unless the pertinent information is very briefly summarized, and the refined figures are constantly available.

The outstanding service which presents the majority of the statistical factors, customarily used in connection with judging the advisability of buying or selling particular issues, is published by Investographs, Inc.³ With the idea of guiding the reader who is interested in this branch of the fundamental approach, a description of this service, with illustrative charts, appears as Appendix II of this Chapter.

Fundamental Approach A Study of Causes

The fundamental approach receives its name by virtue of the fact that it is a study of the economic and statistical factors, which are conceded to be the causes which influence the rise and fall of prices of shares. Investment trust managers and investment counsellors are constantly pointing out to their shareholders and clients that the only logical approach to the problem of successful investment is naturally the study of the causes which underlie the price changes of investment securities.

In recent years, particularly since 1927, it has been found that time and again the fundamental approach has fallen short of expectations, apparently because of what might be called "poor timing" of buying and selling. Frequently it has been found that a particular stock or group of stocks, which from the fundamental facts appears to be relatively over-priced, continues to rise;

²70 PINE STREET, NEW YORK
CITY.

³31 GIBBS STREET, ROCHESTER, NEW
YORK.

or conversely, a group or individual stock which seems to be substantially under-priced refuses to rise for a long period.

Investigation of numerous cases, wherein fundamental causes which were known required a considerable time to show before they appeared in a substantial change in the price of shares, has rather clearly indicated that, in addition to the fundamental factors, there are apparently indirect psychological factors which develop in the marketplace, to delay the immediate effects of fundamental changes. Sometimes there is a lag, and at other times there is a lead—that is, on some occasions price trend of shares will continue on when fundamental factors obviously show that a change has occurred, while at other times, the development and knowledge of fundamental changes appears to have no effect upon the price trend because such changes have already been registered.

Examination of these variations shows that the "willingness" to buy or sell, on the part of the majority of persons interested in stock price trends, is not by any means exactly timed to fundamental changes. In some cases, stock price trends will anticipate or discount a fundamental change. Thus, when the figures or facts of the fundamental picture indicate that a change has occurred, the stock price trend has already discounted that change.

In other cases, when a fundamental change has not been discounted, the price trend accelerates or reverses to take such changes into consideration.

As fundamental factors which affect stock prices have been more intensely studied by investment trust managers and investment counsellors during the past few years, many occasions have developed wherein, although fundamental studies in the end prove to anticipate stock price changes correctly, many purchases and sales based upon fundamental studies have been early, with the result that the most has not been made from the opportunities which fundamental studies suggested.

In an effort to meet this problem, increasingly greater attention has been given to the developments in the marketplace, on the theory that the supply of and demand for shares is a factor which the fundamental student must take into consideration to improve the timing of buying and selling based upon the fundamental approach. The result has been that in the past few years, a study of stock price trends themselves has received greater attention. This branch of study has been termed the technical approach.

Technical Approach

Thus, technical studies are beginning to receive a place in the consideration of outstanding organizations which make a business of studying investment securities, particularly in connection with stocks.

BRIEFLY DEFINED, THE TECHNICAL APPROACH IS A STUDY OF RECURRING PHENOMENA WHICH APPEAR IN THE PRICE TREND AS A RESULT OF THE SUPPLY AND DEMAND RELATION OF THE SHARES TRADED ON THE STOCK EXCHANGES. ESSENTIALLY, IT IS A STUDY OF THE EFFECTS

WHICH FUNDAMENTAL CHANGES CAUSE IN THE PRICE TRENDS OF SHARES.

Just as the supply and demand factors in Industry, Trade and Commodity prices are studied with the objective of determining the probable future course of business activity and commodity prices, so the supply and demand for shares are studied with the objective of anticipating the price trends of stocks.

Comparatively, because there are so many more stocks or individual units traded, the problem of studying supply and demand for shares is far more complex than the study of the supply and demand for agricultural or industrial commodities.

As in the case of the fundamental approach, the technical approach is divided into two general categories, because the same two primary problems must be met namely;

1. *When* to buy or sell; and
2. *What* to buy or sell.

The "When" Question

In the last analysis, the "When" to buy or sell problem reduces itself to a matter of studying trends of stock prices. The successful stock trader must be conscious of whether an up or a down trend is in progress, in order that the majority of his operations are in line with the primary movement under way. Equally important is a consciousness of the development of reversals in trend. A study of price trends may be designated as the abstract side of the problem.

Customarily, technical students study stock price trends by means of observing comprehensive samples of the market, which are considered to reflect the main trends in progress. For this purpose "The Averages" are studied (see Chapter II).

The determination of the direction and reversals of trends, however, is only half of the problem. Its specific side is also very essential.

The "What" Question

Although the technical student can arrive at useful conclusions as to the trend by studying the averages, practical trading in the end requires the purchase and sale of specific shares. Thus, it becomes necessary to determine which particular issues are more or less attractive from time to time, in order to take the greatest advantage of the timing of buying and selling, which may be suggested by a study of the "When" question.

Essentially, the "What" question is a study of the relative supply of and demand for shares of specific companies. If the prices of all shares moved closely together (percentagewise), in any advance or decline, there would be little need for this department of the technical approach.

The wide variations in the fundamental factors which have a bearing on each individual corporation, naturally are the primary cause which requires constant selection of issues, if the stock trader is to obtain the greatest benefits from the risks he takes when he buys and sells shares.

Fundamental and Technical Approaches Combined

Although some writers concerning technical studies have chosen to take the attitude that the technical approach is more direct than the fundamental approach, and thus for the average trader represents the best means of making greater profits, the author chooses to take the stand that a neat combination of the fundamental and technical approaches forms not only the best plan of operation for the large investor, but is also the logical method for the trader of moderate means.

Although it is true that a study of stock price trends includes a reflection of all the fundamental forces, and in addition, the psychological factors which, it has been argued, can substantially affect the correct timing of commitments, nevertheless there seems to be no justification for assuming the attitude of an ostrich, and blindly disregarding entirely the study of causes in favor of a study of effects.

Practically all of the outstanding technical students make a careful study, or at least are broadly conscious, of the fundamental situation. Take, for example, the typical statement which is noted below, from the writings of C.J. Collins, dated September 28, 1935. Collins is noted for the interpretation of stock price trends in terms of the well-known Dow Theory.

Among those possible near-term developments which would encourage optimism as to the broader outlook for business would be strength in railroad stocks. The rail list has been sluggish since July 1933 because there has been no material expansion in the demand for and the production of heavy or durable goods. When this demand, so necessary to basic or sustained revival in this country, asserts itself, a heavy upturn in carloadings will eventually follow. Well ahead of the heavier traffic and larger rail earnings, however, would be a vigorous rise in prices of railroad shares in anticipation of what is to come. The market, it must be remembered, always looks ahead. It is because of this relationship between the rails and the durable goods industries, and the market's habit of discounting, that the rail average now takes on an added significance.

Technical Studies The Direct Approach

Perhaps the chief reason why the technical approach has been so much more widely used in recent years is explained by the fact that the average trader finds it more direct. Without the necessity of a broad economic training, or the constant study of the financial position of numerous companies, the technical approach, with a few relatively simple studies, enables the average trader of moderate or small means to be conscious of the important changes in price trends, with only a fraction of the effort and knowledge necessary in the case of the fundamental approach.

Naturally, the technical approach also appeals to many persons because the vast majority are inherently lazy. Its relative simplicity, however, is perhaps its greatest danger. When the average trader gets the idea that a few technical studies, casually observed, are all that he needs, he is usually well on the road to ruin, or at least his capital account is on its way to substantial depreciation. The trouble in most such cases is that the trader fails to realize soon enough that, although the technical approach is direct, and far more simple than the fundamental, nevertheless, it has its complications, demands constant study, and the application of reasonable judgment.

However, the technical approach is ideally suited for the trader of moderate means as the average man, engaged in other business, cannot hope to make a comprehensive study of fundamentals on which to base the buying and selling of shares.

Many persons who realize this, assume that the logical procedure, then, is not to do any of one's own thinking, but instead to purchase one of the many investment bulletins issued by various organizations which cater to the demand for skilled opinion. Although such bulletins, particularly those issued by the more reputable services, can be mighty helpful in bringing to the attention of the average person both the fundamental and technical factors which appear to be influencing stock price trends, such bulletins often fall down because the subscriber is either unable to interpret them, or cannot fit the suggestions made therein into his own speculative problem, with any consistent success.

Thus, technical studies unquestionably can be of great value in two ways: first, for that small group of persons who like to do their own thinking, and secondly for the vast group of lazy individuals who choose to buy their judgment "ready-made". The latter group can employ technical studies as a means of making advisory bulletins more practically useful to them.

An examination of methods employed by successful stock market traders, shows first that they are persons who do their own thinking, and secondly, that their success is not mere chance but instead is the result of arduous and careful study of market conditions. It is a sad commentary upon human nature that so many individuals go into the stock market with surplus funds which have required considerable effort to amass, and assume the risk of stock trading, which is far greater than that in ordinary business, with only a fraction of the knowledge which they would expect to employ on the business or profession in which they make their living. This is why stock trading, for most people, is gambling, rather than speculating.

But to return to technical studies let us proceed by looking into the materials used by the technical student.

The Elements of Technical Study

The greater simplicity of technical, as compared with fundamental studies, is emphasized by the fact that the materials of technical study⁴ primarily are only three in number, as follows:

1. Price
2. Volume, and
3. Time

As in other economic relations, the interplay of supply and demand for shares creates the price level. A preponderance of demand forces prices upward, while a preponderance of supply depresses them downward. The change in price levels is a more important factor than the levels themselves.

Every change of price results from a meeting of current supply and demand, wherein a transaction consisting of a purchase and sale is consummated. The aggregation of such transactions represents the volume of trading. Such activity is the second factor used by the technical student.

Time or duration of price movements is the third, and least important factor. Its value in technical analysis arises from the fact that a study of price trends over a long period of time clearly indicates that economic cycles, which are the foundation of stock price cycles, seem to recur within very general time limits.

Of the three primary factors, price is by far the one given most consideration. Gradually in recent years, the more profound technical students have been examining the relation of price and volume, in the hope of finding some concrete laws which appear to govern price trends. Although this branch of investigation has yielded some useful results, it is fair to say that it is still in the development stage, as is the whole art of technical studies. Nothing which has been presented thus far, appears to justify the conclusion that the study of duration has suggested reliable laws.

Sources of Information

The information concerning these three primary elements of technical study naturally arises on the floor of the Stock Exchange, in the form of transactions which are consummated each moment and is almost instantly available to all interested persons at the same time. There is no lag (except when the ticker is a few minutes late) and there are no "insiders" able to have "advance information". The usual sources of such data might be listed as:

1. The stock ticker tape, which announces each successive sale;
2. The official sheet, which lists the transactions that appear on the tape. This is published at the end of each day;
3. The newspaper tabulations which are summaries also taken from the stock ticker tape; and finally
4. Special data services, which cull out the essential

technical information, and arrange it in useful form.⁴

Graphic Presentation of the Facts

As a means of facilitating the mental effort necessary in studying the numerous data which the technical student employs, charts have been conceived. As conclusions concerning future price trends are so dependent upon the previous course of prices, the technical student, like the fundamental student except in a different way, finds it essential to have before him an accurate, up-to-date, historical picture of the course of stock prices. As in any other human endeavor, pictures more strikingly emphasize cold tabulations of facts or figures.

Thus, charts relieve the memory of arduous work, and leave the mind free to contemplate the future.

The mention of charts makes it necessary to distinguish between the familiarly known Wall Street character, called the "chartist" and the genuine technical student. Briefly, we may define the logically berated chartist as a person who tries to guess the future trend by insisting upon the fact that some current picture in the price trend resembles the past, and will consequently result in the development of a particular and specific pattern which followed upon a previous occasion. His approach is mechanical. To his way of thinking, the market must conform to a preconceived imaginary pattern, which he arbitrarily sets for it.

As yet, the "mechanical age" in the stock market has not arrived. Thus, we see many lamentable characters trudging from one broker's office to the next, with a few much besmudged charts under their arms, suggesting to any listener they can find, just exactly what the market is about to do. When questioned, they have many explanations as to why their previous judgments were in error. Always it was some unforeseen event which "changed the market".

The enlightened technical student, on the other hand, attempts to use chart pictures which portray trends as instruments which show him either that a current trend is continuing, or that a reversal is developing. Unlike the chartist, who attempts to forecast the extent of a movement, and foretell the point of reversal, the technical student realizes that the sequences of events, which cause price changes, constantly vary. As these sequences result in trends of varying lengths and amplitude, the technical student is always alert to the fact that it is only coincidence if one trend closely resembles a previous trend.

The trained technical student operates on the premise that his charts are a means of knowing where the market is, as related to where it has been. On this foundation, he builds, by various processes of deduction, a market opinion which he is ready to alter whenever, and just as soon as, the evidence of the cur-

⁴THE MOST COMPREHENSIVE OF THESE NOW BEING PUBLISHED IS THE GARTLEY DATA SERVICE (SEE APPENDIX I, CHAPTER II).

rent day-to-day fluctuations seems to be indicating a change which necessarily amends his previous judgment.

The informed technical student knows by long experience that there are no mechanical methods which may be relied upon in precisely forecasting the extent of a given trend, or the point or level at which that trend will reverse. Although it is true that numerous recurring phenomena have shown certain curious relations, which provide some general estimates as to the probability of the extent or duration of a trend, the learned technical student knows that all such estimates must be used only in partly verifying a general market opinion.

Thus briefly, we may define the differences between a chartist and a technical student as follows: A chartist is one who insistently expects the market to conform to a preconceived pattern; while the technical student is one who realizes that, although stock market history often repeats itself, in a broad general outline, details are never the same. Thus, in forecasting, the chartist dogmatically concludes that a given development is to take place, while the technical student, (knowing that he is dealing with probabilities) suggests that a development is probable, but will have to take place before it may be considered certain. The chartist sets the course of his ship toward the point of objective, and blindly proceeds on his voyage. The technical student steers his course to keep in fair weather, and avoid storms, while he is en route to his destination.

It is obvious that there is a great misunderstanding of the differences between mechanical chart trading, which has never been demonstrated as profitable, and logical technical study which has proved profitable. Take, for example, the following quotation from page 609 of the recently published book, *Security Analysis*, by Benjamin Graham and David L.Dodd, of the Columbia University staff. It reads as follows:

That chart reading cannot be a science is clearly demonstrable. If it were a science, its conclusions would be as a rule dependable.

This is a true statement, but begs the question. Throughout their voluminous book, Messrs. Graham and Dodd lay down, in rather complete fashion, certain methods of analysis, which they suggest as the proper approach to the selection of investment securities. The procedure is termed "security analysis". Suppose we take the above quotation, and substitute for the words "chart reading" the words "security analysis". We then have the following statement:

That security analysis cannot be a science is clearly demonstrable. If it were a science, its conclusions would be as a rule dependable.

The question is, can it be demonstrated that the conclusions resulting from security analysis are, as a rule dependable? If so, are they vastly more dependable than conclusions arrived at by means of technical studies? Until and unless the so-called

"security analysis" approach includes an understanding of the technical situation, such conclusions inherently overlook the important problem of timing of purchases and sales of commitments, and therefore can never be dependably successful.

Many sound companies could be selected by security analysis in 1939, which have remained sound ever since

but that did not save buyers or owners of their shares from sustaining losses of from 70 to 90 % of their capital in the period from 1929 to 1932. This defect in security analysis arises from the varying values placed in the market upon identical fundamentals, depending upon the general course of prices. With one or two rare exceptions, a careful examination of the results obtained by purely the fundamental approach to security analysis shows, time and again, where poor timing of commitments has cost investors dearly. Should the pot call the kettle black?

Next, Messrs. Graham and Dodd make the following statement:

There is no generally known method of chart reading which has been continually successful for a long period of time. If it were known, it would be speedily adopted by numberless traders. Its very following would bring its usefulness to an end.

The Dow Theory has been employed by numerous traders and investors, with a high degree of success, for 40 years, and long before the present era of "investment fund managers" who specialize in security analysis. Other technical phenomena which have been employed in more recent years, no older than many of the methods currently in use by security analysis, give promise of showing equally dependable correctness.

The argument that so many traders would adopt a known successful technical method is trite, and enables Messrs. Graham and Dodd to dispose of the careful investigation of an intricate subject without the necessity of looking into it. This argument also applies equally well to the recommended method of security analysis, suggested by these august gentlemen. If everybody could successfully and continually pick the "sleepers", which is one of the chief methods recommended by these writers, such security prices would so quickly discount prospects that only a negligible portion could profit.

In fact the difficulty with the "security analysis" method is that in many cases those close to the companies often skim the cream marketwise, by the time the analysts get to analyzing. The technical student is aware of the skimming when it is taking place, although he may not know the why and wherefore.

The quoted Graham and Dodd remarks would, of course, apply to a purely mechanical system (if there were any). But technical studies in reality, like security analysis, narrow down to judgment in

the end. The use of the term "chart reading" is unfortunate, not only because of the connotations which have grown up around it, as suggested in the discussion above, pointing out the difference between the chartist and the technical student; but also because in true technical studies, charts are not used as a crystal ball, but merely to present advantageously the intricate data under consideration.

Naturally, there is little reason for the proponents of either fundamental or technical analysis to worry about numberless traders speedily adopting the useful methods employed in selecting securities and timing commitments. At least 95% of those who enter the stock market (including the readers of this work) can never be stimulated to study it seriously and logically—the greatest proportion because they haven't the time, or are simply too lazy. The market opinion of this 95% is at heart the perennial human hope to make something for nothing; and the results are, and will continue to be commensurate with the reasonableness of the hope.

Technical Study an Art

As yet (and there is no immediate prospect of a great change) technical study remains more of an art than a science. It has few absolute laws. At best, it may be considered as an empirical science, wherein judgment plays an important part in successful performance of the science. Possibly in years to come, as more patient students apply actuarial methods, it may become more like a science. But it is hard to conceive that the human forces which interplay to make stock price trends, will ever be so thoroughly understood that either the fundamental or technical approach will be performed as a scientific procedure comparing with the exact sciences.

However, for the average trader, technical studies certainly offer a more logical method of trading the market than the vague impressions of gamblers or the intricate fundamental approach.

Errors of Optimism and Pessimism

Previously, we have stated that stock prices tend to follow, or move coincidentally with the trends of trade and industry. Also, it has been pointed out that upon many occasions, the market tends to discount economic changes. In addition, it has been stated that there are psychological elements within the market, other than purely fundamental causes which relate to economic changes and the earning power of corporations.

Stated in other words we may say that there is a speculative force always present in the market, representing the efforts of those interested in security price trends to discount fundamental

changes which they believe are occurring. Mob psychology is also a factor with which to be reckoned. This shows itself best in the fact that, as a general proposition, the vast number of people interested in stock prices, are constitutionally bullish, optimists. To them, the up side is the only side.

Basically, the primary forces of the market might be designated as:

1. The greed for profits, and
2. The fear of losses.

The action of these forces coupled with the common human trait of going to excesses alternately causes errors of optimism and errors of pessimism to be registered in the price trend.

Thus arises the old Wall Street axiom that "The public gets in at the top, and gets out at the bottom." The public is here defined as the mass of persons of moderate means, who take a small interest in the market.

The rise in stock prices in the last quarter of 1928, and the first three quarters of 1929 is an excellent example of an error of optimism carried to the nth degree; while conversely the decline from May to July 1932 is one of the best examples in history, of an error of pessimism. These illustrations apply to the primary trends (bull and bear markets). The same type of phenomenon is occurring constantly in the smaller movements of the market.

Thus, we may depend upon the fact that any substantial rise will be followed by a decline of some extent, which might be termed the correction of part or all of the error of optimism. Conversely, any extended decline, we may expect, will be followed by some kind of an advance, correcting the error of pessimism. It is because so many persons who try to make money in the stock market are either ignorant, or refuse to recognize the importance of these fundamental facts that buying at the top or selling at the bottom is so often the usual procedure.

This course can be the means of preventing numerous readers from blindly making these mistakes, but it cannot make successful traders of all readers.

Personal Attributes of a Successful Trader

Although it is true that the average person if he has a fair knowledge of current fundamental and technical factors should be in a better position to make stock market profits, such theoretical knowledge in itself does not mean stock market profits. There is a great distance to bridge between the theoretical and the practical.

The chief obstacles are human elements, which only each individual can govern. Some few men are especially gifted with the majority of attributes which can make a good stock trader, while others lack so many of them that it is hopeless for them to attempt

stock trading.

Among other personal attributes which a good trader must have, the following are important:

1. He must be able to survey the outlook, and reasonably appraise the future.
2. He must be able to plan a campaign to meet the probable alternatives.
3. He must have the courage to act in carrying out such a plan.
4. He must be able to change the course of his plan when conditions make it necessary.
5. He must be willing to trade on both sides of the market.
6. He must be able to withstand a barrage of misinformation (inspired tips, et cetera).
7. He must be able to stay out of the market when he is confused.
8. He must be able to limit and take a loss.
9. He must be able to let a profit run.

To the amateur who has not spent some years in trading, these logical characteristics may seem easy for attainment. The experienced trader knows how difficult they really are.

Probably the average person has many of the necessary characteristics. However, these may be dormant because emotion gains the upper hand whenever accumulated capital is subject to risk. Many of them can undoubtedly be stimulated to rise above purely emotional outbursts by systematic action. Increased confidence in whatever one is doing tends to make the performance more profitable. The stock market is no exception. Certainly, a systematic study of the market teaches one that he has the characteristics of a good trader, or if he has not, and he is wise, it will teach him to quit the market.

The Stock Market as a Sideline

As a national group Americans are better money-makers than they are money-keepers. To the average man interested in stocks, the stock market is an alternative or secondary business. Unfortunately, many persons enter it as a mere gambling game. As they choose to think of their stock market commitments as chance affairs, there is no need for them to study the market; and they should no more expect considerable profits than the crap-shooter expects to "fade the crowd" all of the time.

If the average man is to be successful, assuming that constant profits are the measure of success, he must look at stock trading as just as much of a business or profession as that from which he earns his livelihood, with this exception: it is usually more hazardous, because instead of depending upon a reasonable profit, for a product made or a service rendered, it depends upon purely a change in the course of prices. Recognition of this added hazard should be the special reason to pay careful attention to one's stock market commitments, or stay out of the market.

Naturally, if a man is to spend most of his time con-

ducting another business, his stock market operations must receive a relatively small part of his available effort, so that they do not make disproportionate demands upon his time. On the other hand, he should not expose his capital to the substantial risk of the market, without employing common sense and reasonable foresight. Common sense suggests an understanding of the problems involved. Foresight suggests a knowledge of current conditions. Both demand constant attention.

However, with a small chart portfolio (see Chapter III), the average business man should expect to increase the earnings on his capital, from the longer swings in the market (the minor trend must be avoided), so that his rate of income, instead of being 6% per annum might be from 12-18%. Most men think of the market as a place where one should double one's capital every few months. Although the risk is greater than in most business, to expect any such profits as a consistent affair, is nothing more than hoping for the impossible. If, in the course of a year, two or three good trades can be made, which, averaged over a five-year period, show a considerable increase of the capital employed, let us say from 15-20% a year, the average man should be satisfied.

If, by keeping in touch with financial affairs, and studying the course of the price trends of a few important stocks, this moderate accumulation can be made year after year, in the period of a lifetime the effort is well worthwhile. But this cannot be done by casually reading the financial pages of a newspaper. Most readers of the financial page actually get little from it.

Healthy Skepticism

Consciously or unconsciously, most of the news is presented traditionally from the bullish viewpoint. Financial editors know that the majority of their readers are optimists. Thus when it comes time to write a financial story in order to give the customer what he likes the optimistic facts are usually presented first and most prominently. Thus, the first thing the average reader must guard against is jumping at conclusions. Generalities on the financial pages are dangerous. Headlines are likely to be quite misleading.

Economic events of great and broad importance do not occur every day, and often develop when least expected by the average person. To be alert to these, and to judge their consequences is the important thing in reading the financial page. England goes off the gold standard Roosevelt cuts the gold content of the dollar

Congress decides to investigate the Utilities, with a view to regulating them these are the kind of developments which are important.

Our introduction to the chapters which follow would not be complete without some mention of systematic speculation.

Have a Program and Adhere to It

Most necessary of all to the average trader of moderate means is the importance of systematic

speculation. To have a program and steadfastly stick to it is usually not a part of the customary approach to the stock market. The market must be entered realistically, with an understanding that greater than ordinary risks are being taken, and that greater than ordinary profits should accrue for these risks. The reason why a program is so essential is because it permits the application of patience, which is so lacking in the operations of most stock market dabblers. Throughout the following chapters, various attempts will be made to suggest systematic programs of study, which can be of material value to the average trader. The presentation of much of the material has been arranged from the experience gained in ten series of lecture courses, conducted by the author in past years. Although the author cannot agree to answer all communications, suggestions and additions for improvement will be graciously and gratefully received.

NOW LET US PROCEED TO A BRIEF RESUME OF THE MECHANICAL METHODS OF PREPARING CHARTS, AND THE SELECTION OF CHART PORTFOLIOS FOR TECHNICAL STUDY. THIS IS DISCUSSED IN THE FOLLOWING TWO CHAPTERS.

**APPENDI
X**

**APPENDIX
I**

**1
CHAPTER
1**

THE ECONOMIC STATISTICS, INC., METHOD OF APPRAISING THE OUTLOOK FOR BUSINESS TRENDS

Security Prices and Business Trends

One of the essential tools of security analysts is an accurate knowledge of fundamental business conditions. Business and security price trends are inseparably related. Although they may diverge temporarily, when the market discounts a move prior to its occurrence, the trends of business and security prices do not remain long out of line. Earnings and earning prospects are the underlying basis of security values. Business trends largely determine earnings.

For years, there has been a basic need for an economic service which would present and analyze business data in a way that would reveal the true conditions of the fundamental economic forces which determine business trends. One prerequisite was that the information be presented briefly, and in a manner simple enough for the understanding of the average investor. It also had to be available within the limits of his pocketbook.

A Service Available

The service of Economics Statistics, Inc., conceived to meet these requirements, deals with the impartial analysis and presentation of economic facts. The basic supply and demand conditions of industry and agriculture are measured and graphically presented at short intervals. Credit conditions are also analyzed. Interpretations include allowance for the effect of political and social developments. The analyses are prepared to show whether fundamental conditions indicate an improvement or otherwise an important part of the general background which is essential in judging future security price trends.

Methods of Analysis

Economic Statistics, Inc., analyze general business conditions, individual industries, and major commodities in terms of the balance or lack of balance between the supply and demand forces. The entire business structure and its many component parts are each and every one continually going through a process of creating and correcting supply-demand maladjustments. Supply and demand facts mean little, unless they are arranged and analyzed so as to reveal the true conditions in an industry or commodity. Basic charts have been developed which present graphically the supply and demand data in terms of the balance or lack of balance between these forces.

This procedure is followed because the most important part of the task of forecasting centers is the problem of arriving at an accurate knowledge of present conditions. Ascertaining these facts constitutes the first step in any of their analyses. This information enables the trader or investor to determine which way the fundamental economic forces are working.

The Basic Forces

The basic forces determining activity and price trends are:

1. Supply and demand conditions of industry and agriculture.
2. Price Relations
 - a. Cost price relationships determine profit margins, which in turn regulate production.
3. Purchasing Power.
4. Money and Credit.
5. Political and social conditions influence the effectiveness of these first four factors.
6. Unusual events wars, droughts, floods, etcetera.

Purchasing power is important, in that it regulates the general level of business. The trend of this index is determined largely by industrial payrolls and farm income. The movements of these latter forces are controlled by the supply-demand conditions and price relationship of industry and agriculture. Supply and demand factors basically regulate prices, which in turn regulate supply, by affecting profits and profit margins.

The purpose of business (under the capitalistic system) is profits. Their prospects either stimulate or retard business. But profits depend upon the relation between costs and selling prices. This brings us back again to supply and demand conditions. // *the supply and demand conditions of industry and agriculture are strong, prices will rise.* This stimulates industrial production and larger farm marketings, which in turn will increase purchasing power through rising payrolls and farm income. It is also necessary that the price structure (e.g. the relation between industrial and farm prices) be in balance; otherwise, the real income of one of these groups will be reduced and thus decrease the ability of one group to absorb the products of the other.

The next major consideration is to determine *the extent of the influence which money and credit factors, political and social developments, and unusual events may exert*. These forces are important in that they can either increase or decrease the effectiveness or intensity of the more basic factors already discussed.

Money and credit are a very integral part of our economic system. Conditions in this field have an important influence on business and security prices. From the viewpoint of forecasting, there are three basic aspects of money and credit. The first is the adequacy and availability of credit for business needs. *An adequate supply of funds in itself will not stimulate business, but will facilitate recovery once the basic forces are favorable.* The important point is that business men only borrow when they can employ the funds profitably. No matter how great the supply, or how low interest rates, profit prospects will determine the demand.

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The second consideration is interest rates. These are important in that they have a large influence on security prices (especially high-grade bonds) and business costs. Interest rates are determined by supply and demand conditions in the money markets. Because capital knows no home, and is very sensitive to disturbing conditions, international conditions and developments have a large influence on the money markets. From the viewpoint of business forecasting, the third point, which has to do with the inflationary and deflationary tendencies involved in the use of credit, is by far the most important.

The danger of credit lies in its misuse. Credit is merely debt. Its quality is determined by the financial soundness and responsibility of borrowers. Credit inflation is merely a condition in which the people generally, in relation to their ability to repay, have over-extended their purchasing power through the use of credit. Overborrowing destroys the financial soundness (ability to repay) of individuals and naturally results in losses to lenders. When lenders become uncertain over the quality (safety) of a particular loan, they demand payment.

The important point is that the ability to repay must be destroyed by forces, not considered or known, when the loan was contracted. When supply and demand forces of industry and agriculture become seriously maladjusted, as a result of over-supply conditions, prices decline and production is reduced. Losses of jobs and lower commodity prices precipitate smaller incomes and preclude the ability of many people to repay loans. The process of correcting the over-supply conditions is thus intensified by the bad credit conditions resulting from the over-extension of credit during the previous "prosperity" period.

It should also be pointed out that, besides the inflation of consumer credit, we can have the inflation of speculative, investment (plant and equipment) and government credit. The 1927-29 period provides excellent examples of the first two types. The over-extension of investment credit occurs when the use of credit for this purpose exceeds the rate of savings. This inevitably leads to an over-expansion of industrial plant and equipment. The result is an over-supply of industrial commodities. Naturally, prices decline and eliminate the profit margins of the weaker or high cost producers. Receiverships, reorganizations and losses to security holders are the consequences. When a government inflates by borrowing to the point that its credit is weakened, no matter what the funds are used for, the situation is more dangerous. The basis of all credit money is government credit, the destruction of which leads to currency depreciation.

Political and social developments are very important because of their psychological effects. They may either stimulate or retard the effectiveness of the other basic forces. If fundamental conditions are sound and favorable to expanding business, a political or social development that generates confidence will stimulate the effectiveness of the natural forces of recovery. If an

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unsettling development occurs, naturally it will slow up the recovery that is under way. The important point is that an accurate knowledge of fundamental conditions enables one to approximate the extent of the effects which a political or social development may generate.

Unusual events (wars, droughts, floods, et cetera) are factors that may or may not have an important influence on business. The answer depends largely on the magnitude of the event. Generally speaking, the effects will be depressing on the territories involved, although this is not always the case. For instance, the 1934 drought reacted favorably on farm income. However, the precipitation of unusual events ordinarily has favorable effects on other territories or countries. One example is that a wheat crop failure in Canada would sharply increase the buying power of wheat producers in the United States, the Argentine, et cetera.

All of the factors considered above are highly related and must be analyzed from this point of view, and much as it may be desired, there is no one series of data, or no mechanical method that one can rely upon accurately to forecast business trends. Success in this field is a matter of careful study and understanding of the manner in which the various basic forces influence one another.

Industries and Commodities

Analyzing an industry or commodity involves three steps. *The first and most important* part of this analytical procedure is the accurate determination of the existing supply and demand conditions. The major question is whether or not the industry or commodity is in a favorable or unfavorable position. Their charts show this information and also indicate which way the fundamental supply and demand forces are tending. Charts 4 and 5⁵, which accompany this Appendix, show vividly whether supply and demand are in balance or out of balance in the Steel and Automobile industries respectively. But these pictures are only the starting point.

The second consideration is the outlook for demand (consumption). This is essential because an industry or commodity may be in a favorable supply-demand position, but a decline in demand could easily turn a good situation into an over-supply condition. Because of the fact that industries are highly interrelated, it is possible to anticipate the demand for a particular commodity from the supply and demand conditions which exist in the industries that consume the particular product. In the case of industrial goods, the demand will depend upon the activity in other industries. For instance, the demand for steel is determined by such important industries as Automobile, Machine Tools, Building, et cetera. In the case of con-

⁵CHARTS MENTIONED IN THIS DISCOURSE ABE MADE PART OF THIS APPENDIX.

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sumers' goods (bread, soap, shoes, cigarettes), demand will depend upon consumer buying power. The Economics Statistics, Inc., index of purchasing power, shown on Chart 2 of this Appendix, is an excellent measure of consumer buying power.

The third step involves a consideration of the effects which political, social or monetary developments are likely to have. These factors can either work for or against the basic supply-demand conditions. Good news tends to affect the individual industry or commodity favorably, while bad news has the opposite effect. If a good supply-demand situation exists, and good news occurs, the two will work together. Again the important fact is that at any time an accurate knowledge of basic conditions is essential to a correct anticipation of the extent to which a new development will influence a particular industry or commodity. The service of Economics Statistics, Inc., does not make any pretense to forecast political, social, or monetary developments. When such events occur, their particular importance is immediately discussed frequently in time for subscribers to take advantage of them.

Practical Results

Many people will say: "The theory underlying the work of Economics Statistics, Inc., is all right but do the facts and interpretations which they supply lead to profits?"

The only logical answer is the impartial criterion of results. For this reason, several of their key charts are presented to indicate the real importance of an accurate knowledge of basic conditions. These charts vividly explain the fundamental causes of the important trends in business. Without the help of any additional information other than that shown in the accompanying charts, the investor or trader would have been materially assisted in foreseeing the future trend of business and security prices in the case of every major turn which has occurred during the last 15 years. To illustrate this, the conditions which existed in each of the major changes in business, which in turn had their effect on price trends during the past 7 years, are reviewed and, in conclusion, the present outlook (October 1935) for the future is briefly mentioned.

August 1929

Note from Chart 1 accompanying this Appendix, which shows the composite supply-demand price position of industry as a whole, that new supply began to exceed demand in April, at (A); inventories started to pile up, indicating a maladjusted condition. Chart 2 reveals that demand had been substantially exceeding real income, or purchasing power, for 4 years (B to C). This was inescapable evidence that the use of consumer credit or installment selling had generated a demand far in excess of real income, and led to an inflation of consumer credit. Chart 3 indicated that the high levels of raw material prices (one of the prime costs of manufacturing) were far out of line with

finished goods prices (E to F). It was evident that the margin of profit of manufacturing concerns was relatively small and decreasing. Manufacturers had two alternatives: (1) Either they could increase operations and sales, and thereby maintain their total profit at a favorable level, or (2) they could lower production below consumption, which by reducing inventories would strengthen prices and increase their profit margins. The latter was, of course, the sound economic step. They chose the former. In May, June, July and August, the new supply, as shown in Chart 1, notably advanced and exceeded demand by a wide margin (shaded area). Naturally, a burdensome inventory situation developed. It was impossible to liquidate these inventories and still maintain production at its current high levels. The fact that the basic industries were in such a poor position augured ill for the future. One glance at the Steel situation, as shown in Chart 4, indicated that demand in one of our most important industries was substantially below production (G), and a severely maladjusted condition existed.

The peak (H) on Chart 5 reveals that the Automobile picture, another very important industry, was in an equally poor position.

Obviously, a curtailment in industrial production just had to take place. A decline in production meant a corresponding reduction in employment. This meant lower payrolls and in turn a smaller demand for farm products. With supply being greater than demand, and the outlook for purchasing power unfavorable, a decline in industrial commodity prices was inevitable.

The agricultural situation was also seriously maladjusted. In general, production had exceeded demand, and surplus supplies were exerting a burdensome effect on the farm price structure. Chart 6, portraying the picture of wheat, reveals the conditions (I) that existed in most of the important agricultural commodities. When the farm situation was considered in light of the anticipated decline in factory payrolls, and hence a smaller demand for farm products, the outlook for farm income was anything but favorable.

An accurate knowledge of these underlying conditions during August 1929 surely indicated that all was not "honey and roses." With supply and demand conditions of agriculture and industry seriously maladjusted, with profit margins declining, and with consumer credit over-extended, the crash (which came in September) was merely a matter of time.

Before there could be any basis for a sound recovery, it was absolutely essential that the prime cause of the declining prices and profit margins be removed. This meant that large surplus quantities of farm and industrial products had to be liquidated. Previously over-extended credit conditions made the necessary deflation more serious.

The Spring of 1931 - England Off Gold

During 1931, the real process of correcting malad-

justed supply and demand conditions got under way (J, Chart 1); but coinciding with this improvement, we had the unfortunate experience of the devaluation of the pound sterling in September 1931. Because so many of the major commodities are financed in sterling, this started another wholesale deflation procedure, and intensified the commodity price decline in this country. The depreciation of the British pound sterling made the United States dollar overvalued in terms of purchasing power parities. Either prices in the United States had to decline or the dollar had to be devalued. Devaluation did not come until early in 1933. Consequently, declining prices continued to shut off the production of industrial products, but government interference temporarily prevented the liquidation of farm commodities.

The Summer of 1932

The supply and demand conditions continued to improve and by the middle of 1932 the supply-demand conditions of industry indicated that the recovery in general business was very near (K, Chart 1). In the third quarter of 1932, commodity prices started to rise, and recovery was under way. At this time, the international situation had cleared up considerably, and no longer exerted a deflationary pressure.

But in the last quarter of 1932, the last weak link in our economic system began to give way. The continued decline in prices from 1929 had frozen the assets of the commercial banks of the country, to the extent that they could no longer meet the growing desire of the depositors for cash. Although the supply-demand conditions, price relationships and profit margins were in a position favorable to recovery, the effective working of these factors was vitiated by the ensuing bank panic. As a result, business declined from September 1932 until March 1935. A glance at Chart 1 indicates, at (L), that a stronger natural basis for recovery was established than that which existed in 1932.

After the Bank Holiday

The sharp recovery which took place in April 1933 is an excellent example of a condition in which the basic supply-demand conditions and psychological factors worked together. However, flamed by inflationary fears, manufacturers increased their operations so extensively that by the close of April 1933 supply began to exceed demand. In May, at (M), there was quite a wide spread between supply and demand. In June, demand declined, while production rose still further. Inventories had risen rapidly, and were at an unusually high level. In view of this condition, it was evident that commodity prices should decline. It was also apparent, as is shown in Chart 2, that actual demand had been running in excess of purchasing power (N), indicating the extent to which the inflationary fear had affected industrial and consumer buying. Referring to Chart 4, it was noticed that Steel was in an unusually maladjusted condition (O). Corrections were also needed in several other industries. Under

these conditions, business activity had to decline.

The Fall of 1933

Production was reduced, demand also declined, but in October of 1933, purchasing power, as shown on Chart 2, began to exceed demand (P) indicating that a rise should take place in this latter index. Demand did rise outstripping production, and inventories declined. This strengthened commodity prices, which were further stimulated by the government's gold-buying policy. Profit prospects improved and production increased.

The Spring of 1934

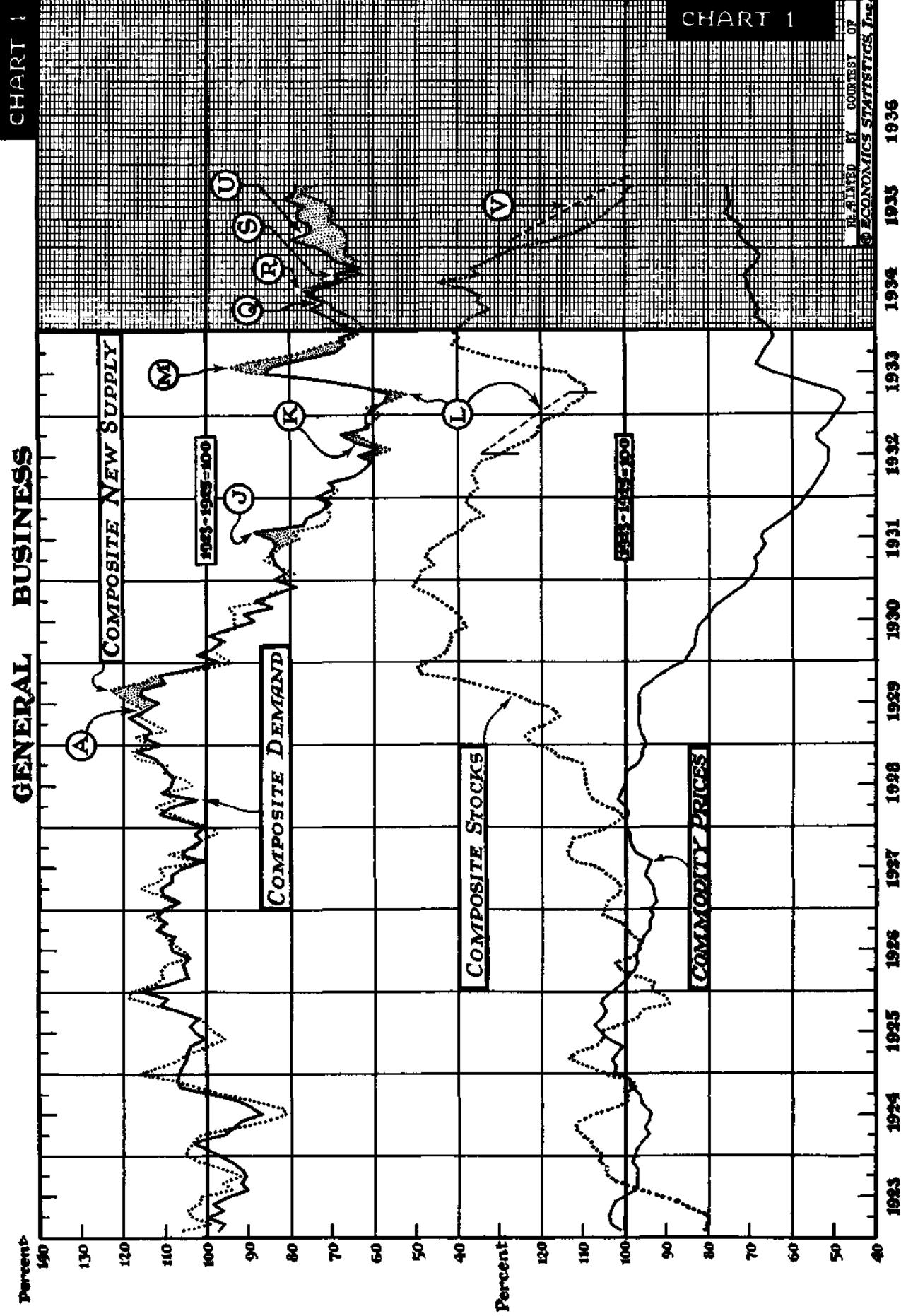
In April of 1934 (Q, Chart 1), there was evidence that production was again exceeding demand, and that some correction would have to take place at an early date. The stock market began to reflect this situation almost immediately, but productive activity continued to increase through June, at which time the supply-demand situation of industry (R, Chart 1) was in almost as poor a statistical position as was the case in July 1933.

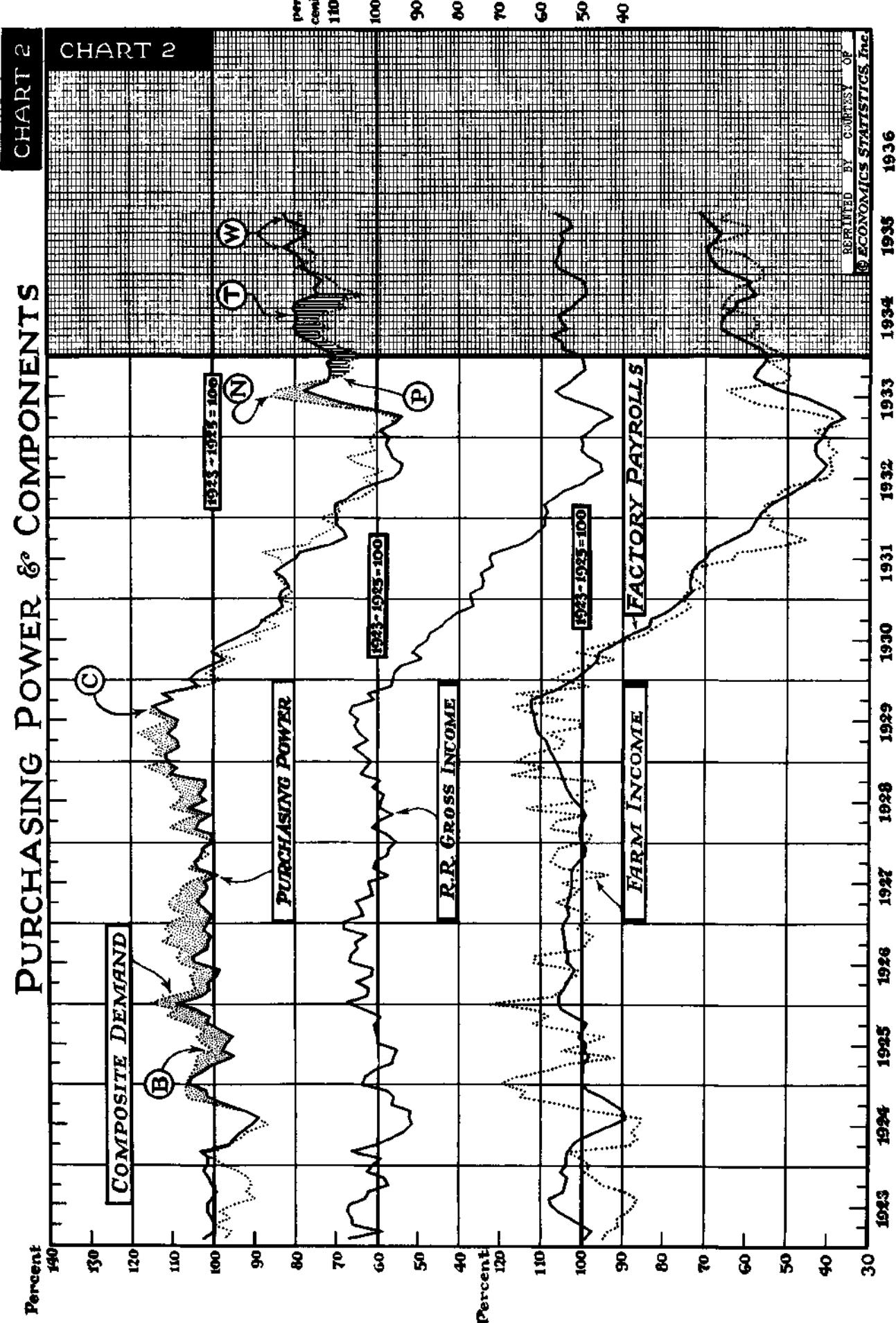
The correction which took place during the summer months of 1934 was a substantial one, and was aided to a material extent by labor difficulties in various fields. The textile strike was especially serious. From Chart 1, note that demand began to exceed new supply in August (S). This status continued through September. Referring to the relationship which existed between purchasing power and the composite demand, shown in Chart 2, it was found that purchasing power had been sustained above demand (T), indicating that there had been no forward buying in recent months, and that the inflated consumers' credit structure had been well corrected.

Furthermore, the outlook for farm income was encouraging, indicating that purchasing power should rise further. In reviewing the individual industries, it was also noted that the whole business picture had been well corrected, and thus an advance in business and security prices was indicated.

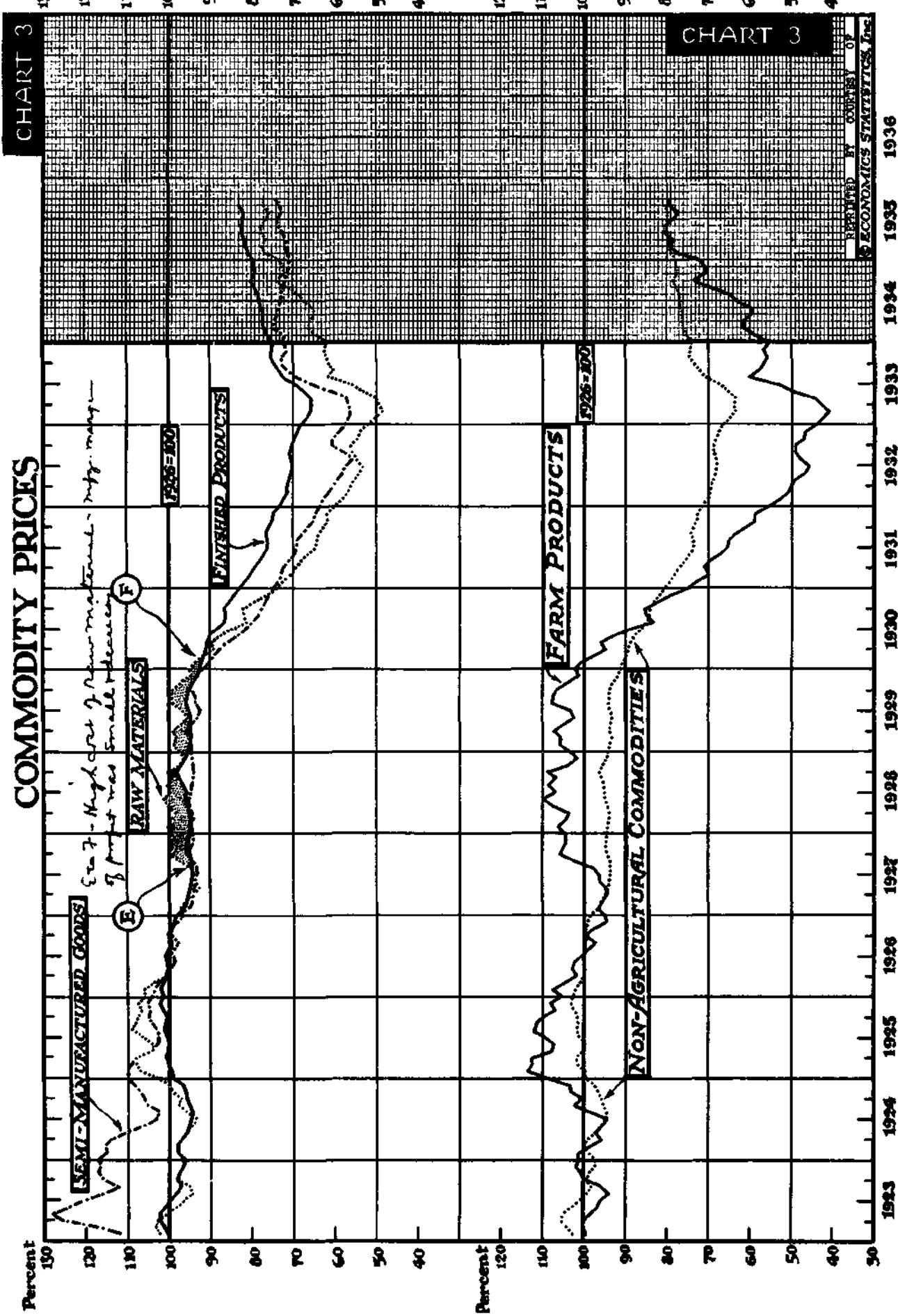
October, 1935

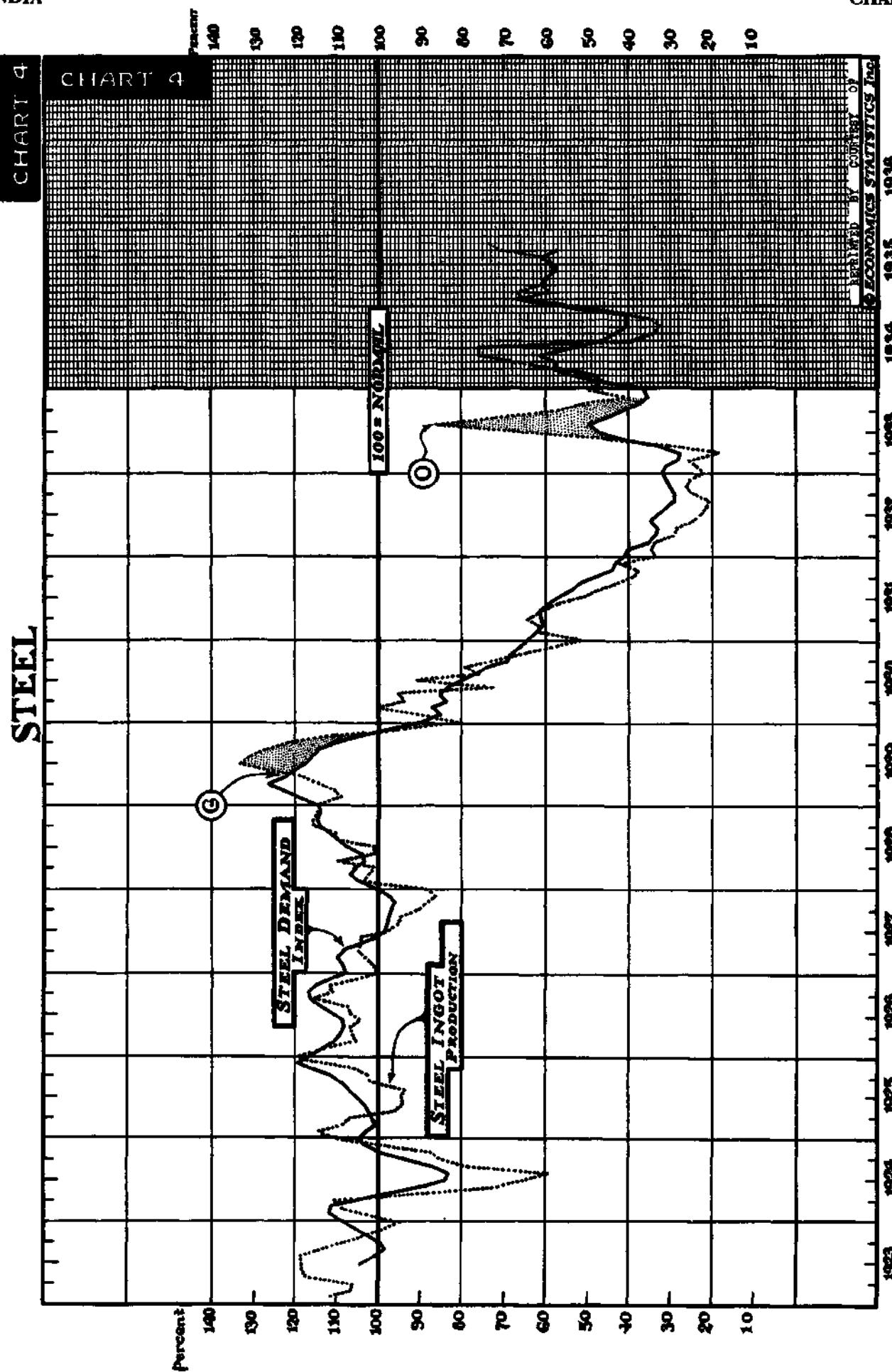
There has not been any unfavorable signal given from the composite general business picture during the recovery period, September 1934 to October 1935. Throughout this period, demand has exceeded supply (U, Chart 1), and inventories have declined sharply (V). The basic forces underlying commodity prices are exceptionally strong. Purchasing power is rising to new peaks, exceeding demand (W, Chart 2). The outlook continues favorable.

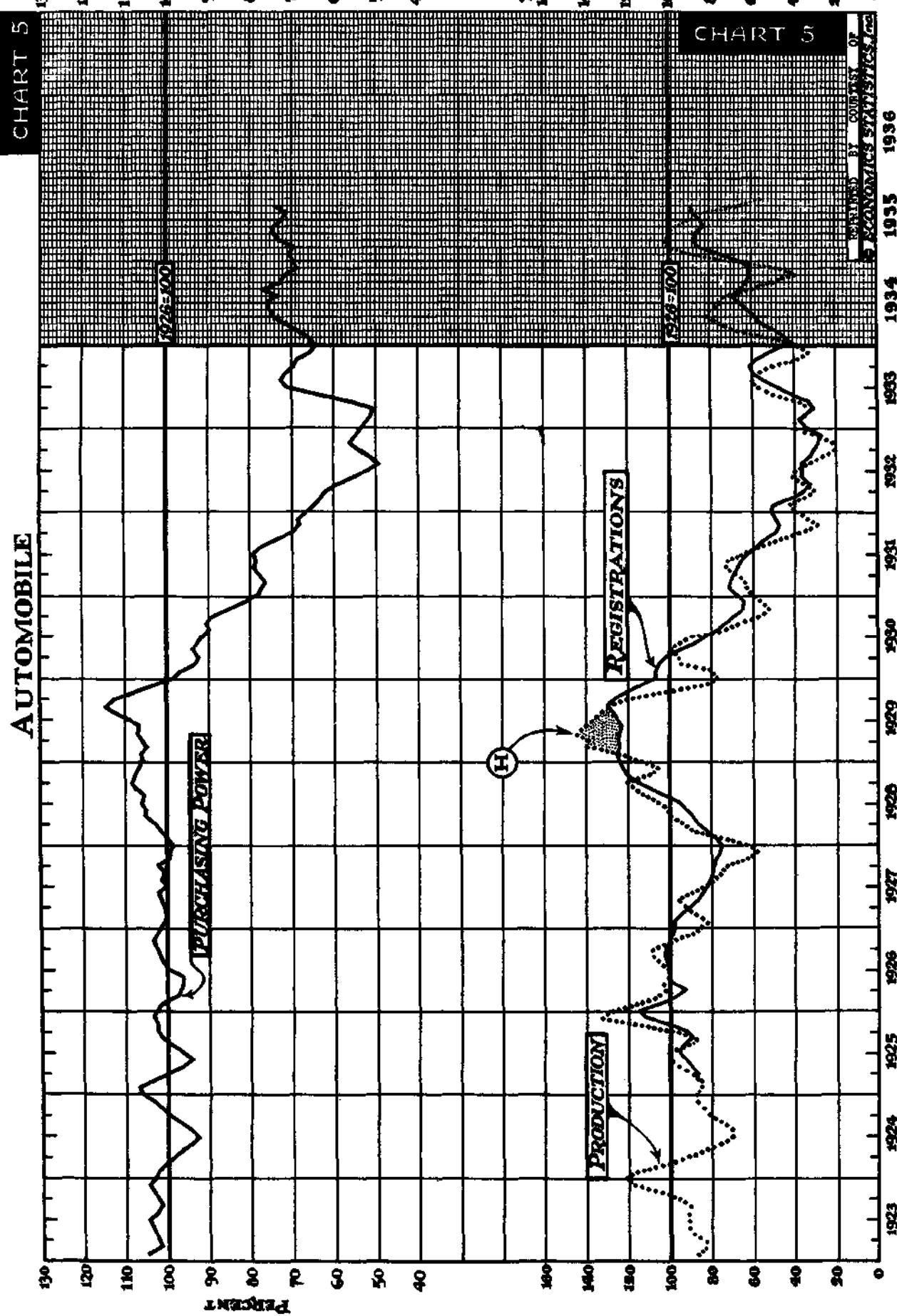


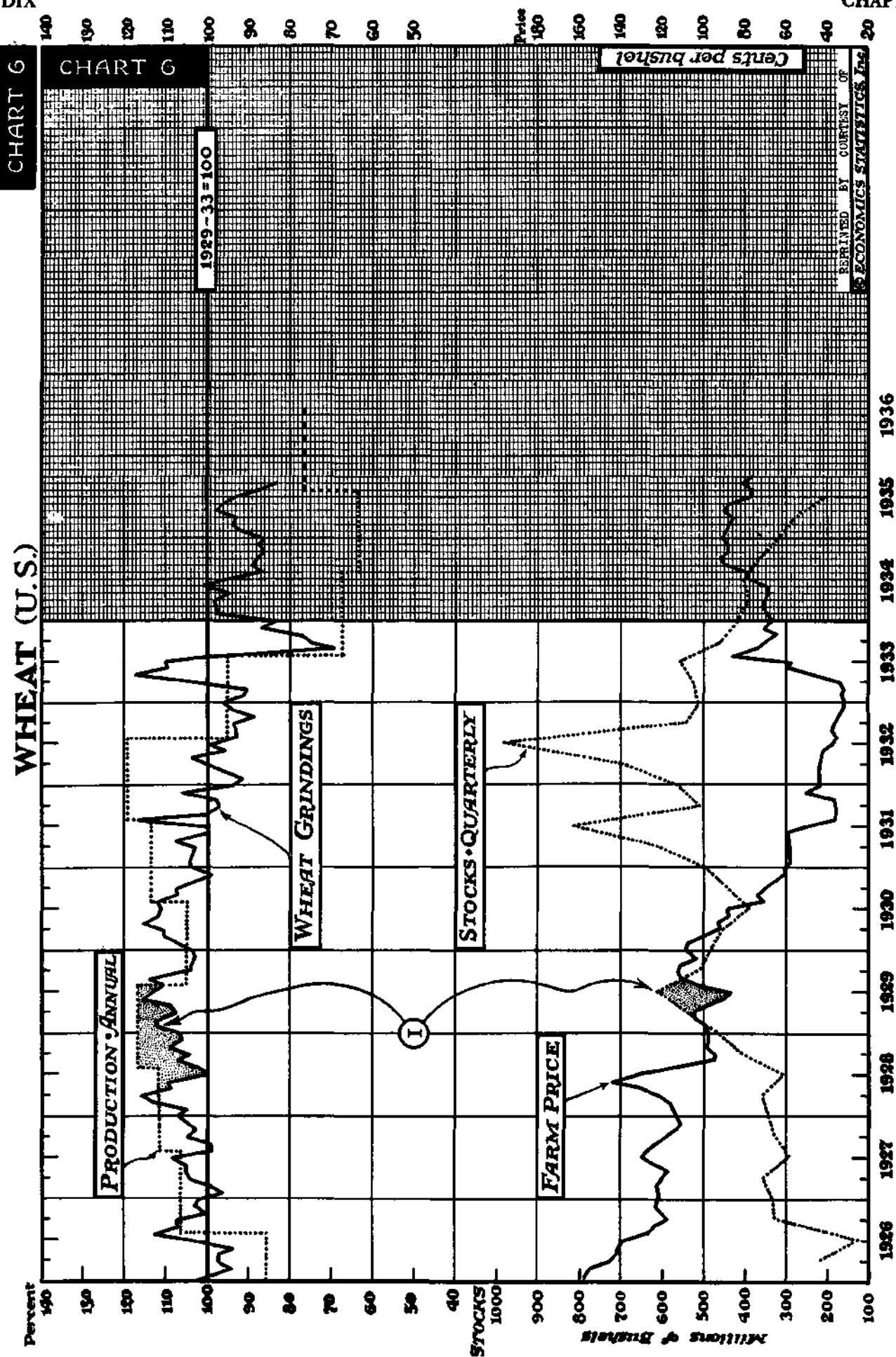


COMMODITY PRICES









**APPENDI
X**

APPENDIX 2

THE INVESTOGRAPH METHOD OF APPRAISING SECURITY VALUES

**9
CHAPTER
1**

Management is the most important single factor in a business. Poor management in a field which is most favored by general conditions usually results in disaster, while effective direction will frequently yield profits even under the handicap of severe competition and less favorable conditions.

In appraising character of management, it is results which count and not reputation. The record of past earnings trend, indicative of the results already accomplished for stockholders, provides an excellent basis for judging what the future may bring.

Yet it is frequently no simple matter to determine exactly the earnings trend of a particular company. Mergers and acquisitions, which are effected through the issuance of large blocks of stock, dilute the proportionate equity of the original stockholders. If profits of acquired companies are not sufficient to maintain per-share earnings on the stock issued for their purchase, then earnings on all shares are reduced. It will, therefore, be recognized that even substantial increases in total net income may be accompanied by an actual decline in earnings trend in so far as the individual stockholder is concerned.

The publishers of Investograph Service realized the vital necessity of furnishing earnings records properly adjusted for these factors and the desirability of providing a "picture" of past history so that the trend of earnings and other fundamentals could be shown accurately for clearer visualization.

In the accompanying Investograph charts of Eastman Kodak and du Pont, 15 years of historical statistics, all in their proper relationship, are revealed at a glance. The solid red line, labelled "Earnings on Original Share," reflects earnings on one share of stock, presumed to have been held from the beginning of the period charted. It is accurately adjusted for stock splits and dividends and shows the true earnings trend. Judging by earnings performance, du Pont has enjoyed an excellent record of increasing profits; Kodak a relatively poor one.

Earnings on original share for Kodak held close to a fixed level from 1919 through 1930 and, while it might be argued that this is favorable in the sense that earnings stability was shown, we should not lose sight of the fact that during this period general business enjoyed impressive growth and the motion picture industry was one of the leaders, with a resultant increase in the use of film. It is believed by many that Kodak should have profited substantially from this situation and that mere maintenance of earnings should be considered as unfavorable.

In comparison, the solid red line on the Investograph chart for du Pont makes an excellent showing. It is true that this company suffered more severely from an earnings standpoint in the depression of 1921, but a stockholder owning one share of du Pont in 1919, which for that year earned \$13.30, saw his profits

grow, assuming he held his many stock dividends, to a peak of \$110.46 in 1929. Even in 1932, earnings were double the figure shown in 1919. Against this, earnings for Kodak in 1932, as compared with 1919, showed a decrease of 72%. Results in 1934, compared with 1919, show Kodak earnings as worse by 32% while du Pont is better by 342%. If one accepts the theory that both companies enjoyed equal opportunities for growth, the evidence seems to indicate that du Pont has had the more successful management.

As the result of good management and a consequent substantial improvement in earnings, du Pont common, even at the low market price of the depression in 1932, sold at about 100% above the low price in 1922- after adjustment for stock dividends and splits. On the other hand, the price of Kodak stock, (adjusted for the 10 to 1 split in 1922), dropped considerably below its 1920 bottom.

The black-dashed line shows the number of shares of common stock outstanding at the end of each year. Where increases result from stock dividends or splits, this information is given. In the case of Kodak, there was one split of ten shares for one in 1922. With du Pont, however, splits and stock dividends have been more frequent and, without the adjustment provided which compensates for these the Investograph "Earnings on Original Share" line and supporting figures proper analysis of past performance would be complicated by the necessity of lengthy and involved computations.

The red-dashed line shows earnings as reported on the number of shares outstanding at the end of each year. The solid black line indicates cash dividends paid out of these earnings. One sees that with Kodak from 1923 and du Pont from 1926, it has been a corporate policy to distribute a large proportion of profits to stockholders a policy which in all probability will be continued in future.

The black dot-dashed line shows the cost of carrying debts represented by bonds and debentures as well as divided requirements on any preferred stock issues outstanding. It is the sum of all fixed charges which must be paid before the proceeds may be applied to the common shares. By comparing the trend of this line with the line "Net for Common," it is possible to see in a moment whether capital position is getting better or worse. With du Pont, net income for the common shares was approximately twice requirements for debenture bonds in 1919. In 1934, however, this ratio had increased to 6 to 1. Prior charges with Kodak, represented by a relatively small preferred stock issue, have remained the same throughout the entire period and are inconsequential. It is worth noting, however, that Net Income of nearly \$18,000,000 in 1919 stood at just a little more than \$14,000,000 in 1934.

The small, green, supplementary chart near the bottom of each page gives a breakdown of yearly earn-

APPENDIX

ings as reported either quarterly or semi-annually for a period of five years. This chart is especially valuable in those businesses where earnings are influenced by seasonal "conditions, since they make it possible to analyze accurately the significance of current interim earnings as reported. In the lower section of this chart is a table in which earnings are adjusted backward on the basis of shares presently outstanding, thus making it possible to consider the trend of earnings in the light of the number of shares currently issued.

Monthly price ranges, reproduced by means of red vertical lines, have been found particularly useful in those cases where seasonal influences are effective. Loew's, Inc. normally can be bought in June and sold out at a profit in November or December; the tobacco stocks ordinarily reach a buying zone in March. Where seasonal characteristics have persisted over a long period of years, such information can be used advantageously in planning an investment or speculative program.

To support the charts, much interesting and important information is furnished on the back of the form. This includes a brief description and history of the business, comparative balance sheets for two years with each item shown in its percentage of total, a three year chart of income account, which materially simplifies consideration of this data, and a comparative statistical analysis of income statements and balance sheets.

The latter, exclusive with Investographs, is of great importance in determining upon the current strength or weakness of a given company and the conservatism, or lack of it, in accounting policy. This breakdown of income statements and balance sheets makes it possible to answer many questions including the following:

Is the profit margin on sales improving or shrinking?

What proportion of book value is represented by patents or goodwill?

Is the charge to depreciation excessive or inadequate?

Is the ratio of current assets to current liabilities satisfactory?

Is working capital sufficient or is it made up

CHAPTER 1

largely of inventories?

Are plant and equipment over or under valued? Does overcapitalization indicate a dangerous situation?

Do interest and preferred dividend requirements constitute a source of probable trouble?

Are any bonds maturing within 3 years?

The figures are shown for three years so as to indicate trend and are also given on a per share basis for the current year. Percentages of increase or decrease are provided so that the full story is there and no further figuring is necessary. Companies in different lines of business are so analyzed as to present all the available characteristic data.

Much of this information is in ratio form. One may ask: "How can I properly interpret this?" As a part of the complete Service, there is a series of nine pages, called the "Investograph Comparative Analysis by Industries." Here, all the various companies are grouped according to classification of industry and the individual ratios as well as averages for each group are shown. Thus, it will be recognized that an accurate basis has been provided for proper appraisal of all factors. In addition, each Service is equipped with a series of instruction sheets which explain the interpretation and significance of all chart lines, ratios and other data.

Eastman Kodak and du Pont were selected as specimens in this instance because of the interesting comparison available in the chart forms. From a balance sheet standpoint, however, both companies are very strong so that a study of accounting policy, which is in each case conservative, and of current positions which are equally satisfactory, fails to disclose the usual value of the data provided here.

There is, however, an interesting story revealed in the comparative analysis of operating results achieved by U.S. Rubber and Firestone in 1934. The figures given below are taken from the "Comparative Statistical Analysis" tables appearing on the backs of the accompanying specimen Investographs. Each item has been assigned a reference number which is repeated in green on the forms in order to facilitate reference:

	U.S. Rubber	Firestone
1. Gross Sales	\$105,476,872	\$99,130,244
2. Sales Increase 1934 over 1933	19.4%	31.5%
3. Sales Per Share	\$72.03	\$52.24
4. Profit or Loss Per Share	Loss	Profit
5. Book Value Per Share Less Intangibles	\$3.15	\$.71
6. Depreciation Rate	\$7.83	\$28.14
7. Sales to Fixed Assets (Plant)	4.6%	6.6%
8. Sales to Net Worth	.805	1.13
9. Net Profit to Sales	1.49	1.86
10. Bond Maturities Within 3 Years	.044	.014
Stock Prices July 25. 1935	10,198,883	None
	13-1/2	15-1/4

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It seems quite obvious from the foregoing that the management of Firestone was superior to that of U.S. Rubber. The latter enjoyed the greater gross sales, yet despite this and the fact that owned rubber plantations contributed a net profit of \$1,735,842 (as covered in the last paragraph of the general description), U.S. Rubber ended the year with a deficit of well over \$4,000,000 and a loss of 4.4 cents on every dollar's worth of business done. Firestone, in comparison, and without the benefit of income from rubber plantations, showed a net profit of \$1,355,051 and earned 1.4 cents on every dollar of sales.

Attention is called to the fact that the deduction from income for depreciation by U.S. Rubber was 4.6%, while Firestone charged 2% more than this, or 6.6%. If the rate established by the latter had been on the same basis as U.S. Rubber, 2 % of the item listed in the asset side of the Comparative Balance Sheet as "Land, Buildings & Machinery" would have increased earnings as reported from 71 cents to 80 cents per share. Likewise if the rate charged by U.S. Rubber were the same as established by Firestone, the loss would have been \$3.30 per share instead of \$3.15.

What is the average depreciation rate in the rubber business? The average for the industry in 1934 was 5.2% as will be seen by referring to the last line on page 1 of the "Investograph Comparative Analysis by Industries" under sub-title 9, "Depreciation at Fixed Assets". On this same page under "Per Cent of Capitalization" the general balance sheet position of Firestone is seen to be considerably superior to that of U.S. Rubber. Of the former's total assets, nearly 44% represents common stock equity whereas the latter shows less than 5%. Moreover, Firestone's assets include only 1.3% for patents, deferred charges, etc., while these items for U.S. Rubber total 29.6%. The capital position of Firestone is considerably more conservative than the industry as a whole while that of U.S. Rubber compares unfavorably.

Now, by referring to the Investograph chart forms, we see further evidence of the superiority of Firestone. Since 1919 the company has shown a loss for only three years; namely, in 1921, 1930 and 1933. Against this, U.S. Rubber lost money in 1921; thereafter showed earnings through 1927, but has been in the red ever since. Since 1919 Firestone has failed to pay dividends on its common stock in only two years. U.S. Rubber has paid nothing to its shareholders since 1921. Charges prior to the common stock in the case of U.S. Rubber amount to nearly \$9,000,000 annually while the figure for Firestone is less than one-half of this.

At the time this is written (July 25th, 1935), there is relatively little difference in the price of the two stocks. The evidence seems strongly to suggest that, comparatively, Firestone is under-priced.

One of the most interesting and practically useful features of Investograph Service is its monthly publication of Investograph Comparative Market Charts. Extending back through 1932, and maintained up-to-date by monthly cumulative

supplements, these charts show the weekly market action of the various stocks covered, in direct comparison with the Dow Jones averages. The industrial, railroad or utility average is used depending upon the general classification of the company.

By means of these charts, market characteristics of the various stocks may be seen at a glance. Because a ratio scale is used, each chart is directly comparable with any other and, as a consequence, accurate comparisons can be drawn with reference to stock habits. One sees that certain issues regularly both gain and lose more, percentagewise, in advances and declines while others are habitually slow movers. These charts have been found very useful in the formulation of market programs.

Investograph Service is kept up-to-date by means of weekly mailings, which include such new charts as are available; quarterly and semi-annual earnings of the various corporations, as published, so that these may be entered in the tables which are provided at the top of each chart sheet; and news items in the form of "Stickers" which are affixed to the charts affected. The Complete Investograph Service covers the 250 most active stocks as listed on the New York and Curb Exchanges and is published by Investographs, Inc., Rochester, N.Y.

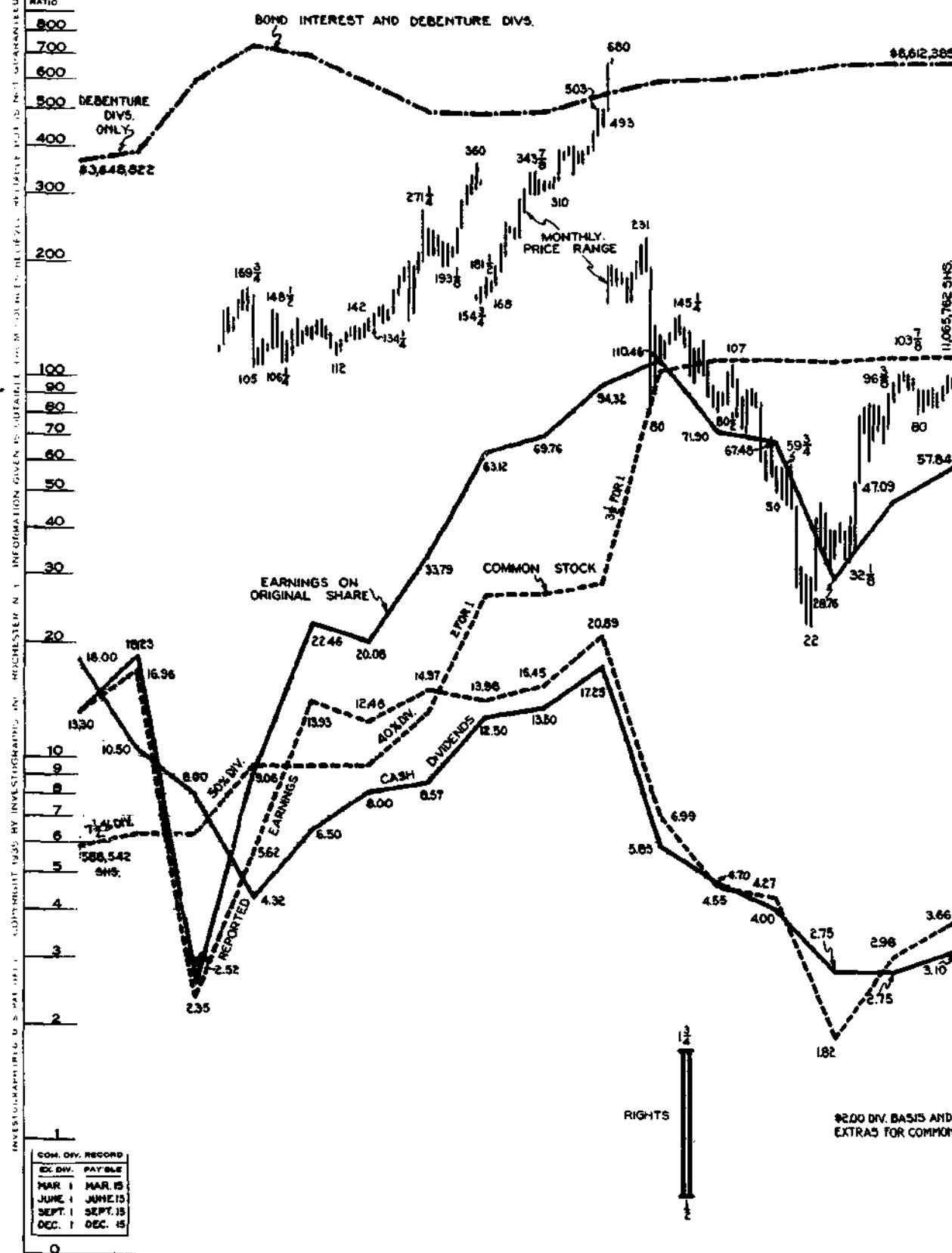
DU PONT (E.I.) DE NEMOURS & CO

COMPARATIVE NET INCOME (DD)

Listed N.Y.S.E. May 1922.
Dividends shown for 1922, 1925, 1926 and 1929 are on the
basis of the stock after splits and dividends.
Earnings for 1930 to 1933 include undistributed equity of sub-
sidiaries.

	Total	Per Sh.	Total	Per Sh.
Quer. 3/31/34	\$ 9,982,994.	.90	3/31/35	\$ 9,372,733
" 6/30/34	10,589,694.	.96	6/30/35	\$ 9,847,276
" 9/30/34	13,760,387.	1.24	9/30/35	
" 12/31/34	6,141,955.	.56	12/31/35	

1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
AVERAGE PRICE EARNINGS RATIO	24.4	9.1	10.2	13.5	9.9	16.6	19.5	22.2	24.8	18.4	22.5	21.6	25.1		



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X

DU PONT (EI.) DE NEMOURS & CO.

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CHAPTER
1

One of the foremost chemical enterprises, this company is the largest manufacturer in the United States of powder and explosives. Other principal products manufactured, directly or through controlled or affiliated companies, are paints, lacquers, "Cellophane," rayon, fabrikoid, pyralin, motion picture film, industrial and ethyl alcohol, dyestuffs, ammonia, chemicals, acids, rubber coated fabrics, "Duco" and other related products.

As of December 31st, 1934, through its holdings in General Motors Securities Co., or by direct investment, the Company owned a total of 10,000,000 shares of General Motors Corporation common stock, constituting 22.99% of all the outstanding common stock. These holdings were equivalent to approximately nine-tenths of one share of General Motors common stock for each share of common stock of Du Pont outstanding at the end of the year. In 1934 income from General Motors stock represented

approximately 37% of the earnings as reported.

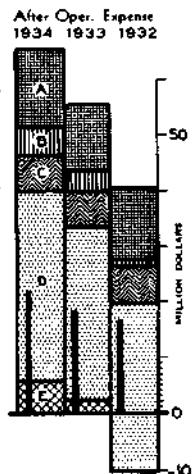
The company owns, or has a substantial interest in 28 companies, most of which are chemical enterprises. Extensive research laboratories are maintained for the improvement of present processes and products necessary to holding or improving the company's position in the chemical industry. During 1931 a new synthetic rubber called "DuPrene" was developed. This closely resembles natural rubber in strength, elasticity, toughness and other physical properties and in emergency is adaptable for any commercial purpose requiring the use of rubber.

During 1932 this company acquired majority interest in the Remington Arms Company consisting of 56% of the outstanding shares of common and in addition acquired 34,859 shares of 7% first preferred stock.

Audit by Price, Waterhouse & Co.

COMPARATIVE STATISTICAL ANALYSIS

	1934	Per Cent Change	1933	Per Cent Change	1932	Per Share 1934	INCOME ACCOUNT
Current Assets	\$124,025,723.	- 4.4	\$129,771,061.	+20.9	\$107,325,753.	\$11.91	After Oper. Expense 1934 1933 1932
Current Liabilities	19,155,627.	+15.4	16,601,263.	+56.2	10,630,857.	1.73	
Cur. Assets + Cur. Liabil. ¹	6.5		7.8		10.1		
Working Capital	104,870,096.	- 7.3	113,169,798.	+17.0	96,694,896.	9.48	
Inventory	43,669,984.	+29.1	33,835,935.	+18.5	28,557,810.	3.95	
Working Cap. + Inventory ²	2.4		3.3		3.4		
Sales	Net Avail.		Not Avail.		Not Avail.		
Net Profit for Common	40,475,030.	+22.9	39,921,253.	+66.5	19,769,395.	3.66	
Net Worth	400,044,637.	+ 9.4	390,812,974.	- .2	391,505,764.	36.15	
Patents, Goodwill, etc.	29,905,938.	+18.7	25,191,470.	25,193,820.	2.70	
Net Profit + Net Worth ³	.101		.084		.050		
Net Profit + Capitalization ⁴	.079		.066		.039		
Depreciation	13,505,789.	+ 4.7	12,904,102.	- .8	13,009,753.	1.22	
Dep. + Fixed Assets ⁵	.049		.052		.053		
Times Deb. Stk. Div. Earned	7.1		6.0		4.0		
Times Prior Chgs. Earned	7.1		6.0		4.0		
Bond Maturities Within 3 Yrs.	Not Avail.						



(A) Depreciation.
(B) Taxes.
(C) Deb. Dividend.
(D) Common Dividend.
(E) Surplus.
Other Income shown by
inside vertical lines.

Explanation: (1) Number of dollars in current assets for each dollar in current liabilities. (2) Denotes dependency of working capital on inventory. (3) Amount of profit from each dollar of net worth. (4) Amount of profit from each dollar of capitalization. (5) Amount charged to depreciation for each dollar of plant. Note: Increasing trend in ratios denotes improvement. Decreasing trend in ratios is unfavorable.

COMPARATIVE BALANCE SHEET

ASSETS	LIABILITIES			
	Dec. 31, 1934	%	Dec. 31, 1933	%
Cash	\$30,879,071.	4.9	\$18,838,539.	3.1
Marketable Securities*	30,816,771.	4.9	58,010,388.	9.5
Accts. & Trade Accept. Rec.	18,659,897.	3.0	19,086,199.	3.2
Inventories	43,669,984.	6.9	33,835,935.	5.6
Total Current Assets	\$124,025,723.	19.7	\$129,771,061.	21.4
Plants & Properties	275,413,934.	43.6	246,724,457.	40.7
Gen. Motors Com. Stock**	157,000,000.	24.9	154,500,000.	25.5
Miscellaneous Securities	38,326,063.	6.1	41,331,026.	6.8
Notes Rec. for Empl. Stk.	5,259,694.	.8	7,146,576.	1.2
Patents, Goodwill, etc.	29,905,938.	4.7	25,191,470.	4.2
Deferred Items	1,188,929.	.2	966,474.	.2
	\$631,120,281.	100.0	\$605,631,064.	100.0
*Market Value	\$31,019,829.		57,531,135.	
**10,000,000 shares at \$15.70 in 1934 and \$15.45 in 1933.				

EARNINGS TREND BASED ON SALE OF "RIGHTS" AND PROCEEDS INVESTED IN ADDITIONAL STOCK

1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
13.30	18.23	2.53	9.06	22.46	20.09	33.79	63.12	69.76	94.32	110.46	72.49	68.03	29.00	47.48	58.31

Explanation: "Earnings on original share," as indicated by the solid red line on all Investographs, are adjusted to compensate for stock dividends and stock splits only. "Rights" being disregarded and considered as income. Frequent or valuable offerings of "Rights," however, have a tendency to dilute equities and for this reason some consideration that funds received from sale of "Rights" represent partial liquidation of invested capital. For this reason an earnings trend based upon sale of "Rights," and the investment of the proceeds of those "Rights" in additional stock, is given in the above table which, of course, is also adjusted for stock dividends and splits.

EASTMAN KODAK CO.

(EK)

COMPARATIVE NET INCOME

Total Per Sh. Total Per Sh.

Dividends as shown in 1932 are on the basis of the new stock.
 Adjustments on foreign exchange amounting to \$1.67 per share
 in 1931 are charged to contingency reserve.
 Net income for 1933 includes profit on foreign exchange adjustment
 in excess of amount credited to contingencies amounting to
 \$65 per share.

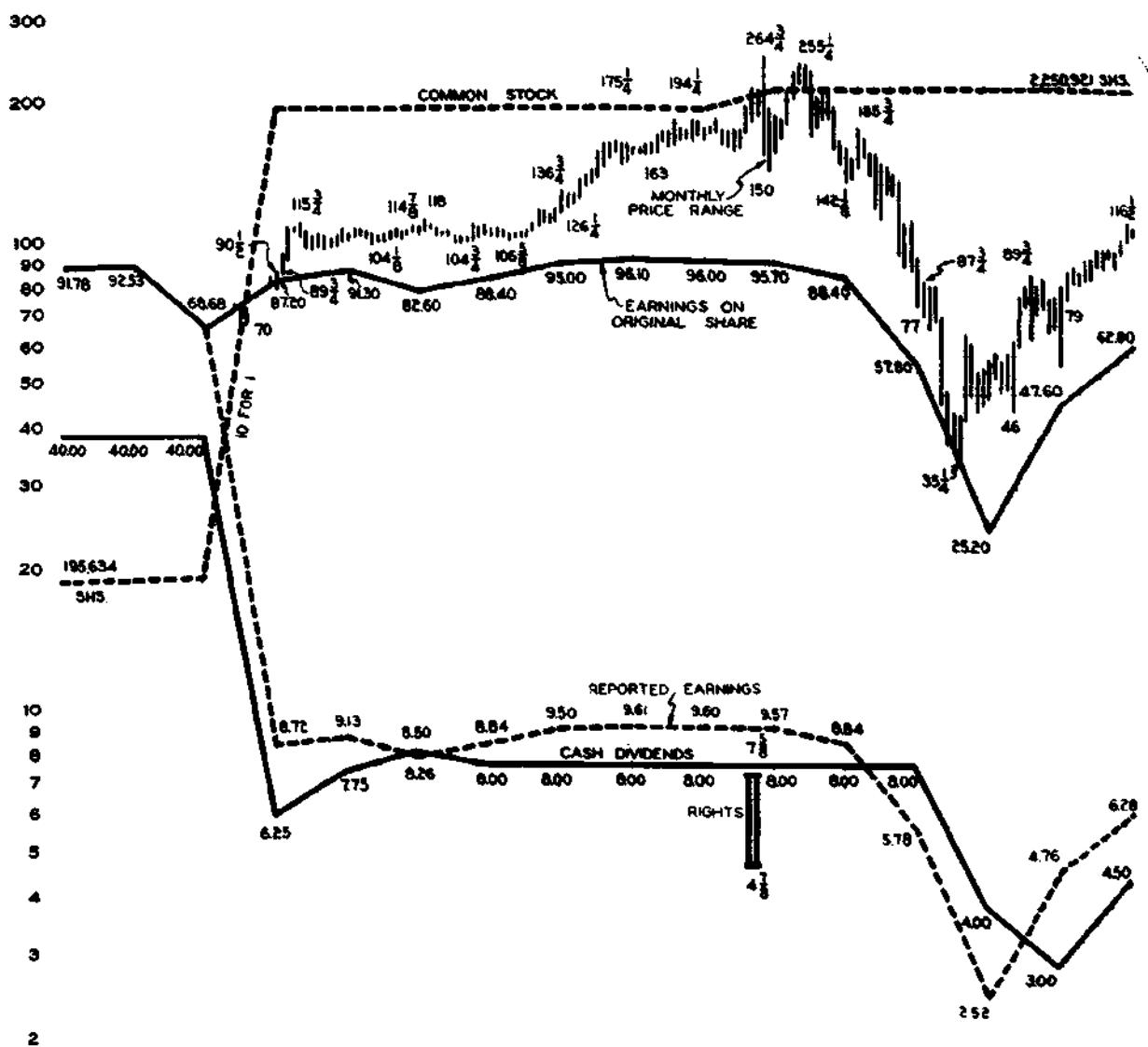
24 wks. end. 6/16/34	\$6,574,934.	\$2.91	6/16/35	\$ 6,878,215	\$3.06
28 wks. end. 12/29/35	7,558,371.	3.37	12/29/35		

1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
AVERAGE PRICE: EARNSHIPS RATIO	5.6	9.4	9.0	11.2	13.3	12.6	12.8	15.7	16.6	21.7	22.5	22.7	24.4	14.3	15.6

800	800
700	690
600	535
500	596
400	600
300	495
200	4369.942
100	
0	

PFD. STOCK DIV. REQ.

4369.942

INCLUDES 6.75 EXTRA
\$100 DIVIDEND BASIS
FOR COMMON 3-3-35

1
CON DIV. RECORD
EX. DIV. PAYABLE
MAR. 3 APR. 1
JUNE 3 JULY 1
SEPT. 3 OCT. 1
DEC. 3 JAN. 2

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APPENDIX

EASTMAN KODAK CO.

CHAPTER 1

The largest manufacturer in the world of cameras, motion picture film and photographic supplies, this company has passed its fiftieth year. "Kodak" products and service are distributed through subsidiary companies or authorized dealers in all countries. The main plant of the Eastman Kodak Company is located at Rochester, N. Y., where during the past few years a broad program of plant expansion has been carried on including the acquisition of large manufacturing plants in France, Germany and the United States. In all, there are 15 plants; 6 in the United States, 3 in Germany, 1 in England and one each in Canada, France, Hungary and Australia.

In 1930 production of cellulose acetate (or the manufacture of safety films and yarn for the rayon industry) was begun on a large scale at the Tennessee-Eastman Corp. plant at Kingsport, Tenn.,

where more than 3,000 are now employed. The company, also, acquired the gelatine plants and business of the American Glue Company at Peabody, Mass., now known as the Eastman Gelatine Corp. The Recordak Corp., a subsidiary, markets a device for photographing checks which is used in the banking field. Eastman Teaching Films, Inc., has built up a large library of educational films for teaching work.

In March, 1931; the company announced Kodak Verichrome Film, considered to represent the greatest advance in snapshot photography since non-curling film was introduced in 1903.

In 1932 the Cine-Kodak Eight for amateur motion pictures was introduced followed in 1933 by a 16mm. Cine-Kodak Special for the use of advanced amateurs and scientists.

Audit by Price, Waterhouse Co.

COMPARATIVE STATISTICAL ANALYSIS

	1934	Per Cent Change	1933	Per Cent Change	1932	Per Share 1934	INCOME ACCOUNT
Current Assets	\$91,522,874.	+14.6	\$79,884,343.	+21.7	\$65,666,575.	\$40.66	After Oper. Expense 1934 1933 1932
Current Liabilities	15,109,871.	+38.3	10,926,860.	+38.7	7,878,565.	6.71	(A)
Cur. Assets + Cur. Liabil. ¹	6.1		7.3		8.3		B = 4
Working Capital	76,413,003.	+10.8	68,957,483.	+19.3	57,788,010.	33.95	C = 4
Inventory	39,076,080.	+15.3	33,904,121.	+15.0	29,476,937.	17.36	D = 4
Working Cap. + Inventory ²	2.0		2.0		2.0		E = 4
Sales	Not Avail.		Not Avail.		Not Avail.		F = 4
Net Profit for Common	14,133,305.	+31.5	10,749,102.	+89.0	5,688,807.	6.28	G = 4
Net Worth	131,727,174.	+ 3.0	127,937,751.	+ 3.2	123,941,412.	58.52	H = 4
Patents, Goodwill, etc.	None		None		None		I = 4
Net Profit + Net Worth ³	.107		.084		.046		J = 4
Net Profit + Capitalization ⁴	.102		.080		.044		K = 4
Depreciation	6,022,174.	+ 3.5	5,818,051.	+ 1.0	5,757,626.	2.68	L = 4
Dep. + Fixed Assets ⁵	.052		.052		.054		M = 4
Times Pfd. Div. Earned	39.2		30.1		16.4		N = 4
No Bonds Outstanding							O = 4

Explanation: (1) Number of dollars in current assets for each dollar in current liabilities. (2) Denotes dependency of working capital on inventory. (3) Amount of profit from each dollar of net worth. (4) Amount of profit from each dollar of capitalization. (5) Amount charged to depreciation for each dollar of plant. Note: Increasing trend in ratios denotes improvement. Decreasing trend in ratios is unfavorable.

- (A) Depreciation.
- (B) Other Charges.
- (C) Tax.
- (D) Preferred Dividend.
- (E) Common Dividend.
- (F) Surplus.
- Other Income shown by inside vertical lines.

COMPARATIVE BALANCE SHEET

	ASSETS		LIABILITIES	
	Dec. 29, 1934	%	Dec. 30, 1933	%
Cash	\$14,683,443.	6.7	\$17,276,786.	8.6
Marketable Securities	19,617,729.	9.0	19,338,873.	6.2
Accts. & Bills Receivable	18,145,622.	8.5	16,364,563.	8.2
Inventories	39,076,080.	18.0	33,904,121.	16.8
Total Current Assets	\$ 91,522,874.	49.2	\$ 79,884,343.	39.8
Land, Bldgs., Plant & Mach.	116,896,139.	53.8	111,155,834.	55.5
Invest. Affil. Companies	1,508,032.	.7	1,621,949.	.8
Other Investments	3,772,661.	1.7	4,612,861.	2.3
Kodak Empl. Assoc.	2,349,622.	1.1	2,454,521.	1.2
Deferred Charges	1,064,568.	.5	771,645.	.4
	\$217,113,896.	100.0	\$200,501,153.	100.0
Accounts Payable	... \$11,078,273.		\$ 9,146,184.	
Dividends Payable	... 4,031,598.		1,780,676.	
Total Current Liabil.	\$15,109,871.		\$10,926,860.	
Res. for Depreciation	51,483,591.		46,346,455.	
Gen'l. & Contingent Res.	12,627,560.		9,124,387.	
6% Cum. Pfd. Stk.	(\$100 par) ...		6,165,700.	
			6,165,700.	
Common Stock (no par)	22,509,210.		22,559,210.	
Paid-in-Surplus	28,617,862.		28,782,600.	
Earned Surplus	80,600,102.		76,595,941.	
	\$217,113,896.		\$200,501,153.	

EARNINGS TREND BASED ON SALE OF "RIGHTS" AND PROCEEDS INVESTED IN ADDITIONAL STOCK

1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
91.78	92.53	68.68	87.20	91.30	82.60	88.40	95.00	96.10	96.00	96.01	88.68	57.98	25.28	47.75	63.00

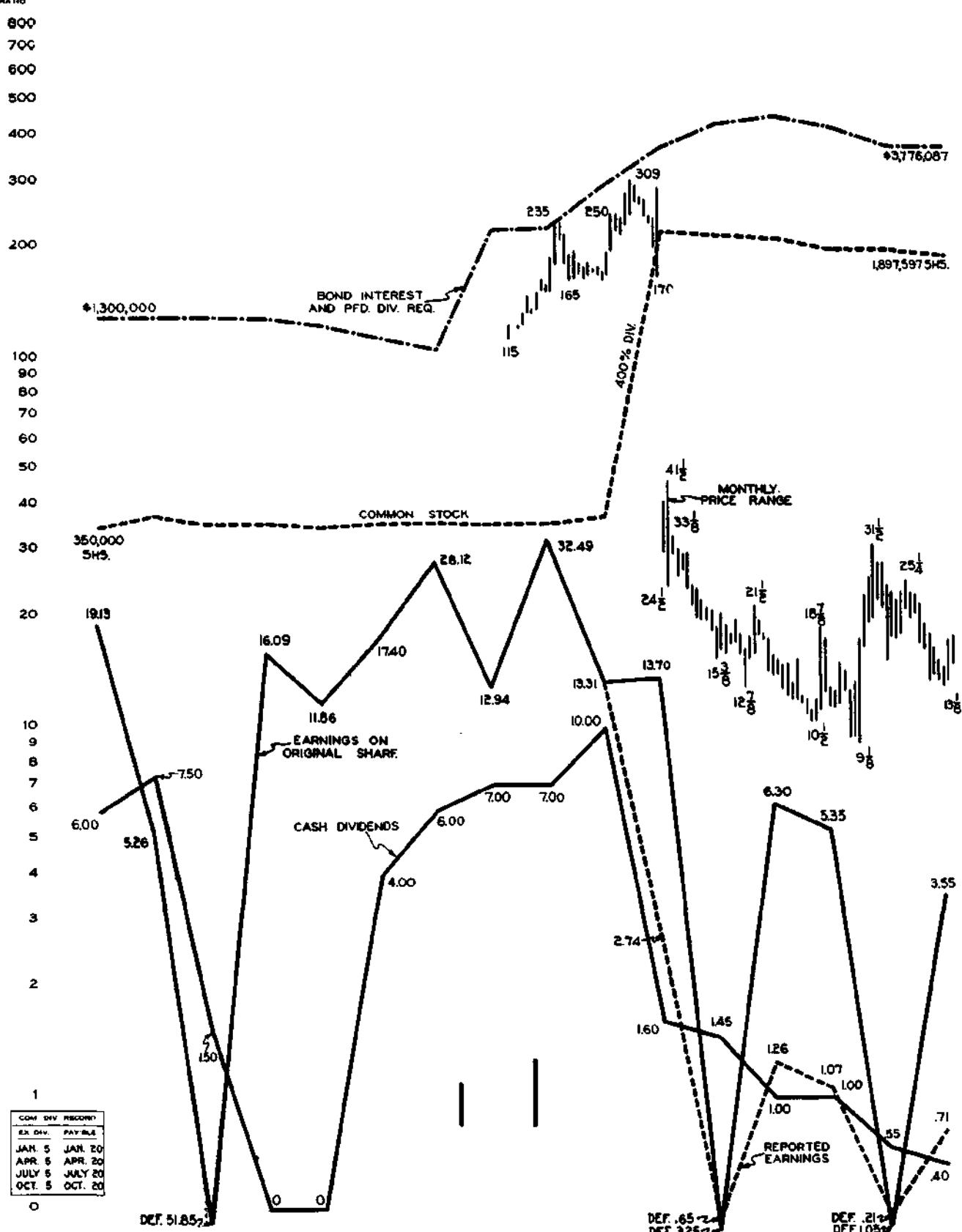
Explanation: "Earnings on original share," as indicated by the solid red line on all Investographs are adjusted to compensate for stock dividends and stock splits only. "Rights" being disregarded and considered as income. Frequent or valuable offerings of "Rights," however, have a tendency to dilute equities and for this reason some consider that funds received from sale of "Rights" represent partial liquidation of invested capital. For this reason an earnings trend based upon sale of "Rights," and the investment of the proceeds of those "Rights" in additional stock, is given in the above table which, of course, is also adjusted for stock dividends and splits.

APPENDIX

Price range to 1926 Cleveland S. E. New York Curb to December 1929, N. Y. S. E. thereafter. Fiscal years end October 31st. Price earnings ratios and monthly price ranges are on calendar year basis, all other information reflects operations for the fiscal years ending October 31st and this date is plotted to correspond with this date on the chart form. Price of rights in October 1929 is not available. Increase in capital stock, except as shown, is due to sales for cash. Net income for 1931 is before adjustment of current assets for foreign subsidiaries equivalent to \$.86 per share.

		Total	Per Sh.	Total	Per Sh.
	Ouer.	1/31/34		1/31/35	
		4/30/34	\$1122,254.	4/30/35	\$ 757,158
		7/31/34		7/31/35	
		10/31/34	11 232,797.	10/31/35	
16 mo.			.65		

	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
AVERAGE PRICE EARNINGS RATIO	9.0	25.7	DEF.	4.0	6.4	48	43	8.7	5.2	15.6	15.7	DEF.	13.6	13.7	DEF.	27.0



One of the largest manufacturers of rubber tires in the world, this company either directly or through subsidiaries also manufactures rubber boots, shoes and heels, electric storage batteries, spark plugs, brake lining, automobile rims and other automobile accessories. A large percentage of the manufacturers of automobiles and trucks use Firestone tires as original equipment.

The company's products are distributed through approximately 200 branches and warehouses to 30,000 dealers in this country and through about 300 branches and distributing agencies in foreign countries.

In order to maintain and build up markets the company since 1929 has been developing a chain of retail service stores which are reported by the President, Mr. Harvey S. Firestone, to have made a profit for the first time in 1934. Nearly 500 stores are now operated. It was also stated that export business and foreign factories in Canada, England and the Argentine operated on a profitable basis and their new factory in Spain is showing promise.

Mr. Firestone informed his stockholders that the company had enough rubber and cotton on hand below the market to take of requirements for 1935.

Audit by Lybrand, Ross Bros. & Montgomery

COMPARATIVE STATISTICAL ANALYSIS

	1934	Per Cent Change	1933	Per Cent Change	1932	Per Share 1934	INCOME ACCOUNT
Current Assets	\$62,087,151.	+ 9.4	\$56,766,302.	+ 6.6	\$53,262,247.	\$32.72	COMPLETE
Current Liabilities	14,302,315.	+117.9	6,563,145.	+67.3	3,923,386.	7.54	1934 1933 1932
Cur. Assets + Cur. Liabil. ¹	4.3		8.6		13.6		100
Working Capital	\$47,784,836.	- 4.8	50,203,157.	+ 1.8	49,338,861.	25.18	
Inventory	36,396,283.	+ 27.3	28,541,261.	+ 6.4	26,826,143.	19.14	
Working Cap. + Inventory ²	1.3		1.8		1.8		
Sales	99,130,944.	+ 31.5	75,402,268.	- 10.6	84,337,173.	52.24	
Sales + Inventory ³	2.7		2.6		3.1		
Sales + Net Worth ⁴	(8) + 1.86	(1)	1.41		1.51		
Sales + Fixed Assets ⁵	1.13 ← (7)		.895		.987		
Net Profit for Common	1,355,051.		def. 417,906.		2,127,746.	.71	
Net Profit + Sales ⁶	.014 ← (9)		def. .006		.025	(4)	
Net Worth	53,405,717.	- .2	53,523,815.	- 4.2	55,858,398.	98.14	
Patents, Goodwill, etc.	None		None		None		
Net Profit + Net Worth ⁷	.025		def. .008		.038		
Net Profit + Capitalization ⁸	.011		def. .003		.017		
Depreciation	5,804,295.	+ 3.2	5,625,097.	+ 7.9	5,911,893.	3.06	
Dep. + Fixed Assets ⁹	.066 ← (6)		.067		.061		
Times Subs. Bond Int. Earned	5.3		3.4		5.3		
Times Pfd. Div. Earned	1.4		.9		1.5		
Times Prior Chgs. Earned	1.4		.9		1.5		
Bond Maturities Within 3 Yrs.	None ← (10)						

Explanation: (1) Number of dollars in current assets for each dollar in current liabilities. (2) Denotes dependency of working capital on inventory. (3) Shows relation of annual sales to inventory. (4) Amount in sales for each dollar of net worth. (5) Amount in sales for each dollar of plant or productive assets. (6) Amount of profit on each dollar of sales. (7) Amount of profit on each dollar of net worth. (8) Amount of profit from each dollar of capitalization. (9) Amount charged to depreciation for each dollar of plant. Note: Increasing trend in ratios denotes improvement. Decreasing trend in ratios is unfavorable.

- (A) Oper. Expense.
 - (B) Depreciation.
 - (C) Interest & Other Charges.
 - (D) Preferred Dividend.
 - (E) Common Dividend.
 - (F) Surplus.
- Other income shown by inside vertical lines.

- (A) Oper. Expense.
 - (B) Depreciation.
 - (C) Interest & Other Charges.
 - (D) Preferred Dividend.
 - (E) Common Dividend.
 - (F) Surplus.
- Other income shown by inside vertical lines.

COMPARATIVE BALANCE SHEET

ASSETS	Oct. 31, 1934		Oct. 31, 1933		LIABILITIES	
		%		%		
Cash.....	\$10,614,594.	6.6	\$14,320,030.	9.9	Notes Payable Banks..	\$ 5,000,000.
Accts. & Notes Rec.....	15,146,334.	9.4	13,905,011.	9.0	Acct's Payable.....	5,895,590.
Inventories.....	36,396,223.	22.4	28,541,261.	18.4	Accr. Taxes & Interest..	3,406,725.
Total Current Assets....	\$62,087,151.	38.4	\$56,766,302.	36.6	Total Current Liabil..	\$14,302,315.
Land, Bldgs. & Mchy....	87,627,546.	54.9	84,939,309.	54.4	Res. for Depreciation..	27,984,482.
The Firestone Park Land Co.	1,856,513.	1.1	1,909,867.	1.2	Res. for Investments, etc.	875,000.
Employees, Stock Contracts	3,778,438.	2.3	2,748,013.	1.8	Res. for Insurance.....	600,000.
Stocks and Bonds (At Cost)	9,708,531.	1.7	9,353,330.	1.5	Subs. Funded Debt....	17,350,000.*
Misc. Accts. & Advs....	9,288,447.	1.4	2,135,386.	1.4	Minority Interest.....	760,841.
Invest. of Subs. Co.....		3,044,385.	8.0	6% Cum. Preferred Stk.	
Prepaid Int., Ins. & Taxes...	338,790.	.2	275,995.	.2	(\$100 Par).....	46,597,500.
Bond Disc. & Deferred Exp.	1,189,909.	.7	1,347,922.	.9	Common Stock (\$100 Par)	18,975,970.
	<u>\$161,875,955.</u>	<u>100.0</u>	<u>\$154,839,109.</u>	<u>100.0</u>	Earned Surplus.....	32,493,855.
					Paid-in-Surplus.....	2,005,892.
						<u>\$161,875,955.</u>
						<u>\$154,839,109.</u>

*Sinking Fund Requirements within one year \$1,350,000

Earnings as shown for 1928-1930 are after inventory adjustments and for 1931 include inventory adjustment, foreign exchange adjustment and loss on securities equivalent to \$2.75 per share.

Deficit for 1932 includes: adjustment of inventories (\$1,108,386), foreign exchange (\$366,203) and securities (\$99,040) in all equal to \$1.07 per share. 1933 earnings do not include loss on extraordinary charges of \$1,679,713, and profit and bonds purchased of \$996,462, in all equal to a loss of \$.47 per share.

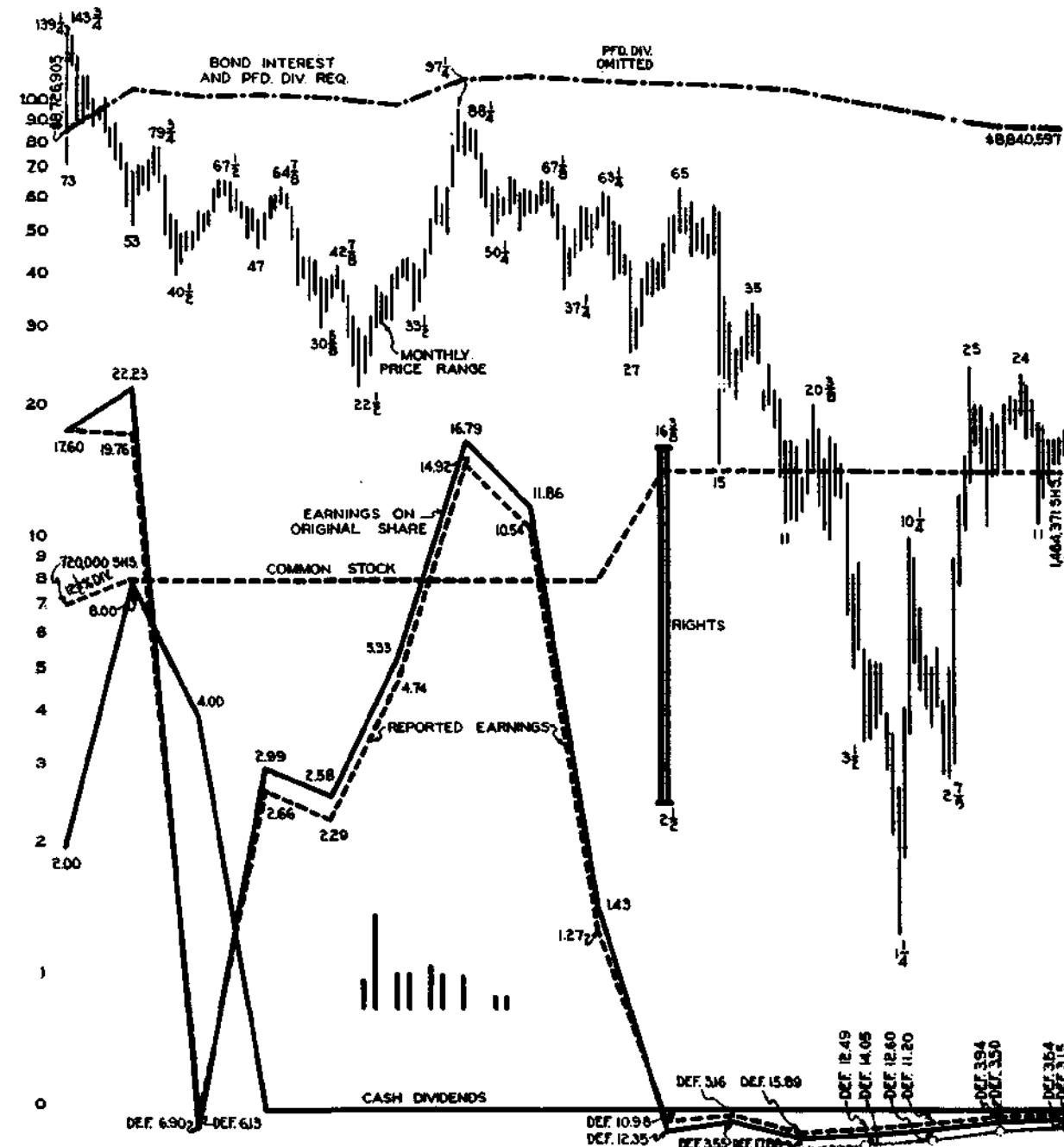
U. S. RUBBER CO.

(RU)

	16 Mo. ending	COMPARATIVE NET INCOME		Total	Per Sh.
		Total	Per Sh.		
Quar.	3/31/34			3/31/35	
"	6/30/34	\$1d 2,577,776.	\$1d 1.76	6/30/35	def. \$1,945,784 d \$1.33
"	9/30/34			9/30/35	
"	12/31/34	1d 2,035,617.	1d 1.39	12/31/35	

1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
AVERAGE PRICE EARNINGS RATIO	5.0	DEF	215	209	6.9	4.4	6.6	414	DEF						

800
700
600
500
400
300
200



APPENDIX
X

U. S. RUBBER CO.

9
CHAPTER
1

The second largest manufacturer of rubber products, this company has in recent years been following a program of centralizing its production in Detroit. During 1930 this resulted in the closing of 11 factories and the sale of 4. Early in 1931 an interest was acquired in Samson Tire and Rubber Corp. of Los Angeles and the Gillette Rubber Co. of Eau Claire, Wis.

Tire casings and tubes represent the main activities of the company although a substantial business is done in rubber foot wear, "Uskide" soles, household goods, rain and sport coats,

luggage, flooring, sporting goods, rubber industrial goods, chemicals and imitation leather and waterproof materials. The company is said to be the chief source of tire supply for Montgomery Ward & Co.

Through United States Rubber Plantations, Inc., the company operates the largest rubber plantations in the world, located in Sumatra and Malaya. The plantations showed a profit during 1934, after depreciation of \$11,735,842.

Audit by Haskins & Sells

COMPARATIVE STATISTICAL ANALYSIS

	1934	Per Cent Change	1933	Per Cent Change	1932	Per Share 1934	INCOME ACCOUNT
							COMPLETE 1934 1933 1932
Current Assets	\$57,743,651.	+15.3	\$50,099,681.	+3.9	\$48,928,364.	\$39.43	
Current Liabilities	14,178,463.	+31.5	10,778,827.	-31.5	15,742,559.	9.68	
Cur. Assets + Cur. Liabil. ¹	4.1		4.6		3.1		
Working Capital	43,565,188.	+10.8	39,320,854.	+21.0	32,485,805.	29.75	
Inventory	29,298,072.	+16.0	25,253,844.	+27.5	19,800,067.	20.01	
Working Cap. + Inventory ²	1.5		1.6		1.6		
Sales	105,476,872	+19.4	88,326,666.	+12.8	78,300,091.	72.03	
Sales ÷ Inventory ³	3.6	(1)	3.5		4.0		(3)
Sales ÷ Net Worth ⁴	8.49	(8)	1.24		1.09		
Sales ÷ Fixed Assets ⁵	.805	(7)	.674		.586		
Net Profit for Common	def. 4,613,393.		def. 5,131,815.		def. 16,400,003.	def. 3.15	(4)
Net Profit + Sales ⁶	def. .044	(9)	def. .058		def. .209		
Net Worth	70,633,830.	.8	71,177,439.	-.8	71,783,776.	48.24	
Patents, Goodwill, etc.	59,168,645.	+.4	58,925,372.		58,925,372.	40.41	
Net Profit + Net Worth ⁷	def. .065		def. .079		def. .098	7.83	(5)
Net Profit + Capitalization ⁸	def. .083		def. .025		def. .080		
Depreciation	5,966,400.	-7.7	6,469,613.	-1.2	6,541,313.	4.07	
Dep. + Fixed Assets ⁹	.046	(6)	.049		.049		
Times Bond Int. Earned	1.2		1.0		Not Earned		
Times Pfd. Div. Earned	.5		.4		Not Earned		
Times Prior Chgs. Earned	.5	(10)	.4		Not Earned		
Bond Maturities Within 3 Yrs.	10,198,883.		(\$5,000,000—3 Yrs. 6% Gold Notes due 6/1/36, \$5,062,000— 6½% Serial Gold Notes due 1935-6-7)				

Explanation: (1) Number of dollars in current assets for each dollar in current liabilities. (2) Denotes dependency of working capital on inventory. (3) Shows relation of annual sales to inventory. (4) Amount in sales for each dollar of net worth. (5) Amount in sales for each dollar of plant or productive assets. (6) Amount of profit on each dollar of sales. (7) Amount of profit on each dollar of net worth. (8) Amount of profit on each dollar of capitalization. (9) Amount charged to depreciation for each dollar of plant. Note: Increasing trend in ratios denotes improvement. Decreasing trend in ratios is unfavorable.

(A) Oper. Expense.
(B) Depreciation.
(C) Interest & Misc. Chgs.
(D) Surplus.
Non-Cum. Pfd. Div. of
\$5,208,728 not paid in
1934, \$5,208,728 in
1933, \$5,208,728 in
1932.

COMPARATIVE BALANCE SHEET

ASSETS	LIABILITIES				Dec. 31, 1934	Dec. 31, 1933	
	Dec. 31, 1934	%	Dec. 31, 1933	%			
Cash	\$10,979,722.	5.0	\$ 8,054,292.	3.7	Accts. & Accept. Pay..	\$ 8,352,533.	\$ 5,497,831.
Marketable Securities	253,754.	.1	139,002.		Acer. Int. & Other Liabil.	4,340,930.	3,923,996.
Accts. & Notes Rec.	17,212,103.	7.8	16,652,543.	7.7	Serial Notes Due	1,485,000.	1,357,000.
Inventories	29,298,072.	13.3	25,253,844.	11.8	Total Current Liabil.	\$14,178,463.	\$10,778,827.
Total Current Assets	\$57,743,651.	26.2	\$50,099,681.	23.2	Res. for Depreciation	57,316,417.	53,371,673.
Properties, Plant & Equip't.	131,063,957.	59.3	130,958,245.	60.6	Other Reserves	3,377,585.	3,043,575.
U. S. Rubber Plantations	24,108,837.	10.9	27,084,871.	12.5	Minority Interest	315,700.	338,700.
Insurance Fund	1,071,628.	.5	1,034,632.	.5	Funded Debt	68,957,883.	71,199,915.
Securities of Controlled Cos.	3,675,950.	1.7	3,661,575.	1.7	8% Non-Cum. Pfd. Stk.		
Other Securities	1,566,919.	.7	1,632,023.	.8	(\$100 par)	65,109,100.	65,109,100.
Goodwill, Patents, etc.		*		*	Common Stk. (no par) and Surplus*	11,465,185.	12,252,067.
Deferred Assets	1,490,791.	.7	1,629,830.	.7		\$220,720,333.	\$216,093,857.
	\$220,720,333.	100.0	\$216,093,857.	100.0			

*Goodwill, Patents, etc., are carried on the books of the company at \$59,168,645 and are shown in this report as a deduction from common stock and surplus to coincide with the balance sheet as submitted to the stockholders in previous reports. Because Goodwill and Patents are still carried, however, on the control records, this item is included in the statistical analysis figure for net worth.

EARNINGS TREND BASED ON SALE OF "RIGHTS" AND PROCEEDS INVESTED IN ADDITIONAL STOCK

1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
17.60	22.23	46.90	2.99	2.58	5.33	16.79	11.86	1.43	d13.39	d3.85	d19.38	d15.23	d13.66	d4.27	d3.84

Explanation: "Earnings on original share," as indicated by the solid red line on all Investographs are adjusted to compensate for stock dividends and stock splits only, "Rights" being disregarded and considered as income. Frequent or valuable offerings of "Rights," however, have a tendency to dilute equities and for this reason some consideration that funds received from sale of "Rights" represent partial liquidation of invested capital. For this reason an earnings trend based upon sale of "Rights," and the investment of the proceeds of those "Rights" in additional stock, is given in the above table which, of course, is also adjusted for stock dividends and splits.

INVESTOGRAPH COMPARATIVE ANALYSIS BY INDUSTRIES

The following tables facilitate comparison of income statement and balance sheet ratios between individual stocks as well as "averages" in each of the main classifications of industry.

The "averages" as shown are not merely averages of the ratio figures because such procedure would give as much "weight" to small companies as to large ones which, obviously, would not be proper. Instead, averages are determined by first adding together all the basic figures necessary before making final computations, thus automatically adjusting for relative size of the various companies in each group and giving a true cross-section

of the different industries. The figures in heavy type are intended to call attention to favorable ratios, being those above the average.

Unless otherwise indicated by a date following company names, all computations are based upon income statements and balance sheets as of Dec. 31, 1934. The data furnished here includes only the most important ratios and figures and reference should be made to individual Investographs for complete historical and analytical information. Because the following tables require inclusion of all possible company reports, preparation of a new series will have to wait upon receipt of late final statements which will probably be in July 1936.

AGRICULTURAL IMPLEMENTS

See Foot-note Explanation	1	2	3	4	5	6	7	8	9	Per Cent of Capitalization				
	Cur. Assets + Cur. Liabil.	Working Cap. + Inventory	Sales + Inventory	Sales + Net Worth	Sales + Fixed Assets	Net Profit Sales	Net Profit Net Worth	Net Profit Capitalization	Depreciation Fixed Assets	Times Prior Chgs. Earned	Common & Sur. less Intangibles	Deferred Chgs. etc.	Preferred & Minority Int.	Funded Debt
NAME OF COMPANY														
Case (J. I.) Co.	28.6	2.6	*	*	*	*	d.055	d.039	.023	**	68.4	3.3	28.3x	—
Caterpillar Tractor	12.7	1.9	2.3	.651	.911	.154	.100	.100	.063	None	99.1	.1	—	—
Deere & Co. (10/31/34)	15.7	3.2	*	*	*	*	d.061	d.030	.037	.2	48.1	.6	51.3x	—
International Harvester	10.1	2.2	*	*	*	*	d.008	d.006	.036	.7	71.9	.1	28.0x	—
Average	11.5	2.3	—	—	—	—	d.004	d.003	.038	.9	70.6	.5	28.9	—

AUTOMOBILES AND TRUCKS

Auburn Automobile (11/30/34)	8.8	1.6	3.2	1.15	.954	d.353	d.404	d.317	.044	None	77.9	.7	14.9y	6.5
Chrysler Corp.	2.3	1.3	9.7	4.26	2.81	.026	.112	.083	.086	4.4	72.0	1.8	—	26.2
Ford Motor of Canada	12.9	7.6	*	*	*	*	.004	.004	.053	None	97.5	2.5	—	—
General Motors	4.1	2.0	6.1	1.20	1.56	.181	.121	.086	.060	18.3	71.4	7.4	21.2	—
Hudson Motor Car	1.3	.5	11.5	2.19	1.06	d.062	d.135	d.135	.040	*	96.3	1.7	—	—
Mack Trucks	13.1	2.5	2.2	.442	.524	.001	.0004	.0004	.022	None	93.5	6.5	—	—
Nash Motors (11/30/34)	21.4	13.4	9.2	.573	1.70	d.083	d.047	d.047	.071	None	99.9	.1	—	—
Packard Motor Car	4.8	2.9	3.1	.351	.324	d.499	d.175	d.175	.041	None	99.0	1.0	—	—
Average	3.9	2.0	6.6	1.40	1.61	.060	.084	.068	.062	7.7	75.2	6.1	16.1	2.6

AUTOMOBILE PARTS AND ACCESSORIES

Bendix Aviation	7.3	2.9	*	*	*	*	.077	.077	.066	103.1	97.6	.8	.6	1.0
Bohn Aluminum	6.9	1.1	*	*	*	*	.216	.201	.052	22.3	90.8	2.6	—	6.6
Borg-Warner	4.3	1.9	*	*	*	*	.135	.116	.063	12.9	82.8	2.6	11.1	3.5
Briggs Manufacturing	3.1	2.2	*	*	*	*	.195	.195	.045	None	99.6	.4	—	—
Eaton Manufacturing	4.2	2.1	*	*	*	*	.087	.078	.062	None	85.6	3.9	10.5y	—
Electric Auto Lite	3.7	1.9	*	*	*	*	.068	.050	.036	3.9	71.9	1.9	25.1	1.1
Electric Storage Battery	17.7	5.6	4.6	.547	.740	.110	.060	.060	*	758.1	96.2	1.7	.1x	—
Motor Products	5.4	3.4	*	*	*	*	.020	.020	.036	None	98.5	1.5	—	—
Murray Corp.	2.8	1.3	*	*	*	*	d.072	d.061	.047	**	82.5	2.4	1.4x	13.7
Timken Roller Bearing	15.6	3.2	*	*	*	*	.085	.085	.052	None	99.5	.5	—	—
Trico Products	6.5	12.1	*	*	*	*	.226	.226	.062	None	95.5	4.5	—	—
Average	5.7	2.6	—	—	—	—	.098	.092	.052	21.0	92.3	1.7	4.3	1.7

AUTOMOBILE TIRES, RUBBER GOODS, ETC.

Firestone Tire (10/31/35)	4.3	1.3	2.7	1.86	1.13	.014	.025	.011	.066	1.4	43.9	1.3	40.1	14.7
Goodrich	6.1	1.4	3.0	1.09	1.29	.005	.005	.003	.049	1.1	22.1	36.1	18.4	23.4
Goodyear Tire	11.8	1.7	2.5	3.98	.849	d.007	d.029	d.006	.051	.9	17.9	1.6	48.8	31.7
U. S. Rubber	4.1	1.5	3.6	1.49	.805	d.044	d.065	d.023	.046	.5	4.9	29.6	31.9	33.6

Average 6.3 1.6 2.9 1.76 .967 d.008 d.015 d.006 .052 .9 19.5 18.7 34.5 27.3

*not available

**not earned

d—deficit

x—no minority interest

y—no preferred

Explanation: (1) Number of dollars in current assets for each dollar in current liabilities. (2) Denotes dependency of working capital on inventory. (3) Shows relation of annual sales to inventory. (4) Amount in sales for each dollar of net worth. (5) Amount in sales for each dollar of plant or productive assets. (6) Amount of profit on each dollar of sales. (7) Amount of profit from each dollar of net worth. (8) Amount of profit from each dollar of capitalization. (9) Amount charged to depreciation for each dollar of plant.

APPENDIX

Page 2

AVIATION													Per Cent of Capitalization			
See Foot-note Explanation	1	2	3	4	5	6	7	8	9				Common & Sur. less Intangibles	Deferred Chgs. Patents, etc.	Preferred & Minority Int.	Funded Debt
NAME OF COMPANY	Cur. Assets + Cur. Liabil.	Working Cap. + Inventory	Sales ÷ Inventory	Sales + Net Worth	Sales + Fixed Assets	Net Profit + Sales	Net Profit + Net Worth	Net Profit + Capitalization	Depreciation + Fixed Assets	Times Prior Chgs. Earned						
Aviation Corp.	3.7	8.1	*	*	*	*	d.177	d.173	.272	None	92.6	5.2	1.9y	.3		
Curtiss-Wright	5.1	1.9	6.0	.567	.900	d.135	d.076	d.071	.041	.2	92.0	.6	6.2	1.2		
Douglas Aircraft	6.1	1.3	2.4	1.21	5.10	.007	.009	.009	.046	None	97.8	2.2	-0-	-0-		
Average	4.5	2.5	4.2	.661	1.26	d.096	d.097	d.043	.088	**	92.8	2.2	4.3	.7		
BUILDING (EQUIPMENT, SUPPLIES)																
American Radiator	9.9	2.1	2.6	.552	.503	.017	.000	.008	.032	1.7	83.4	1.0	7.9	7.7		
Congoleum-Nairn	20.5	2.7	*	*	*	*	.003	.003	.019	None	99.7	.3	-0-	-0-		
General Asphalt	14.0	2.3	4.1	.441	.438	d.037	d.016	d.016	.024	**	98.1	1.5	-0-	.4		
International Cement	10.2	2.4	2.8	.420	.212	.049	.021	.013	.044	1.7	62.4	2.3	-0-	35.2		
Johns-Manville	8.6	1.9	4.9	1.63	.647	.008	.009	.007	.033	1.4	76.9	.8	22.3	-0-		
Otis Elevator	17.9	5.7	*	*	*	*	d.067	d.055	.027	**	81.1	.9	18.0x	-0-		
U. S. Gypsum	15.5	5.2	*	*	*	*	.033	.028	.035	3.9	84.9	1.4	13.6x	-0-		
Average	11.4	2.6	3.0	.584	.452	.015	.011	.009	.033	1.9	81.8	1.2	9.1	7.9		
CHAIN STORES																
First National Stores (3/31/35)	3.8	1.0	9.3	5.41	6.48	.029	.154	.136	.066	13.2	86.3	2.0	11.7x	-0-		
Grant (W. T.) (1/31/35)	7.4	1.5	8.2	2.97	4.48	.031	.091	.062	.061	None	88.0	1.9	-0-	10.1		
Kresge (S. S.)	4.5	1.6	7.0	1.40	1.40	.078	.105	.065	.040	8.8	78.1	3.3	1.7x	16.9		
Kroger Grocery	4.4	1.2	10.6	4.66	7.73	.019	.088	.088	.082	583.1	98.7	1.1	.2x	-0-		
Neisner Bros.	7.3	2.8	11.6	4.16	2.51	.041	.171	.074	.035	3.0	41.0	2.4	23.6x	33.0		
Penney (J. C.)	5.4	1.2	5.1	3.92	*	.073	.287	.241	*	26.1	83.0	.9	16.1x	-0-		
Safeway Stores	4.7	1.1	18.8	8.00	7.26	.012	.005	.004	.085	3.9	66.2	1.1	32.7x	-0-		
Woolworth (F. W.)	13.2	1.5	7.1	1.54	3.81	.119	.182	.182	.024	None	98.4	1.1	-0-	.5		
Average	5.7	1.3	7.9	2.86	3.68	.055	.156	.138	.056	21.6	87.1	1.5	6.3	5.1		
CHEMICALS																
Air Reduction	9.3	8.3	9.6	.516	.624	.248	.128	.128	.053	None	98.7	1.3	-0-	-0-		
Allied Chemical	8.3	3.8	*	*	*	*	.086	.070	*	6.4	70.9	10.5	18.6x	-0-		
Amer. Agric. Chemical (6/30/34)	21.0	2.4	*	*	*	*	.056	.056	.068	None	97.9	2.1	-0-	-0-		
American Cyanamid	3.6	1.5	*	*	*	*	.063	.053	.034	6.1	71.8	11.4	3.0	13.8		
Columbian Carbon	8.1	2.6	4.4	.382	.280	.216	.083	.079	.027	None	94.8	.8	4.4y	-0-		
Commercial Solvents	13.2	2.9	*	*	*	*	*	.146	.146	.058	None	98.6	1.4	-0-	-0-	
DuPont (E. I.)	6.5	2.4	*	*	*	*	*	.101	.079	.049	7.1	72.3	6.1	21.4x	.2	
Freeport Texas	3.4	1.0	1.6	.641	.655	.159	.182	.093	.047	19.1	90.5	1.3	8.2x	-0-		
Glidden Co. (10/31/34)	3.4	1.1	3.8	1.89	1.88	.037	.069	.043	.030	2.7	48.0	13.5	25.4x	13.1		
Hercules Powder	13.9	2.2	3.6	1.02	.853	.089	.091	.062	.059	4.1	55.2	13.8	31.0x	-0-		
Mathieson Alkali	2.3	1.1	*	*	*	*	.048	.043	.036	7.0	89.0	.8	10.2x	-0-		
Monsanto Chemical	4.7	1.8	*	*	*	*	.167	.142	.057	17.2	83.5	1.1	10.5x	4.9		
Pittsburgh Plate Glass	7.3	2.2	*	*	*	*	.067	.067	*	None	99.2	.7	.ly	-0-		
Sherwin Williams (8/31/34)	7.0	1.8	*	*	*	*	.119	.074	*	4.7	65.5	1.6	32.9x	-0-		
Texas Gulf Sulphur	16.4	1.7	1.2	.297	.669	.408	.121	.121	.020	None	99.0	1.0	-0-	-0-		
Union Carbide & Carbon	6.2	1.5	*	*	*	*	.090	.084	.032	18.8	92.7	.7	2.0x	3.7		
United Carbon	3.6	2.9	7.5	.426	.290	.249	.106	.106	.041	15.9	93.9	2.4	.ly	3.6		
U. S. Ind. Alcohol	7.1	1.9	*	*	*	*	.132	.132	*	None	97.2	2.8	-0-	-0-		
Average	6.7	2.2	2.9	.619	.684	.171	.097	.080	.041	9.3	79.7	5.1	13.7	1.5		

*not available **not earned d—deficit x—no minority interest y—no preferred
 Explanation: (1) Number of dollars in current assets for each dollar in current liabilities. (2) Denotes dependency of working capital on inventory. (3) Shows relation of annual sales to inventory. (4) Amount in sales for each dollar of net worth. (5) Amount in sales for each dollar of plant or productive assets. (6) Amount of profit on each dollar of sales. (7) Amount of profit from each dollar of net worth. (8) Amount of profit from each dollar of capitalization. (9) Amount charged to depreciation for each dollar of plant.

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32 This Cumulative Supplement Replaces all previous 1935 Market Charts on Blue Paper. Retain Market Charts on Buff Paper through 1934

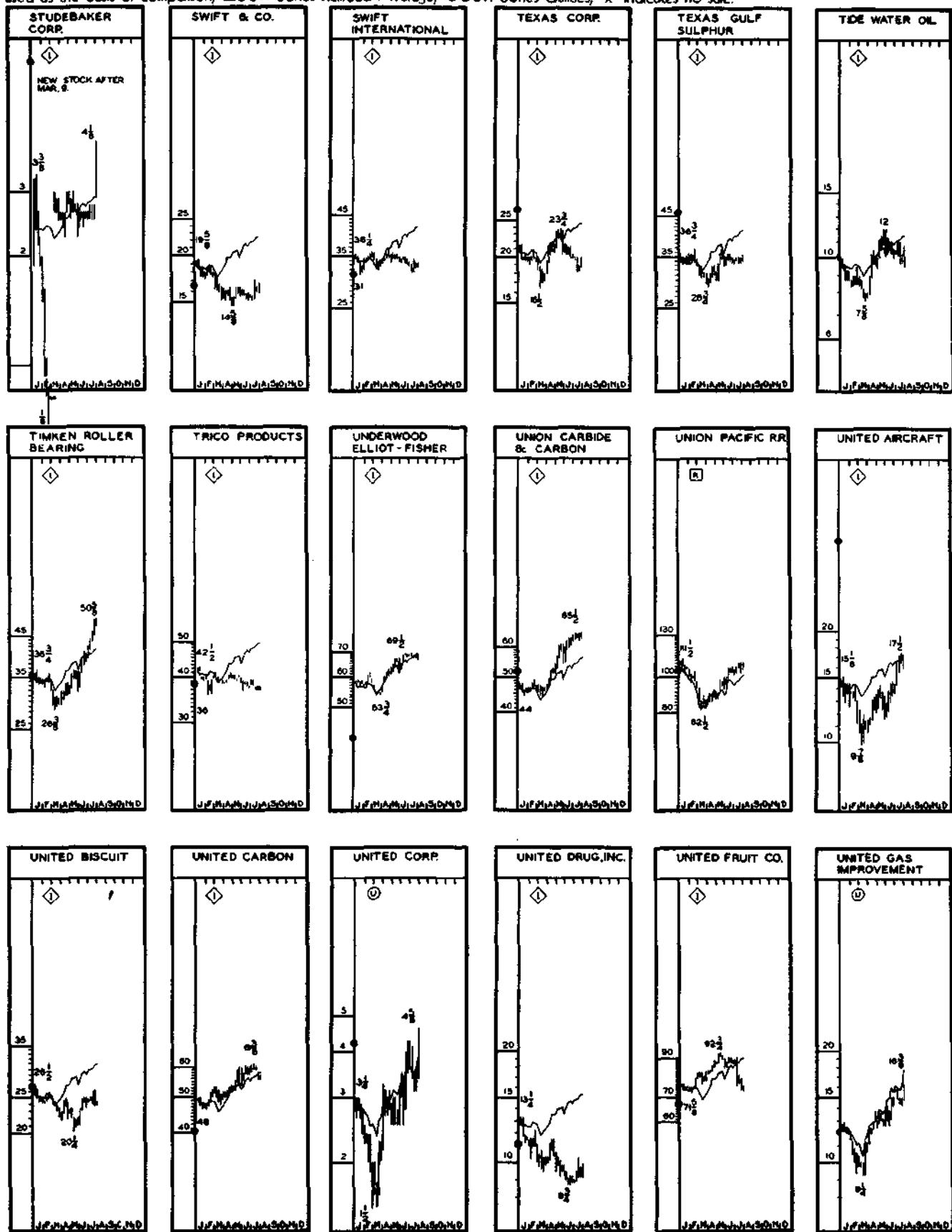
INVESTOGRAPH COMPARATIVE MARKET CHARTS THRU AUG. 3, 1935

APPENDIX

Current cumulative charts for 1935 will be furnished and replaced monthly.

CHAPTER 1

Price ranges, on a weekly basis, are shown by the vertical bar charts. The superimposed line charts show the relative market action of the proper Dow-Jones average for comparison. The use of a "ratio" scale makes this possible. The mark \diamond means the Dow-Jones Industrial Average has been used as the basis of comparison, \square Dow-Jones Railroad Average, \circlearrowleft Dow-Jones Utilities; "x" indicates no sale.



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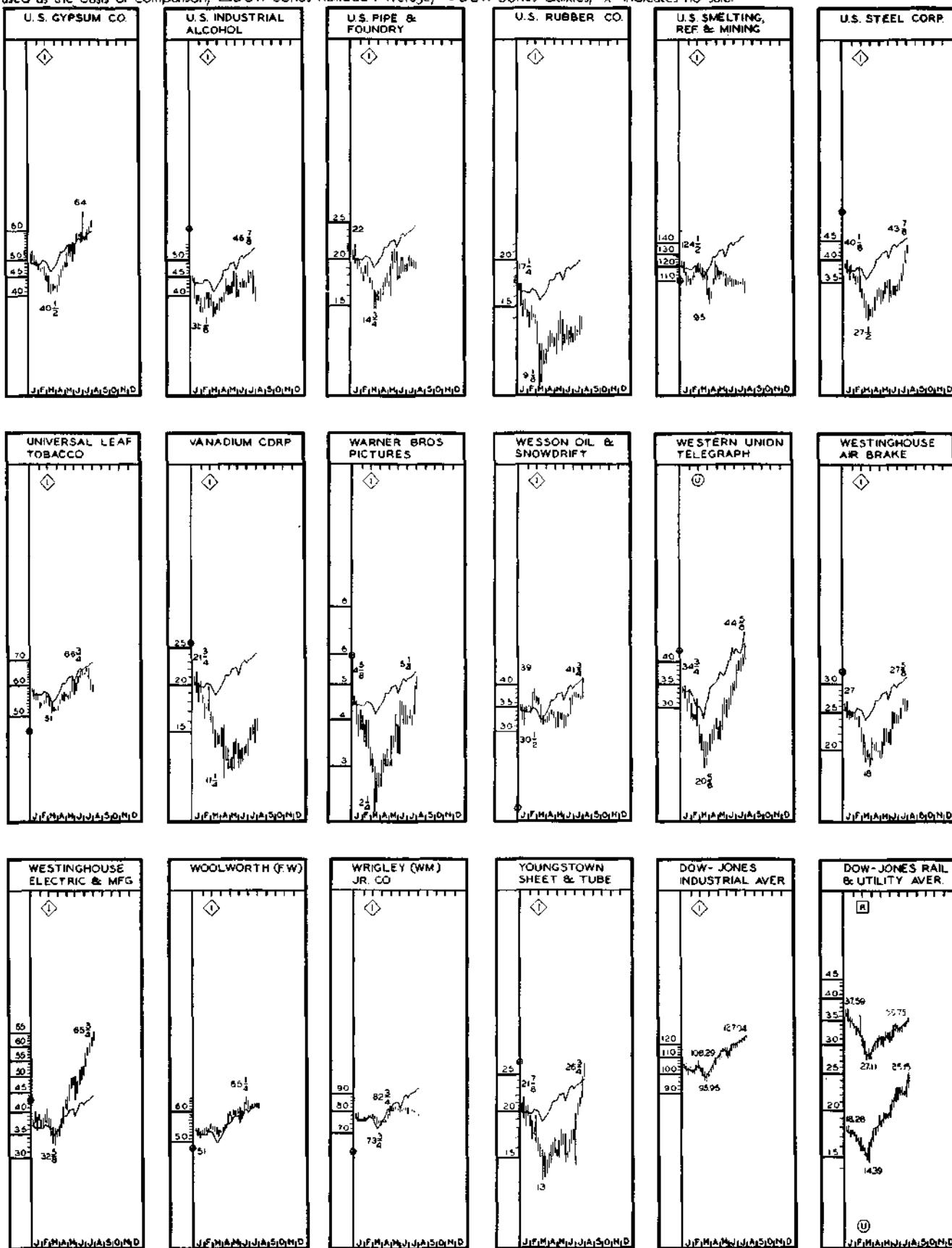
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CHAPTER II

CHARTS THE AVERAGES

REFERENCES

"Statistical Methods" (Chapter II)
 "Statistical Analysis" (Chapter V,
 Appendix E)
 "Graphic Charts in Business" "How to Make
 and Use Graphic Charts" "The Ratio Chart in
 Business" "Graphical Methods" "Graphic
 Methods for Presenting Facts" "Charts and
 Graphs"

In the previous Chapter, it was noted that technical studies are founded upon the observation of stock price trends.

Charts or graphs are the best means man has so far achieved to record the history of stock prices so that they may be quickly and easily visualized. They assist and aid the memory in recalling important events of the past which have significant bearing upon the present and future. Their primary function is to provide accurate factual data. Just as the fundamental student is accustomed to turning to constantly revised reference books which contain the previous records of assets and liabilities, income and expense, sales and working capital, and other pertinent fundamental facts, the technical student consults his stock price charts which record the final judgment of all interested persons namely the price trend itself.

Used with sober judgment, charts can be of the greatest benefit to the stock trader. In the hands of an untrained amateur, they are a very dangerous instrument, causing many financial fatalities. Used in place of a crystal ball, they are to be scorned. Employed as an adjunct, as one means among others to form sound judgment by being alert to all the facts, they can be extremely useful and valuable.

Unfortunately, charts are in bad repute in some parts of the financial circle, because from time to time a vast herd of stock market dabblers have tried to employ crude charts, as the mystic casts his spell.

There are many kinds of charts, some of which are absolutely useless. Others, specifically designed for the purpose of studying stock price trends, are of unquestionable value in providing part of a broad general understanding.

The severest critics of charts and chartists are usually those who, learned in other respects, have not taken the time or made the effort to learn the developments which have been taking place in the field of technical studies by means of charts.

In this Chapter, we will try to dispose of the - mechanical details concerning the preparation and the use of charts which are best suited to the study of stock price trends. As we will be dealing with stock market

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 Haskell P. A.
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 Karsten

averages, we will also look into this necessary subject. Then, in following Chapters, we will proceed to study the important aspects of the technical approach.

Charts are so essentially a part of technical studies that their use cannot be avoided. The stock trader who feels that they are an unnecessary nuisance is fooling only himself.

Records Are Necessary in Any Well-Run Business

The business of trading in stocks is no different from any other, in that it requires a knowledge of what is going on, which in turn necessitates records. This is particularly true when one considers the vast volume of trade which is conducted on the floor of the Stock Exchange each day. Because the market is no simple affair, a considerable selection of information is essential. To study all that occurs is an impossible and useless procedure.

The Need For Records

One of the most important tasks with which the technical student is confronted is to develop a system of record-keeping. There are two reasons for this:

1. Every principle employed in technical analysis has been developed from the study of the *records of past market action*.

2. Practically all technical indications require time for their development; hence in interpreting the current market the student must have before him the *record of the relevant past*.

Some stock market students, it is true, endeavor to dispense with formal records, and keep the details of the price movement in their heads, but the numerous figures with which we deal, and the need for their visual presentation rule out this type of mental bookkeeping at once. *In the method of technical analysis we are to study, an orderly set of records scrupulously kept up to date is a prerequisite.*

Two Types of Records Employed

The records employed in technical work are of two types. These are:

1. Tabulations of base data.
2. Visual presentation of base data by means of charts.

Under the first heading three questions will be raised, namely:

1. What data are needed for technical study?
2. Where can these data be obtained?
3. What methods are used for tabulating and preserving this material?

Under the second heading the principles of chart making require explanation for those to whom the subject is new.

Data Employed in Technical Study

Three main types of data are employed in technical study. In order of importance, these are *Price*, *Volume* and *Time*.

Price

Price, of course, is the number of dollars and cents for which a security sells. Data of this type are reported in various forms, depending on whether one stock or a group of stocks (averages) is under consideration, and also upon the time unit employed. The principal categories for price reports may be distinguished as follows:

1. *Every sale*. This includes the record of every transaction made on the floor of the Exchange and constitutes the source from which all other price compilations are made. Some market students who are interested in the minute details of the price movement, record and plot the price of every sale for a limited number of issues.

2. *Short interval*. In this type of reporting, the price of an individual stock or a group of stocks is tabulated at short intervals in order to observe the fine details of the price movement. While any time span that answers to special needs may be employed, the conventional intervals are ten, twenty, thirty and sixty minutes. If the interval is twenty minutes, for example, the observer scrutinizes the tape or

teleregister board at 10 A.M., 10:20, 10:40, etc., and notes the *last* recorded price, for the stock or stocks in which he is interested. Where a stock does not open promptly either the closing price of the previous day or the mean average of bid and asked price is used. An illustration of a short interval study in one stock is shown on Chart 14, where United States Steel Common is plotted every twenty minutes. Examples of short interval studies for groups of stocks are furnished by the author's 15 Stock Aggregate plotted at twenty minute intervals on Chart 13 and the Dow-Jones average of 30 industrials plotted hourly on Charts 11 and 12.

3. *Daily*. For both individual stocks and groups of stocks, the conventional categories for daily price reports are open, high, low and last (*close*). Opening prices are as yet little used in technical study. High, low and last comprise the data for the well known "bar charts" which reveal many valuable technical

formations. Closing prices are principally used in connection with Dow Theory interpretations (Chapter VII), moving averages (Chapter XI), oscillator studies (Chapter XIII), and comparative studies (Chapter XVII). See Charts 7, 8, 15, 17-19, 22, 23, 25, 31, 32, 37-40, 42.

4. *Long Term*. Under this heading are included price reports for weekly, monthly and yearly time intervals. Like the daily reports the categories for these longer intervals are open, high, low and last. High, low and last and high and low are often used in conjunction. Frequently the close alone is employed. Since daily and less-than-daily fluctuations are eliminated in weekly, monthly and yearly price reports, these data are of particular value in studying the major and long term trends. (See Charts 1-5, 16, 20, 21, 24, 27, 41.)

5. *Point and Figure*. This is a special type of price data prepared for the plotting of figure charts. Inasmuch as the point and figure method of technical analysis involves a unique set of charting principles and problems, explanation of this system is made in a separate lesson. (Chapter XVI).

Data Employed in Technical Study Volume

The second main type of data employed in technical study is volume, or the number of shares sold for any single issue or group of issues during any given unit of time. The principal categories in which volume is reported are as follows: every sale, short intervals, daily, weekly, monthly and yearly. Next to price, volume characteristics are the most important in judging market action.

Time

The element of time in stock price studies is naturally incidental to the factors price and volume. Although many students have laid great emphasis on the element of time or duration, this author considers it a secondary rather than a primary factor. However, it will be carefully considered in Chapters IV, V and VI.

Breadth of the Market

There are also other data consisting of general market statistics which the author terms breadth-of-the market data, including the following compilations:

1. Number of issues traded.
2. Number of issues scoring advances from previous day's close.
3. Number of issues scoring declines from previous day's close.
4. Number of issues remaining unchanged from previous day's close.
5. Number of issues making new highs for a specified period of time, usually the calendar year.
6. Number of issues making new lows for a specified period of time, usually the calendar year.

7. The activity in ten or fifteen most active stocks.

These data are employed principally in daily time units. Their importance in technical study is discussed in Chapter XV.

Sources of Data

The next question is: Where can the data employed in technical study be obtained? In answering this question the outline set forth in the preceding pages will be followed.

Price

1. *Every sale.* The ticker tape is, of course, the well known source for the running record of every sale. As a usual rule the lag between the time the transaction is made on the floor of the Exchange and the time it is reported on the tape, is only one or two minutes, but in periods of heavy trading the present high speed ticker has been known to be as much as 35 minutes late. In circumstances of this kind it is well to remember that latest floor prices for leading stocks are carried on the bond ticker at intervals of five minutes. At the end of the day Francis Emory Fitch, Inc., 136 Pearl Street, New York City, publishes an official sheet, showing price and volume of every transaction, segregated by issues and by time periods of 10 A.M. to 12 M., 12 M to 2 P.M., and 2 P.M. to 3 P.M. This sheet can be secured through any Member of the New York Stock Exchange on a regular subscription basis. The Fitch Company itself, does not accept subscriptions directly.
 2. *Short interval.* For short interval reports on individual stocks or for special short interval group studies, it is necessary to observe the ticker. The best publicly known short interval indexes are the Dow-Jones hourly averages for 30 Industrials, 20 Rails and 20 Utilities. These are printed about 20 minutes after each trading hour on the Dow-Jones news ticker, and are published daily in the Wall Street Journal, New York Daily Investment News, New York Sun, and New York Journal.
 3. *Daily.* For individual stocks, the open, high, low and last, together with closing bid and asked, is carried in most metropolitan news papers. If the reader's local paper does not print these data, he is usually near enough to a metropolitan center to obtain the material promptly from one of the larger journals published there.
 4. *Long Term.*
- (a) *Weekly:* For individual stocks, high, low and last for weekly time intervals, are available in several publications. The New York Times and New York Herald-Tribune print these figures every Monday morning. *The Annalist*, appearing every Friday,

gives the high, low and closing for the week ending the previous Saturday. *Barron's*, which is published every Monday, contains weekly data for the six trading days ending the previous Friday.

The only averages available for weekly time units are the indexes computed by the Standard Statistics Company.

None of the other averages which are published daily are computed for weekly time units. An equally good substitute, however, is to use the highest and lowest daily averages for the week and the Saturday close as a weekly index. These figures would be identical with those of a separately computed weekly average if all stocks represented in the index made their highs or lows for the week on the same day. All stocks, of course do not conform to this requirement, but the correspondence is sufficiently close to permit the use of daily average figures for purposes of a weekly index.

- (b) *Monthly:* Monthly tabulations for individual stocks appear in the *Financial Chronicle*. As for monthly averages, the highest, lowest and closing daily average figures for the month are employed. The New York Times publishes each day a monthly high, low and last tabulation for its 50 stock average. For the other averages, except as here after noted, the reader must compile his own monthly figures.

In addition to the averages already mentioned, the New York Stock Exchange, using closing prices on the last day of each month, computes the average dollar value for all stocks listed on the Board, and for component groups. This index, together with other data on stock prices, is printed in the "Stock Exchange Bulletin," which can be secured regularly by writing the New York Stock Exchange.

- (c) *Yearly:* Most metropolitan papers, in their daily reports on individual stock prices, carry high and low quotations for the calendar year. As for the averages, yearly quotations, like weekly and monthly, are based on daily figures. The New York Times and New York Herald-Tribune publish daily the yearly range of their composite averages for a period of years. At the first of each year both newspapers publish a financial review which contains yearly data for individual issues and the stock averages compiled by these papers. *The Annalist* also prints an annual survey.

Volume

Data on the number of shares traded on the New York Stock Exchange usually accompany price reports which appear in the metropolitan papers each day. Similarly, weekly volume reports appear on Monday morning for the previous week. *The Annalist* and

Barron's also publish weekly tabulations, on Friday and Monday, respectively.

Monthly tabulations of volume are available about the tenth of each month, in the *Financial Chronicle*, "Bank and Quotation Record" supplement. Yearly figures of *volume* appear in the annual surveys of the metropolitan papers. *The Annalist* also publishes quarterlies, the first of which, appearing late in January, summarizes both volume and price for the previous year.

Breadth of the Market Statistics

The chief sources for these statistics are the metropolitan papers, particularly the *Wall Street Journal* for daily data, and *The Annalist* for weekly statistics.

Miscellaneous Data

The chief sources of miscellaneous data interesting to the Wall Streeter are the New York papers, *Barron's* and *The Annalist*, particularly the latter, which is the foremost financial statistics publication in America.

The average trader, who is interested only in the intermediate trend, should find a combination of *Barron's* and *The Annalist* an excellent source of weekly statistics, as well as places to find timely and interestingly important financial articles.

The Gartley Stock Market Data

To supply the special needs of the technical student who wishes to save time and energy in culling out and refining all of the information necessary in making stock market charts, the author's organization has designed and compiled a special data sheet, which is available to the public at a very nominal cost.¹

Daily, weekly and monthly statistics, samples of which may be seen in Appendix I of this chapter, are presented. Figure chart statistics on more than 200 stocks are also included in this service.

For the trader interested in the intermediate trend, this service is available all over the United States, by air mail, in ample time to be very useful. Within 1000 miles of New York, ordinary mail or air mail makes it available the first thing each morning, so that it is also very useful to the minor trend trader.

Library of Base Data

We have now enumerated the base data needed in technical study, and have indicated the sources from which it can be obtained. One further question remains, namely: What systems are used for tabulating and preserving this material? Every serious student of the market should undertake to build a library of base data. Such records afford a quick source of reference for market statistics needed to test out new ideas or to re-plot charts which have been lost or destroyed, or allowed to lapse because of inactivity in the stock.

¹ PRICE SCHEDULES WILL BE SEEN ON LAST PAGE OF DAILY DATA, APPENDIX I OF THIS CHAPTER.

Moreover, these market records are invaluable in the reconstruction of charts in the light of new technical knowledge developed by research. The field of technical analysis is a dynamic one and is in constant process of evolution. Some of the charts and working tools which are used today may become obsolete in the future. If the student possesses his own statistical library, his problems of keeping abreast of the field are very much simplified.

Newspaper Files

One easy method of preserving market statistics is to file a daily newspaper, either in whole or those pages devoted to financial matters. Some time ago the author urged the *Wall Street Journal* to change its layout so that data of interest to technical students would be concentrated on the last four pages of the paper. Happily, the editors adopted this suggestion and now, by clipping and binding the last four pages of the *Wall Street Journal*, the market student can preserve most of the important data necessary for a complete technical study at small expense.

Visual Records Charts

The second class of records which are essential in technical study are visual presentations of base data by means of charts. The problem for the market student is to learn how to construct and interpret stock market charts. Directly or indirectly, the object of following chapters is to provide an answer to the latter question. To the former question the remainder of this chapter will be devoted.

The Problem of Scales

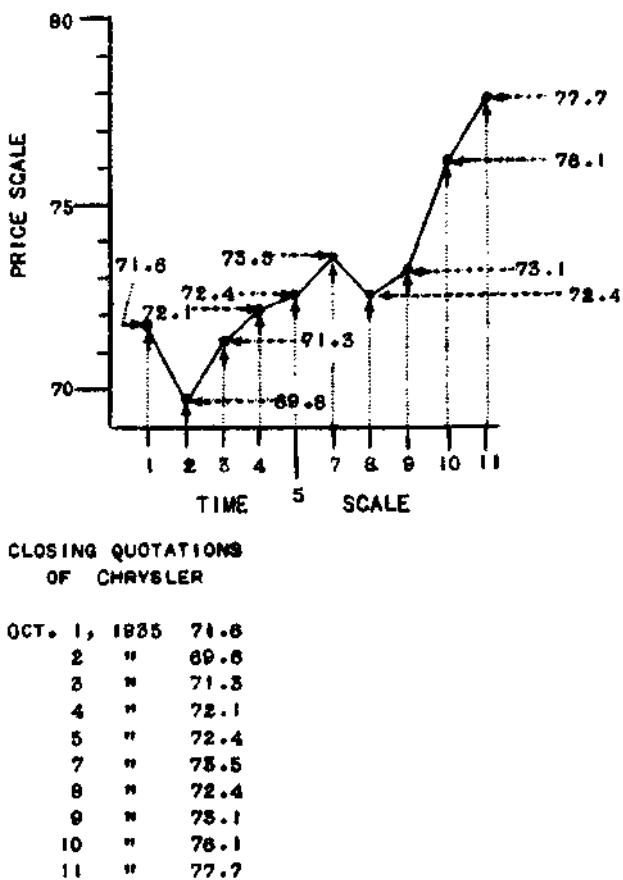
A stock market chart is simply a device by which points are located with reference to two scales, joined at right angles, and taking their origin from this intersection. The horizontal scale (known as the X-axis or line of abscissas), is employed to indicate the attribute of time of a sale, an hour, a day, a week, a year. The vertical scale (known as the Y-axis or line of ordinates), is used to indicate attributes of value or quantity, such as price, number of shares traded, or number of new highs. A point is plotted with reference to time on the one hand, and value, or quantity on the other, and when a series of points is thus plotted, we have the familiar stock market charts which engage our study.

In Figure 1, we see the simplest form of stock chart. The tabulation shows the closing prices of Chrysler from October 1 to October 11, 1935, inclusive, during the first two weeks of this month.

It will be noted that the price ranged from a low of 69 3/4 on October 2, to a high of 77 7/8 on October 11. The time scale is across the horizontal direction, while the price scale is in the vertical direction. The arrows show how each of these points is plotted.

In most charts showing closing prices, the plotting is begun at the end of the first space, as is shown in Figure 1.

Figure 1



In the construction of charts three types of scales are employed, the arithmetic, the logarithmic or ratio, and the square root. Each of these scales possesses characteristics which are of advantage in some types of plotting and of disadvantage in others. We will examine each scale in turn.

Arithmetic Scale

An arithmetic scale is divided throughout by units of equal graphic distance. On the arithmetic scale from 0 to 100 shown in Figure 3 on Page , the distance between 1 and 2, for example, is the same as that between 9 and 10, and, likewise, the distance between 0 and 10 is equal to that between 40 and 50 or 90 and 100. Because all units on the arithmetic scale are allotted equal graphic distance, this scale is useful in portraying *absolute increments of change*. It can be employed on both horizontal and vertical axes as in the case of Figure 1.

Arithmetic Horizontal Scale

On stock market charts the arithmetic scale is always used to indicate time. Usually the units on this scale stand for equal increments of time, for example, 20 minutes (Charts 13 and 14), one hour (Charts 11, 12 and 28); one day (Charts 7, 8 and 40); one week (Charts 5,

16, 24 and 41); or one month (Charts 1-4). But the divisions on the scale may also indicate events which occur at irregular points in time as in the plotting of every sale, where one sale which took place at 2 P.M. is plotted next to the previous sale which took place at 1:30 P.M., which is plotted next to the previous sale which took place at 1:28 P.M. as for example in Figure 4, on Page of Chapter VI.

In order to read the time scale with ease it is helpful to mark off the units with "ticks" of varying length. The shortest tick separates the units of lowest order, while the units of succeedingly higher orders are marked off with ticks increasingly long. Thus on Chart 11, the shortest ticks stand for hours, the next longest for days, and the longest for months. On Charts 7, 8, and 40, the ticks of varying length stand for days, weeks, months and years. When chart paper with a printed grid is used, the divisions of the grid are usually employed for the intervals of lowest order, and ticks are inserted for intervals of succeedingly higher order (Chart 40).

Arithmetic Vertical Scale

On the vertical axis arithmetic divisions have been widely used to indicate price, volume and breadth of the market, but as the disadvantages of the arithmetic scale, especially in the case of price, have become known, students have gradually abandoned it in favor of logarithmic or ratio divisions. The difficulty with the arithmetic scale is that it *enables a comparison of absolute increments of change only*, whereas the enlightened practical trader is interested primarily in per cent of change.

Suppose, for example, that three stocks advance five points each, one from 3 to 8, one from 50 to 55, and one from 200 to 205. Plotted on a chart with an arithmetically divided vertical scale, these moves will appear exactly alike. But suppose the student had purchased 100 shares of each stock before the advance began. On the 3 to 8 move his capital would have increased 166 %; on the 50 to 55 move, the increase in capital would have been 10%; on the move from 200 to 205, this increase would have been only 2 1/2%.

Since the goal of all stock market study is to increase capital, the student is interested, not in absolute increments of advance, or decline, but in per cent of increase or decrease, and he needs a chart which will show the price movements in this perspective. The logarithmic or ratio scale performs this function.

To all but a handful of stock traders who have had training in engineering or other sciences which require a knowledge of more advanced mathematics, the ratio or semi-logarithmic chart (called semi-logarithmic because only the vertical scale is logarithmic) represents a bugbear to be given a wide berth, and left alone. The average Wall Streeter feels about the same way.

Perhaps the chief reason why the ratio scale is regarded as a complicated thing, is because most

Americans are down-right lazy. They won't make the small effort to learn its value.

Recently, the author has been very much interested to learn the diametrically opposed experiences of an American and a German manufacturer of chart papers. The American firm supplies an important part of the American demand for all kinds of chart paper, while the German maker is the chief source of supply for most of Europe.

The American reports that for each one sheet of semi-logarithmic paper, he sells 100 sheets of the arithmetic type; while the German reports that he sells as much semi-logarithmic paper as arithmetic. Careful inquiry as to the reason for the great difference indicated that in Europe most of the paper was used by professional statisticians and scientific workers who understood the need for the logarithmic scale; while in America, most of the paper was used by untrained amateurs.

Further inquiry indicated that in a substantial number of high schools and even in colleges where simple methods of graphic illustrations are taught, an astonishing number of teachers themselves were unacquainted with the logarithmic scale which is used to show the relative variation of a series of statistics. Thus, it is easy to understand why the American demand for ratio paper is so different from that of Europe. Perhaps if our American teachers knew more about statistical methods, the bugbear of the logarithmic chart sheet would not be so pronounced.

The inhibition against using the semi-logarithmic sheet is largely imaginary. A little study and some practice, and the average market student would not think of using an arithmetic sheet again. Unfortunately, biased publicity by writers who have not taken the trouble to learn the value of the semi-logarithmic or ratio scale, has contributed to the feeling that it is difficult to use, or obscures technical studies. This is perhaps true in the special department of charting known as "point and figure charts", which are outlined in detail in Chapter XVI. In studying figure charts at a later time, we will learn that one of their shortcomings is due to the fact that they cannot be conveniently plotted on ratio scale.

If the average reader would spend an hour or two carefully studying the following pages, there should be no further reason why the ratio or logarithmic scale should appear complicated or difficult to use.

It is a matter of personal preference whether one uses the arithmetic or semi-logarithmic scale. With a little study both are easy to use. Let us now proceed to a discussion of the logarithmic or ratio scale, which is so valuable in stock price studies.

Logarithmic or Ratio Vertical Scale

This scale is divided in such manner that the *ratio or percentage* difference between two numbers is always represented by the same graphic distance. On Chart 40, the vertical scale is ruled logarithmically from 10 to 100. If the student will measure the

distance between 10 and 20 on this chart, he will find that it is the same as that between 20 and 40, or 40 and 80, or 50 and 100, or 30 and 60, since in each case the ratio between the two numbers is the same, i.e., 1 to 2. In terms of percentage, the increase from 10 to 20, 20 to 40, etc. is 100%. Conversely, the decrease from 20 to 10, 40 to 20, et cetera is 50%. The percentage difference between the two numbers being the same in each instance, the graphic distance on the logarithmic scale is the same. Similarly, the student will find that the distance between 60 and 20, 90 and 30, and 30 and 10 is equal, since the ratio in each case is 3 to 1, or, in terms of percentage, the first number is 300 per cent of the second number.

In the discussion of the arithmetic scale it was shown that in the plotting of 5 point advances in three stocks, 3 to 8, 50 to 55, and 200 to 205, the moves would appear identical to the eye, since each move would be allotted the same amount of vertical space. On a ratio chart, however, the 166% advance from 3 to 8, would be allotted 10.5 times as much vertical space as the 10% move from 50 to 55, and 42 times as much vertical space as the 2 1/2% move from 200 to 205, thus bringing out the significance of the moves percentagewise.

Mathematics Not Needed To Use Logarithmic Scales

Many people have been confused by the term "logarithmic", and have hesitated to use this scale because they believed that it was mathematically too complex for them. The reader, however, need have no fear on this point, for it is not necessary to know logarithms in order to use the ratio scale. The reason that the term "logarithmic" is used is that this scale is divided proportionately to the logarithms of the numbers appearing on the scale, rather than to the numbers themselves; or, putting it in another way, if the logarithms of any given numbers are plotted on an arithmetic scale, the result is a logarithmic scale. But the reader need not concern himself with this unless he wants the extra mental exercise. The only point that must be remembered is that on a ratio scale, *equal percentage increases or decreases are always allotted equal vertical distance*.

Reading Ratio Scales One Cycle

To accustom the reader to reading ratio scales three practice scales are included in this chapter as Appendices III A, IIIB and IIIC. These appendices might be temporarily removed from the binder for convenient reference with the following discussion. Column D begins with 1 and ends with 10. Appendix IIIA shows a one cycle ratio scale. If the student will measure the vertical space allotted to the various numbers, he will find that the distance between 2 and 4, 3 and 6, 1 and 2, 5 and 10, and 4 and 8 is equal, since the ratio in each case is 1 to 2. Similarly he will find the distance between 9 and 3, 6 and 2, and 3 and 1 equal because the ratio is 3 to 1.

Since the same ratio may hold between different numbers, it follows that the same ratio scale may be enumerated with different price sequences. For example, in Column E, the scale runs from 2 to 20, and in Column C, from 0.5 to 5.0. The student will observe that the ratio principle is maintained, since in Column E, the same vertical distance separates 2 and 4, 10 and 20, 8 and 16, etc., and likewise, in Column C, the vertical distance between 1.5 and 3.0, 2.5 and 5, etc., is equal. In Column F, the scale runs from 3 to 30; in Column G, from 5 to 50; in Column H, from 10 to 100; in Column I, from 70 to 700; in Column B, from 0.1 to 1.0; and in Column A, from .01 to 0.1. In each case the ratio principle operates. Take the ratio 2 to 6 in Column D, for example. In Column E this becomes 4 to 12; in Column F, 6 to 18; in Column C, 10 to 30; in Column H, 20 to 60; in Column 1,140 to 420; in Column C, 1 to 3; in Column B, 0.2 to 0.6; and in Column A, 0.02 to 0.06. In each case the 2 to 6 ratio is maintained and the vertical distance allotted to this ratio is the same. (The reader need pay no attention at this time to the enumerations in Columns J and K. These have to do with "scale dividers" and will be explained later in the chapter.)

Characteristics of Ratio Scale

This example reveals several characteristics of the ratio scale. It will be observed that:

- 1 . The same scale may be enumerated with different price or quantity sequences.
- 2 . These sequences are all comparable, *provided the vertical distance allotted to identical ratios is the same*. Many persons go wrong at this point, and try to compare a stock charted on a ratio scale 3 inches long (high) with one charted on a ratio scale 9 inches long (high); but, of course, this cannot be done for it violates the rule that ratio scales are comparable if identical ratios are allotted the same vertical distance.

To increase the values on the price or the quantity scale it is only necessary to multiply the original enumeration by a constant number.² The figures in Column E, for example, were computed by multiplying the figures in Column D by 2. For Columns F, G, H, and I, the multipliers were 3, 5, 10 and 70, respectively, as indicated by the notations at the top of the columns.

The values on the price or quantity scale can be decreased by dividing the original enumeration by a constant number. Thus the numbers in Column C were computed by dividing those in Column D by 2. For Columns B and A, the divisors employed were 10 and 100,

² FOR METHODS OF CONSTRUCTING RATIO SCALES OF SPECIAL DIMENSIONS, SEE PERCY A. BIVINS', "THE RATIO CHART IN BUSINESS", CHAPTER 7.

respectively, as indicated by the notations at the top of the columns.

This simple method of changing the enumerations on ratio scales by multiplying or dividing by a constant number enables the student to adapt a ruled log sheet³ to his own particular problem. It will be found, however, that not all changes are practical because the use of some multipliers and divisors would result in awkward enumeration. For example, if Column D were divided by 7, carrying the division to two decimal places, the sequence would be 0.14, 0.29, 0.43, 0.57, 0.71, 0.86, 1.0, 1.14, 1.29, 1.43, which would not be very serviceable for charting purposes.

Another difficulty which the reader will encounter is that on most printed sheets with ratio scales, the spaces between whole numbers are divided by tenths, whereas stock prices are quoted in eighths. The author has worked out special ratio charts which obviate these difficulties. These will be described on a later page.

Reading Ratio Scales - Three Cycle

Up to this point we have dealt only with the enumerations on a one-cycle ratio scale. A *logarithmic cycle* (sometimes called a log deck or log bank) is said to be complete when the highest figure shown on the scale is ten times the value of the lowest figure. When a greater range is desired than the complete first cycle, a second or third cycle is employed as in Appendix IIIB. Now a digit is added to the enumeration in each new cycle. In Column D, for example, the enumeration proceeds 1, 2, 3 ... 9, 10 then (not 11, 12, 13, etc., but) 20, 30, ... 90, 100, then (not 101, 102, 103, etc., but) 200, 300, 400, ... 1,000.

It is at this point that most people get into trouble with the log scale. Take the picture in Column A of Appendix IIIC. Everything is simple from 1 to 10. But at first it is hard to understand that when a second log cycle is piled on top of the first, the first main division in the second cycle represents double the number at the top of the first cycle. Thus all the numbers from 11 to 19 are between the top of the first cycle and the first main division in the second cycle.

When most persons have the problem of plotting 11, they can't seem to find it on the second cycle. This difficulty is easily solved if it is always remembered that when one log cycle carries over to the next, the divisions change their value by 100 %.

Once this point is understood, there is usually no difficulty with the ratio scale. The same thing, of course, occurs when a third cycle is used on top of the

³ LOG SHEET IS THE ABBREVIATED NAME APPLIED TO RATIO OR SEMI-LOGARITHMIC SHEETS.

second cycle. For example, in Column A, the second cycle ends at a top at 100, and the first main division on the third cycle is 200. All the numbers from 101 to 199 appear between these lines.

If the reader will measure the vertical distance between 1 and 2, 10 and 20, and 100 and 200, he will find that it is identical. Similarly, he will observe that the same principle holds for any other ratios he may select. With the three cycle as with the one cycle scale, the enumerations can be changed by simple multiplications or divisions as indicated above. On Chart 40 a three cycle ratio scale has been employed for plotting volume.

Reading Ratio Scales Another Illustration

Some people find special difficulty in understanding the different enumerations that can be given a logarithmic scale. To demonstrate the point further Appendix IIIC shows a three cycle scale (Column A) in relation to a series of one cycle scales (Columns B to L) of varying enumeration. In Column A identical ratios are allotted equal vertical distances on the scale. Thus the same distance separates 1 and 10, 10 and 100, 100 and 1,000. Similarly the graphic distance separating 2 and 20, 3 and 30, 4 and 40, 70 and 700 etc. is equal. Columns B to L are excerpted from the master scale in Column A. Column J, for example, represents the second cycle and Column L, the third cycle in Column A. Columns B, C, D, E, F, G, H, I and K overlap single cycles in Column A. The single cycles in Columns B to L are all comparable with each other and with each cycle, first, second and third, in Column A, since the rule that identical ratios be allotted equal vertical distance on the scale is observed. A cycle, it will be noted, may begin at any point on the scale, 1, 2, 3, 4, 6, 10, 70, etc. but always ends at a value ten times greater than that from which it started. If the reader will visualize the series of scales shown in Appendix IIIC, and remember that identical ratios and percentages are always allotted equal graphic distance on the vertical scale, he will experience no difficulty in using the ratio chart.

Scale Divider

The fact that on a ratio scale the same percentage increase or decrease is allotted the same vertical distance, makes it easy to measure the per cent of advance or decline of price or other phenomena plotted. Columns J and K in Appendix IHA contain the figures for a scale divider for the log cycle shown in this Appendix. In Column J the enumeration proceeds upward from zero to 900 %. The first line from the bottom (not counting the bottom line) is marked for 100%. Reading this in conjunction with the enumeration in Column D, this means that an advance from 1 to 2 is a 100% rise. ($2 - 1 \text{ fl } 1 \times 100 = 100\%$). The second line from the bottom is marked

200 %, which means that the advance from 1 to 3 is a 200% rise ($3 - 1 \text{ fl } 1 \times 100 = 200\%$), and so on to the top line marked 900 %, which represents the advance

from 1 to 10 ($10 - 1 \text{ fl } 1 \times 100 = 900\%$).

Column K shows percentage decrease. The first line from the top (not counting the top line) is marked for 10%, which means that a move from 10 to 9 deflates the price structure 10% ($10 - 9 \text{ fl } 10 \times 100 = 10\%$).

The fifth line from the top carries the figure, 50%, showing that a drop from 10 to 5 is a 50 % ($10 - 5 \text{ fl } 10 \times 100 = 50\%$) deflation. The bottom line is marked 90%, indicating that a fall from 10 to 1 is a decline of 90% ($10 - 1 \text{ fl } 10 \times 100 = 90\%$).

In Appendix HIA, Columns J and K are duplicated on the strip marked "scale divider." The reader might cut off this scale divider and solve some percentage problems with it on the Appendix IIIA scale.⁴

A stock moves from 140 to 210 (Column I). What is the percentage increase in the value of this stock?

Place the zero line of Column J on the scale divider opposite 140. Read the figure on the scale divider opposite 210. It is 50%. Then the move from 140 to 210 is an advance of 50 %.

A stock moves from 15 to 9. What is the percentage decline? Place the zero line of Column K on the scale divider opposite 15 (Column F). Read the figure on the scale divider opposite 9. It is 40%. Then the decline from 15 to 9 is a 40% deflation of the price structure.

Observe that when percentage rise is measured, the scale divider is read from zero *up* (Column J), but that when percentage decline is measured, the scale divider is read from zero *down* (Column K).

Scale Divider - Three Cycle Scale

The principle of the scale divider works exactly the same on a three cycle as on a one cycle scale. In Appendix IIIB, Columns J and K constitute a scale divider for the scale pictured on that page, and these columns are duplicated on the strip at the edge of the page. The reader might also cut off this strip and solve the following problems on the Appendix IIIB scale:

Volume on one day was 500,000 shares. The next day it increased to 5,000,000 shares, and on the following day it declined to 4,000,000 shares. What was the percentage increase of volume from the first day to the second? What was the percentage decrease in volume from the second day to the third? The answers are 900% and 20%, respectively. Use the scale divider on Column D, Appendix IIIB, defining the enumeration there as ten thousands (assume that 0000 is added after each number) and see how it works.

Scale Dividers and Non-Comparable Scales

The reader will note that the scale divider in Appendix IIIB will work on the scales in Appendices IIIB and IIIC, but not on the scale in Appendix IIIA,

⁴ CELLULOID SCALES ENGRAVED TO MATCH THE CHART SHEETS USED BY THE AUTHOR ARE AVAILABLE (SEE APPENDIX 2 OF THIS CHAPTER).

and that the scale divider in Appendix IIIA will work on the Appendix IIIA scale, but not on the scales in Appendices IIIB and IIIC. The reason is that the scales in the last two Appendices are comparable with each other, but not with that in Appendix IIIA. The distance separating 1 and 100, for example, is equal on the Appendix IIIB and IIIC scales, but in Appendix IIIA three times as much graphic space is used to represent the 1 to 100 ratio as in Appendices IIIB and IIIC. Whenever ratio scales are comparable, one scale divider can be used, but when ratio scales are of different length separate scale dividers must be employed for each scale. The student can construct a scale divider for any logarithmic ruling by use of the principle illustrated in Columns J and K in Appendices IIIA and IIIB.

Ratio Scale Has No Zero

It will be observed that the ratio scale has no zero. The enumeration may extend downward to 1, 0.1, 0.01, etc. as in Columns D, B and A in Appendices IIIA and IIIB, but it can never become zero. The reason is that on ratio charts relative percentages are compared and definite amounts must always be used to effect this comparison. It can be said, for example, that 2 is 100% greater than 1, but it cannot be said that 1 is 100% greater than zero. Some amount, therefore, no matter how infinitesimal, must always be enumerated at the base of a ratio scale.

In July, 1932, at the bottom of the bear market, many stocks declined below 1, and in normal times there are usually some issues in receivership that fluctuate at these low levels. To chart such stocks it is necessary to use a two cycle scale from, say, 0.1 to 10, the first cycle ranging from 0.1 to 1, and the second cycle from 1 to 10. A visual impression of a scale of this type can be secured from Appendix IIIB, Column B (first and second cycles).

For volume charting on logarithmic scales, the plotting must necessarily begin at 1, hence the first hundred shares (or 1,000 or 100,000, depending on the enumeration of the log scale) are not shown. Customarily a dot is put on the 1 line to indicate 100 shares if the bar type of plotting is being employed.

Logarithmic vs. Semi-Logarithmic Charts

On some charts dealing with economic problems the logarithmic scales are used on both the vertical and horizontal axes, but in technical market analysis it is employed on the vertical axis alone, arithmetic divisions being used to mark off units of time on the horizontal axis. Strictly speaking a chart is not called a "logarithmic" chart unless both the horizontal and vertical scales are divided logarithmically. When only one scale is divided in this manner, the chart is called "semi-logarithmic." All charts used in stock market technical work which employ the logarithmic principle come under this latter heading.

Square Root Scale

The square root is relatively new in the field of technical analysis, and has been introduced as a compromise between the arithmetic and logarithmic scales. The arithmetic scale shows the number of points which a stock moves. *Since high priced issues normally move a greater number of points than low priced issues,* this scale tends to emphasize the price movement in the upper brackets and minimize it in the lower brackets. The logarithmic scale, as we have learned, portrays percentage gain or loss, assigning as much graphic importance to a rise of two points, from 2 to 4, as to one of 50 points, from 50 to 100. But it is much more common for stocks selling for small amounts to gain or lose 10%, 50% or 100% of their value than it is for stocks selling for large amounts, hence on a logarithmic scale the fluctuations of the low priced stocks command more graphic space than those of the high priced issues. The square root scale, for reasons which will be made clear presently, tends to give approximately the same graphic space to the price movement at various levels.

The suggestion that the square root scale might be used advantageously in charting stock prices was first advanced by Dr. Fred R. Macaulay of the National Bureau of Economic Research in a short article in an edition of *The Annalist* during March, 1931.⁵ Dr. Macaulay had been examining scatter diagrams showing the correlation between stock prices at the high of the bull market and at subsequent lows in the bear trend, and he discovered that stocks tend to move equal increments on their square roots. For example, if one stock moves from 1 to 4 over a given period of time, that is, from the square of 1 to the square of 2, or one unit on the square root scale, another tends to move from 9 to 16, or from the square of 3 to the square of 4, which is also one unit on the square root scale. In the higher brackets comparable price movements would be from 49 to 64, from the square of 7 to the square of 8; and 121 to 144, from the square of 11 to the square of 12.

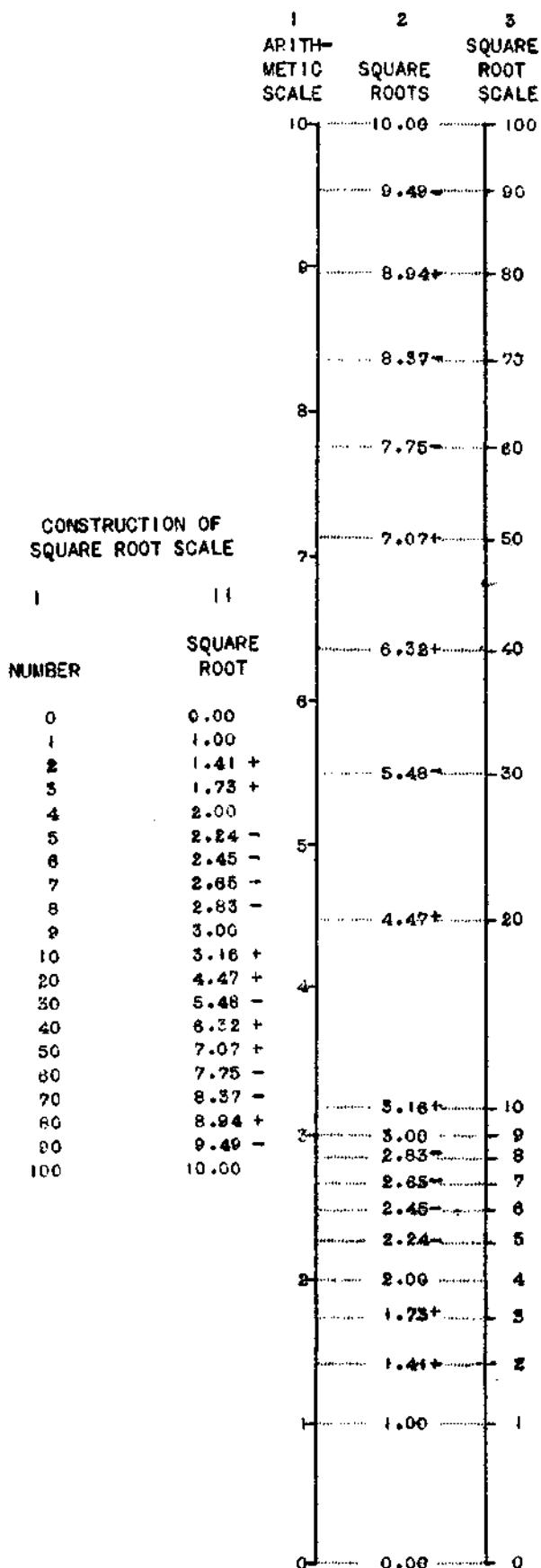
In a falling market, if one stock moves from 225 to 169, or from the square of 15 to the square of 13, another stock tends to decline from 121 to 81, from the square of 11 to the square of 9, and still another might fall from 16 to 4, from the square of 4 to the square of 2. In each case the decline is 2 units on the square root scale. Insofar as this tendency for stocks to move equal increments on their square roots holds true, the square root scale assigns equal graphic importance to fluctuations at all price levels.

Construction of Square Root Scales

The square root scale is not difficult to construct.

⁵ LATER HOMER FAHRNER, OF SAN FRANCISCO, BEGAN CONSIDERABLE RESEARCH WITH SQUARE ROOT

Figure 2



Suppose it be desired to rule one of these scales from 0 to 100. The square root of each number, beginning with 0 and ending with 100, is extracted. These square roots are then plotted on a plain arithmetic scale, but, instead of giving each plotting its regular arithmetic designation, the square of the number is written in. The procedure is illustrated in Figure 2.

In column I of the tabulation above, the numbers to be shown on the scale we are constructing, are listed. In column II the square roots of these numbers are extracted. Scale 1 is a plain arithmetic scale ranging from 0 to 10. In scale 2 the square roots shown in column II are plotted against arithmetic scale number 1. In scale 3 the square roots are annotated *with their squares* as listed in column I. The square root of zero, for example, is zero. This point is located at zero on the arithmetic scale and is annotated as zero on the square root scale. The square root of 1 is 1. This point is located at 1 on the arithmetic scale and annotated as 1 on the square root scale. Thus the gross dimension of any particular square root scale, like an arithmetic scale, will depend upon the size of the first division from 0 to 1. In Figure 2 this is 7/8" - if it were 1 3/4" the scale would be twice as large. But let us go on.

The square root of 2 is 1.41 + . This point is located at 1.41 on the arithmetic scale, and annotated on the square root scale as 2. The square root of 3 is 1.73 + . This point is located on the arithmetic scale at 1.73, and is annotated as 3 on the square root scale. The same procedure is used for each number up to 100. The square root of 100 being 10, this point is located at 10 on the arithmetic scale, and is annotated as 100 on the square root scale. Square root scales of other ranges and dimensions can be constructed by the method here described.

Arithmetic, Ratio and Square Root Scales Compared

To show how the square root scale differs from the arithmetic and logarithmic scales in the amount of graphic space assigned to movements at various price levels, the rise of Alleghany Corporation, General Motors and American Can from February 27 to July 18, 1933 may be examined. This period constituted the second major phase of the bull swing which began in July 1932, and accounted for a greater appreciation of the price level than any other intermediate swing in the history of the stock market. For this reason it is taken for the illustration. As shown in Table 1, Alleghany Corporation-closed at 1 on February 27 and at 7.2 on July 18. This was a gain of 6.2 points or 625 per cent. General Motors closed at 10 on February 27 and at 33.7 on July 18, making a gain of 23.7 points or 239 per cent. American Can closed at 49.7 on February 27 and at 95 on July 18, or a gain of 45.1 points or 90 per cent.

When these movements are plotted on the three scales shown in Figure 3, arithmetic, logarithmic and square root, and the graphic space required for the moves in the three stocks is measured on each scale as

in Table 1, it is found that the arithmetic scale, reflecting absolute increments of change, allots 0.5 inches of graphic space to the rise in Alleghany, which is a low priced stock, and 3.1 inches of space to American Can, which is a high priced stock. The logarithmic scale, reflecting per cent increase, reverses the picture, assigning only 0.9 inches of graphic space to the rise in American Can, and 3.3 inches to that in Alleghany. The reason, of course, is that Alleghany increased 625 per cent in value whereas American Can gained but 90 per cent. On the square root scale the graphic space allotted to the gains in all three stocks tended to be much nearer the same, Alleghany, the low priced stock, commanding 1.4 inches, General Motors, the medium priced stock, 1.9 inches, and American Can, the high priced stock, 2.0 inches.

Scales Summary

The discussion of scales on stock market charts may now be summarized. Three types of scales are employed, the arithmetic, the logarithmic and the square root. These are compared graphically in Figure 3 and on Chart 21. The arithmetic scale is divided into equal units throughout, and assigns the same graphic distance to moves of equal size without regard to price level. This scale is simple to understand, and heretofore has been employed almost universally to the exclusion of other scales. Now, however, more advanced students are using logarithmic or ratio scales on the vertical axis to plot both price and volume data. Arithmetic scales are always used on the horizontal axis to plot time intervals, and are still retained by advanced students who have found that the log scale

Table 1

Stock	Close Feb. 27	Close July 18	Points Gain	Per Cent Gain	No. inches graphic space required to plot the move on three scales.		
					Arith- metic	Loga-metic arithmic	Square Root
Alleghany Corp.	1 10	7.2	6.2	625	0.5	1.4	
General Motors	49.7	33.7	23.7	239	3.3	1.5	1.9
American Can		95	45.1	90	1.7	3.1	2.0

This illustration shows clearly the characteristics of the square root scale when compared to the arithmetic and logarithmic scales. The arithmetic scale, measuring points gain or loss, emphasizes movements at the higher price levels and minimizes them at the lower price levels. The logarithmic scale, reflecting percentage rise or fall, minimizes movements in the higher price brackets and emphasizes them in the lower brackets. The square root scale, measuring changes in increments of square root, tends to allot equal graphic distance to price movements at all levels.

The reader might study carefully the comparison of the three scales shown in Figure 3. The enumeration of the arithmetic and square root scales, he will observe, begins with zero, but that of the logarithmic scale begins with 1. To carry the logarithmic scale below 1, it would be necessary to add one cycle as long as that from 1 to 10 in order to reach 0.1, two cycles in order to reach 0.01, and so on.

Claims have been made by Fahrner, that the square root scale enables better fitting of trend lines to the charted price movements than either the arithmetic or logarithmic scale, but this contention, as has been shown by D.W. Ellsworth, Editor of *The Annalist*, in an article dated December 23, 1932, appears to be disputed. However, in recent months *The Annalist* has adopted the square root scale for one of its long term stock price charts, as may be seen by examining the stock price scale of Chart 2.

only tends to confuse the picture if used for the time scale as well as the price scale.

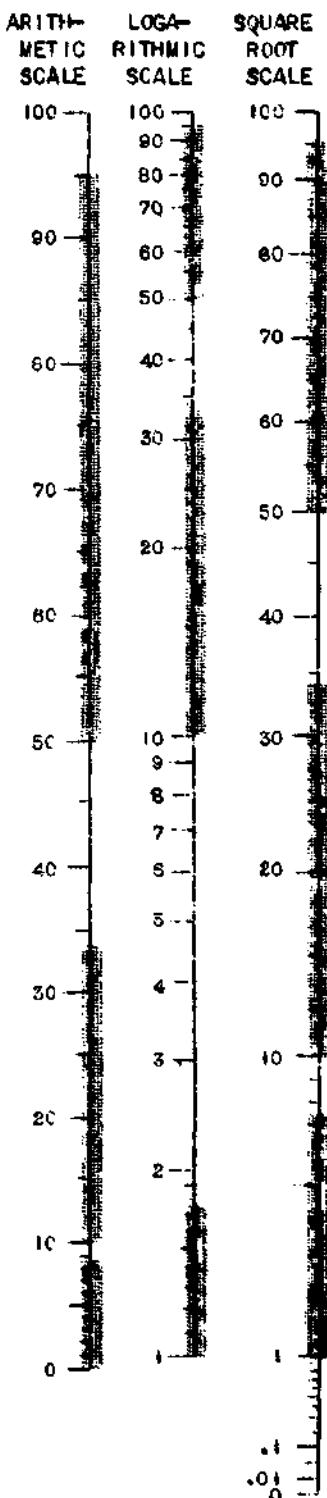
The logarithmic or ratio scale is divided proportionately to the logarithms of numbers it represents, hence identical ratios or percentage moves are assigned equal graphic distance. *Since the trader, whether he realizes it or not, is primarily concerned with percentage gain or loss of capital, the ratio scale depicts the price movement in its most interesting perspective.* It is also serviceable for showing percentage change of volume. It is not used on the horizontal scale, nor generally for center line plotting since it has no zero.

The square root scale is divided proportionately to the square roots of the numbers represented on the scale, and portrays the price movement in terms of increments of square root. Insofar as prices tend to rise and fall in equal increments of square root, the same graphic importance is assigned to price changes at all levels. This is a compromise between the arithmetic and logarithmic scales, since the arithmetic scale on the vertical axis emphasizes price changes in the upper brackets and minimizes those in the lower brackets, while the logarithmic or ratio scale tends to emphasize price changes at the lower price levels and minimize those in the upper reaches. This characteristic of the logarithmic scales is the principal reason for its adoption in stock market work, but some problems might arise where the compromise afforded by the square root scale would be more serviceable.

From time to time some mathematically inclined stock market students have used logarithms of both price and volume, plotted on arithmetic scales in place of using ratio scales, which results in about the same picture. This procedure is out of the range of the average market student because of the complications involved.

Having discussed the types of scales used in plotting stock market charts now let us proceed with a study of some of the rudiments of chart construction.

Figure 3



Methods of Charting

Two fundamental devices are employed in charting stock market phenomena, lines and bars.⁶ Figure 4, showing daily closing prices for American Can, illustrates line plotting. The first closing price shown for this issue was 91.3. Reading along the horizontal scale to the first space and up the vertical scale to 91.3, a dot was placed at Point 1, as indicated on the chart. On the next day the stock closed at 93. A dot was placed at the 93 level on the next vertical grid (Point 2). On the following day the closing price of American Can was 89.7, hence a dot was placed at this level (Point 3) on the third vertical grid. This process was continued until all the data were plotted. When the dots were connected, the result was the price line shown in Figure 4. Volume and breadth-of-the-market data may be charted with lines. (See Charts 3, 6, 9-16, 19, 20, 23, 24, 31, 32 and 37-39.)

Line plotting is sometimes applied in geometric style, such as shown in Figure 5. Here, instead of placing a point at the price level to be plotted, and then connecting a series of points with straight lines, a short horizontal line is drawn across the width of the space between the vertical grids, and such horizontals, representing the successive price levels, are then connected with vertical lines drawn either on the grids or midway between them.

This type of plotting is widely used by Dow Theory students. See Charts 11, 13 and 15. It seems to bring more vividly to the eye the penetration of a previous high or low point, and to locate with greater emphasis sidewise movements or trading areas in the price trend.

Line plottings are used in many other ways. For example, in Figure 6 we see a sample of the Dow Jones Industrial average closing price (1), with a moving average (2).

Moving average lines may be seen on Charts 23 and 24, and also on Chart 11. They are explained in detail in Chapter XI.

Another use of line plotting is in showing the trend of net changes. Plottings of this type are designated as center line plottings, or net change oscillators.

Figure 7 shows a sample. Note that here there are two scales, the plus scale reading upward from zero, and the minus scale, reading downward from 0. This type of plotting is used wherever a series which can be on either the plus or the minus side is to be plotted. Such plottings and their uses are explained in detail in Chapter XIII. Charts 5, 27, 28, 31, 32, 40, 41 and 42 show examples of this type of plotting.

Figure 8 shows a line plotting of volume.

Many chartists prefer to plot volume in bar form, a sample of which we will see later. But when the more advanced technical students study both shares traded

⁶ FIGURE CHARTS ARE REGARDED AS A FORM OF BAR CHART IN WHICH THE BARS ARE NOT SPACED AT REGULAR INTERVALS OF TIME. CHARTING OF THESE IS EXPOUNDED IN CHAPTER XVI.

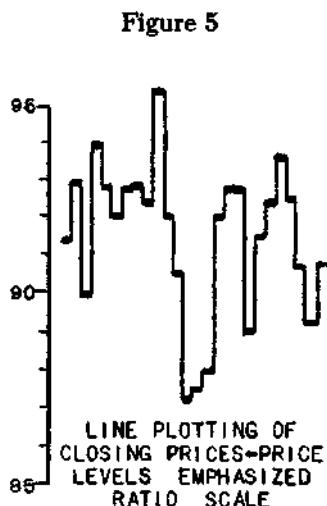
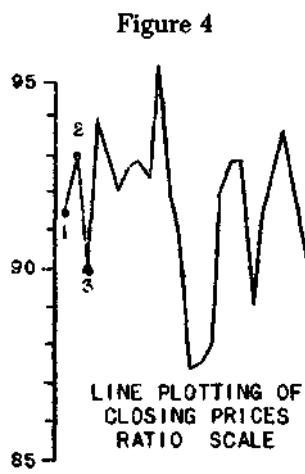
and volume ratios, which will be considered in Chapters XIV and XVII, the line form is to be preferred, because both series are plotted on one scale.

Figure 9 shows a sample of a combination plotting on the same scale, of shares traded (1) and volume ratio (2). Although this illustration shows the plottings on an arithmetic scale, the custom of the author is to plot volume on logarithmic scale, as may be seen on Charts 40, 41 and 42.

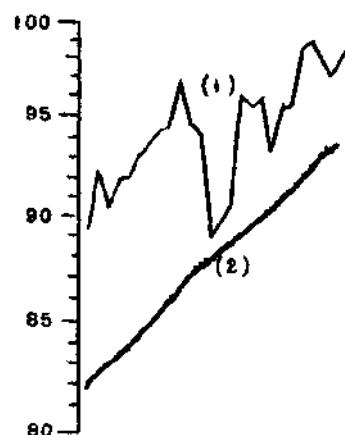
The line type of plotting is also used in a study of general market statistics. For example, in Figure 10 we see it employed to record daily advances and declines. This may be seen in greater detail in reviewing Charts 31 and 32, on which line plottings are used in various ways to record what are called Breadth-of-the-Market data. These are described in detail in Chapter XV.

Line charts are also used in comparative study of individual stocks. For instance, Figure 11 shows a condensed form of what is known as a velocity study. Other examples will be seen in Figures 5 to 9 in Chapter XVII. This is also a center line plotting, beginning at zero and having a plus scale, plotted upward, and a minus scale, plotted downward, because the data used alternate from the plus to the minus side.

Another use of the line plotting is in preparing market ratios, such as the sample shown in Figure 12 which illustrates a general market ratio (1) and a major group ratio (2). General market ratios may be seen on Charts 40, 41 and 42. This subject is described in detail in Chapter XVII.



LINE PLOTTING OF CLOSING PRICES (1) DOW JONES INDUSTRIALS AND 28 DAY MOVING AVERAGE OF SAME PLOTTED ON 28TH DAY (2) - RATIO SCALE



CENTER LINE PLOTTING OF PERCENTAGE NET CHANGE, CLOSE TO CLOSE ARITHMETIC SCALE

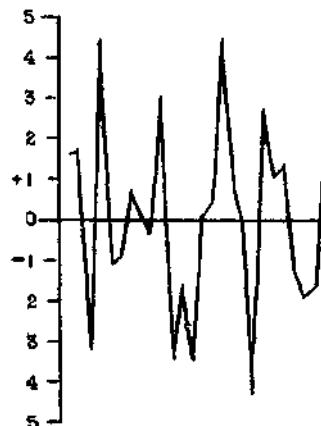


Figure 8

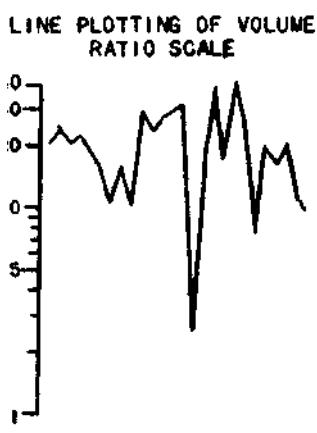


Figure 11

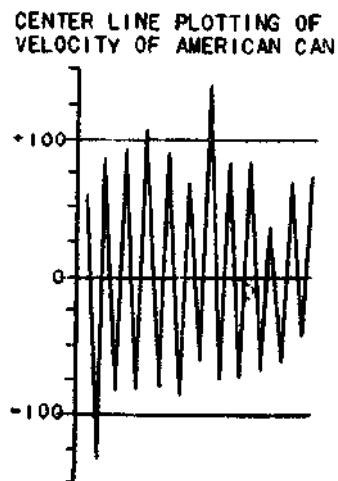


Figure 9

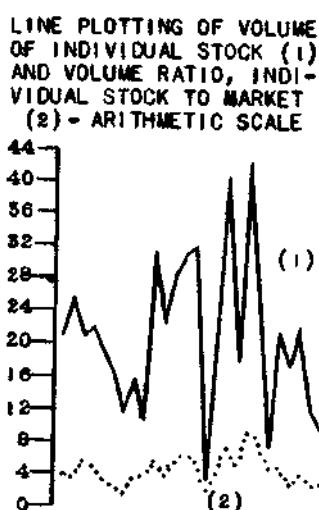


Figure 12

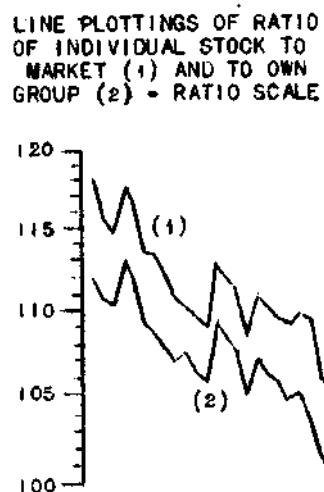
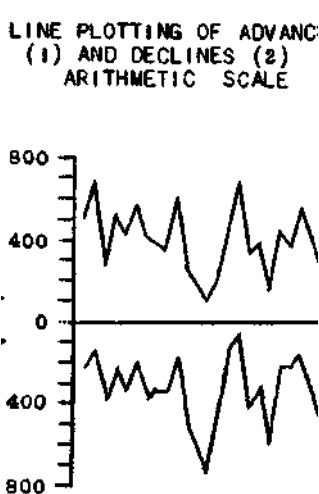


Figure 10



Bar Plotting Takes Two Forms

Bar plotting may be used in two forms. In one form, it is used to portray a range (the distance between the high and low for a given trading day or week or month). In the second form, it designates a specific level, such as the number of shares traded.

In Figure 13, we see the common type of bar chart, showing ranges between daily high and low points. Like Figure 4, this shows daily figures for American Can. The low for the first day (1) was 89.4, while the high for that day (2) was 92.4.

These two figures are plotted on the price scale, and a vertical line is drawn between them indicating that day's range. On the next day, the low (3) was 90.2, and the high (4) was 93, while on the following day the low (5) was 89.4, and the high (6) was 94.4.

In each case, dots were located on the vertical lines of the time grid, and the successive ranges were connected.

Most stock market students observe the closing price as well as the high and low. This is frequently

done by checking the closing price to the right with a small horizontal line, wherever it occurs on the bar which represents each day's range. We see an example of this type of plotting in Figure 14. Some students connect the closing prices, and make a line of them, but this is frequently confusing. Samples of the bar type of plotting will be seen on Charts 1, 2, 4, 5, 7, 8., 40, 41 and 42.

Occasionally, market students will choose to study the opening price, as well as the closing, in addition to the daily range. This may be done by designating the opening by some simple check, which is different from the closing price. Figure 15, for example, shows an oblique line crossing the price range, at the opening price, with a small tick to the right for the closing. Unless a wide time scale is employed, designating both the opening and closing, it is likely to make the chart appear very complicated.

Figure 13

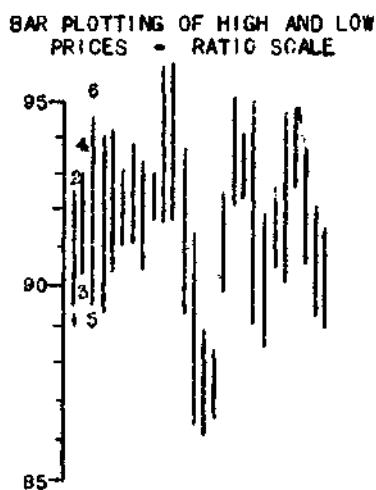


Figure 14

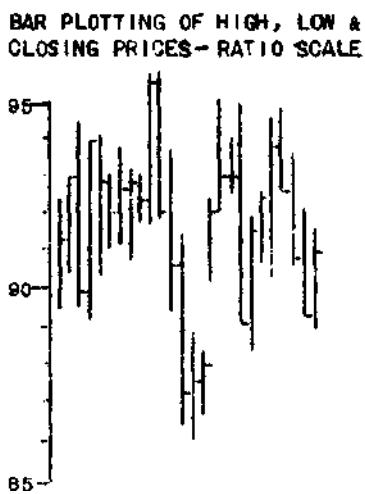
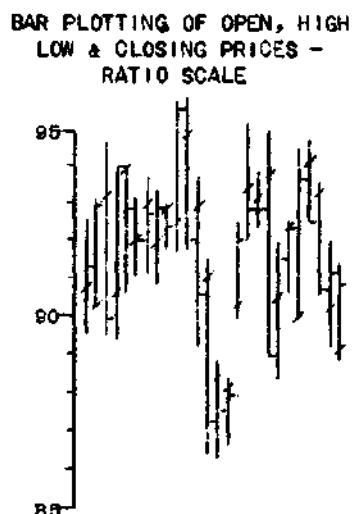


Figure 15



In some longer term studies, where the market student is interested in observing not only the daily ranges, but the weekly and monthly ranges, a convenient method, often employed, is the construction of boxes, such as shown in Figure 16, outlining the weekly ranges on a daily chart, or the monthly ranges on a weekly chart. Chart 5, of American Can, shows an excellent example of this type of plotting. It is quite simple. The box is merely drawn around the ranges of the longer time period. In order to make it stand out without obscuring the smaller fluctuations, it is preferable to have it in color, or drafted with dotted lines.

Above, it was noted that lines are used for oscillator studies on a center line scale. It is possible also to use bars as are shown on Figure 17.

Volume is often plotted in this way, according to the direction of the price trend for a particular day. In Figure 17, for example, the total volume of trading is plotted for whatever amount it happened to be, above the line if the closing price of the general market showed an advance, and below the line if it showed a decline.

Figure 16

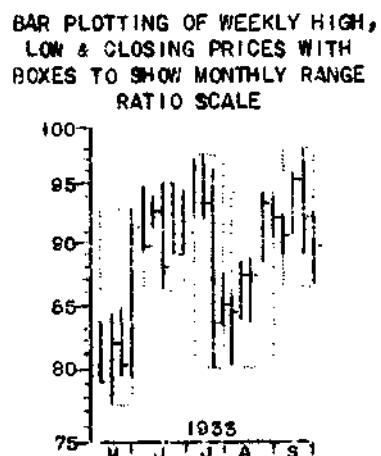
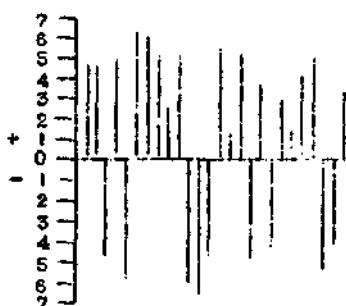


Figure 17

BAR PLOTTING OF VOLUME OF
MARKET IN RELATION TO
DIRECTION OF CLOSE OF STANDARD
80 STOCK INDEX-ARITHMETIC SCALE



Bars are frequently used in plotting volume, as may be seen in Figure 18. In this case, each plotting begins at the bottom line. If a ratio scale is employed, the bottom line must be 1, standing for 100, 1,000, 10,000, 100,000 shares, according to the scale designated. This is the case in Figure 18.

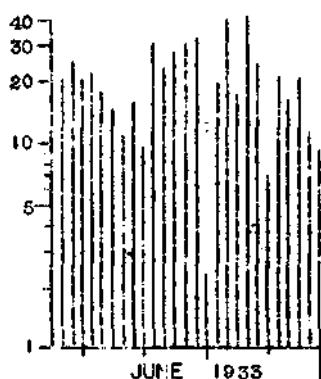
On the other hand, if an arithmetic scale is used for volume, the bottom line may be designated as 0. Almost always volume is plotted at the bottom of a chart. Chart 7, for example, shows the total volume of trading on arithmetic scale, as compared with the price range of the New York Herald-Tribune 100-stock average.

There is always a question as to whether the actual volume on Saturday should be plotted as it occurs, or adjusted to take into consideration the fact that Saturday has only two hours of trading. Various students differ. If no consideration is given to the short day, a chart will show weekly valleys in the volume picture, such as may be seen on Chart 7. On the other hand, if Saturday volume is doubled, the volume trend appears as a smoother curve. This may be seen on Chart 15 (which happens to show volume plotted with a geometric line, rather than with bars).

Sometimes the correction for Saturdays is shown by using a line form of plotting, connecting the Friday volume with the Monday volume, and showing a bar for Saturday volume, either actual or doubled. Figure 19 shows a sample of a line plotting of total volume, with bars indicating Saturday volume.

Figure 18

BAR PLOTTING OF VOLUME
RATIO SCALE



LINE PLOTTING OF VOLUME WITH
FRIDAY AND MONDAY VOLUME CON-
NECTED AND BAR TO INDICATE
SATURDAY VOLUME - RATIO SCALE

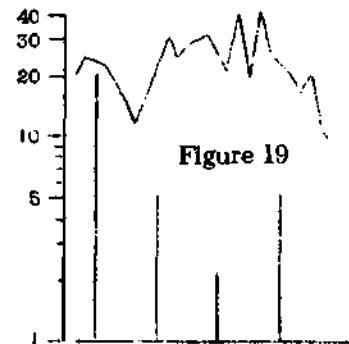


Figure 19

What Are the Proper Sizes for Time and Price Scales

To the best knowledge of the author, no really scientific study has been made to determine the size which price and time scales should properly appear, in order to be of the greatest value to stock market students. Most of the chart sheets which have been manufactured for the purpose have been limited, first, by the general dimensions of the sheets, secondly by the range of stock prices which are to be plotted, and thirdly by manufacturing facilities of sheet makers.

Long experience with many different kinds of sheets indicates that the ideal time scale is somewhere between 14 and 20 grids or spaces to the inch. Visibility becomes confused when more than 20 vertical lines are used for the time scale, and the time picture becomes too spread out when less than 14 lines are used.

Also, there is the problem that if the time scale is constructed with wide spaces, the size of the horizontal background on a sheet of convenient dimensions is limited. After several years of experimentation, the author chose to use a sheet with time scale 1.25 millimeters between vertical lines, which is approximately 20 to the inch. Some market students, vehemently object to such a close spacing, protesting that it is hard on the eyes to plot. But several years' use of this time scale shows that the advantage in having a long picture on a reasonable sized sheet, outweighs the care required in plotting this closely ranged time scale.

As to price scale, of course a consideration of the question must be divided into arithmetic and logarithmic scales. If the arithmetic scale is being used, 16 horizontal lines to the inch are convenient for the price scale, in plotting stock prices, because fluctuations occur in eighths. Thus, the lines on a chart sheet with 16 horizontal divisions to the inch may be used to designate 1/8, 1/4 or 1/2 point in the price range.

Gartley Chart Sheets

Considerable experimentation was conducted by the author and his staff in attempting to select the most convenient log scale for plotting stock prices. The problem developed into a very intricate one, with the

dimension selected a 50-centimeter log for one complete cycle, which measures approximately 19.3 inches. Taking into consideration the range of individual stock prices from the level of 1 dollar to the highest levels reached in 1929 for individual stocks, it was found that a price range of from 1-700 was needed. By consulting Appendix IIIC, it will be noted that this range required approximately 2 2/3 complete log cycles. Thus, if a single logarithmic sheet were to be prepared, to take in this whole price range, which would be needed for a series of long term studies, and the size of the log cycle was 19.3 inches, the sheet would have a vertical dimension of nearly five feet.

As in the course of from one to two years, most stock prices stay within the range of one complete log cycle, regardless of what the individual price range might be, the problem thus presented was solved by breaking up the total range necessary into convenient single log cycles, with each sheet interchangeable because it had exactly the same time scale.

Thus, the author uses a series of sheets with logarithmic price scales as follows:

List of Gartley Chart Stock Sheets					
Large Size (28" X 1/2")			Small Size (11" X 17")		
Number	e Scale Range	Number		Price Scale Range	
5 7	1-10	42.402	1-4 1/4	and 2-8 1/2 and	
9	3-30	42.404	3-12 3/4 11 3/4	6-25 1/2 and	
11	5-50	42.406	-50	23 1/2-100 and	
13	10-100	42.408	23 1/2-100	47-200	
	70-700	42.412	142-600		

The small sheets are annotated on left and right side of sheet respectively for values listed above.

When a particular price range runs off the top or bottom of one of these sheets, it can be retraced to another.

Often we hear amateur chartists complain about the need to change sheets when log scales are used, apparently not realizing that arithmetic scales have to be changed quite as often. However, there was considerable difficulty with the commercial logarithmic sheets available, until the author designed the special sheets just described.

Another innovation of these specially designed sheets was that the logarithmic scale was divided into eighths instead of tenths. Although this practice has been used in Europe for many years, it was never before especially adapted to stock price plotting in the United States, until the author did so in 1933.

Chart 40 shows a reduced reproduction of one of these large specially designed sheets, which measures 28 by 31 1/2 inches, and covers a two-year period. In recent months, they have been made available to the

public.⁷

Similar sheets of smaller dimensions (11 by 17 inches) are also available. A reduced copy of the smaller size is shown in Chart 42.

Gartley Weekly Chart Sheets

Early in 1936, the Gartley laboratory developed a specially designed chart sheet for plotting stock price fluctuations on a weekly basis. This sheet measures, over all, 20 by 28 inches, and is ruled with semi-logarithmic price and volume scales. The vertical ruling covers the time period from January 1934 to December 1938, with accentuated lines for the months and year ends.

In addition to the plotting grid, the chart sheet carries, on the right-hand side, a printed statistical form, whereon important fundamental data concerning each individual company may be recorded.

The semi-logarithmic price grid of these sheets is a 25-centimeter log cycle (one half the size of the log cycle on the Gartley daily sheets), with a range of 11/2 cycles. The price grid on the left side is annotated with

a range of from 20 to 1000, and is laid out for the purpose of plotting weekly averages and other data appearing in decimals. The enumerations on the right side, on the other hand, are each one-eighth of the corresponding value given to the left side, and range from 2 1/2 to 125. They permit the plotting of individual stock prices in the lower register, in eighths and quarters, similar to the Gartley daily chart sheets.

Copies of the Standard Statistics weekly averages, and 200 of the more active individual stocks, for the period from January 1934 to date, are available to readers who want to save time and effort in acquiring a portfolio of such charts, which are invaluable in intermediate trend study. The Gartley staff will be pleased to consult with readers who are planning weekly chart portfolios. Wherever possible, the weekly chart sheet described above should be used, because of the numerous advantages in plotting this special design.

⁷ A PRICE LIST FOR THESE SHEETS APPEARS IN APPENDIX II OF THIS CHAPTER. SAMPLES MAY BE OBTAINED UPON REQUEST.

Horizontal and Vertical Scales Can Change the Eye Picture of a Chart

Figures 20, 21, 22 and 23 show four samples of the same data, plotted with different price and time scales. Figure 20 shows the approximate time and price scale used on the charts designed by the author. The price scale is logarithmic, the size being 19.3 inches for one full cycle. The time scale is arithmetic, and approximately 20 divisions to the inch.

Figure 21 shows the same time scale, with the price scale doubled.

Although in the particular price range shown, the price fluctuations appear moderately more vivid, if this price scale were employed, on a complete range between 1 and 700, it would require a linear distance of 12 feet, which would be quite impractical in sheet design.

Figure 22 shows the time scale compressed to approximately 40 to the inch, which, of course, so condenses the picture that it is almost impossible to plot without considerable eye strain.

On the other hand, Figure 23 shows the time scale expanded to 10 to the inch, with the same price scale, as in Figures 20 and 22. Although this is much easier to plot, it would soon spread over a large sheet, and reduce the size of the picture which could be observed on a sheet of convenient dimensions.

Figure 20



Figure 21

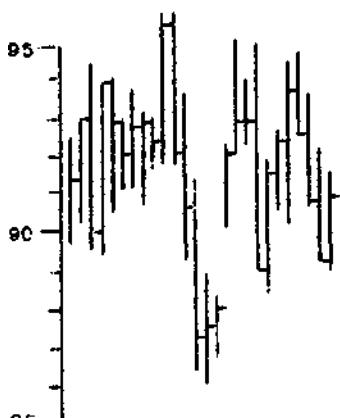


Figure 22

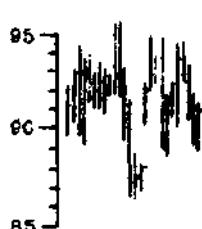
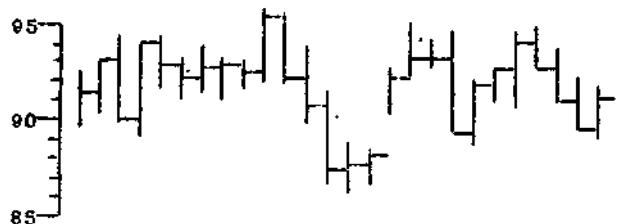


Figure 23



Sources of Chart Paper

The principal sources of chart sheets for stock market charts may be listed as follows:

Codex Book Company, Inc., Norwood, Massachusetts

H.M. Gartley, Inc., 76 William Street, New York City
Keuffel & Esser Company, 127 Fulton Street, New York City

Robert Rhea, Colorado Springs, Colorado
Carl Schleicher & Schull, 167 East 33 Street, New York City

It is not feasible to describe here all the sheets that might be used in one way or another for stock plotting, which are available. Instead, the reader's attention will be directed to a few sheets which have been found to be of service by the author.

The 15 Stock Aggregate, described in Chapter VI and shown on Chart 13, is plotted on paper which has arithmetic divisions and which carries a grid with 16 squares to the inch on both horizontal and vertical axes. Every fourth line is accentuated lightly and every sixteenth line accentuated heavily on both scales. The paper can be obtained in a 50 yard roll, or in 18 x 23 inch sheets. Green or orange printing can be obtained as desired. The maker of this sheet is Keuffel & Esser. Their designation for the roll is No. 292 and for the sheet, No. 290. It may be obtained also from Carl Schleicher & Schull.

The Dow Jones hourly averages as shown on Chart 11 are plotted on the same paper.

Daily, weekly and monthly stock market phenomena are plotted by the author on sheets of the special design which have been described. Codex also supplies an 11 x 16 1/2 sheet for logarithmic plotting (No. 42, 201) which has 318 divisions on the horizontal scale, with every sixth line accentuated. The vertical scale is a one-half cycle log ruled from 10 to 50, with divisions in quarters. At the bottom of the sheet is an arithmetic scale divided in tenths for plotting volume.

Other sheets which can be recommended are as follows:

For a large sized sheet for arithmetic plotting, Keuffel and Esser 18 x 23 inches, No. 290, as described above, is satisfactory. Another desirable sheet in this class is Codex No. 52,205, 17 x 22 inches. This sheet has 312 divisions on the horizontal scale, with every sixth line accentuated, and 360 divisions on the vertical scale, with every fourth and fortieth lines accentuated. At the bottom of the sheet is a special

grid with 20 divisions for volume plotting.

For a medium sized arithmetic sheet, Codex No. 41,200, 42,202 and 42,203 11 x 16 1/2 inches, can be recommended. This sheet has 318 divisions on the horizontal scale with every sixth line accentuated, and 160 divisions on the vertical scale, with every fourth line lightly accentuated and every twentieth line heavily accentuated.

As we have now discussed the mechanical details, and illustrated various types of plotting used in making stock market charts, which will become much more familiar as we proceed with the following chapters, let us now proceed to the consideration of stock market averages, commonly called "The Averages", which we will find are samples of parts, and the market as a whole.

As we proceed through coming Chapters, we will find that an analysis of the averages is an integral part of technical study. Thus, a knowledge of their construction and a limited understanding of the merits and shortcomings of the various averages commonly used, is essential knowledge in studying stock price trends.

Therefore, at this point let us consider the various stock market averages.

THE AVERAGES

What are Averages?

Under the general term "averages", as used in study of stock prices, there are really included three types of numerical compilations, namely, aggregates, averages and indexes. Except when discussing such compilations specifically, the use of the general term "averages" for all types, will be used in the following paragraphs.

Aggregates

Aggregates are simply the sums or totals of the stock prices or other data which are being studied. They are generally, therefore, rather large numbers, and doubtless for this reason are less widely used, the total figure obtained usually being reduced to an average or an index. (See page 8, Chapter VI)

True Averages

True averages may be defined as the sum of a number of units (most frequently in stock market studies, the price levels of stocks) divided by the number of units used. For example, if 10 units are used, the sum of their prices divided by 10 would be the average. In many instances, it appears necessary or advisable to modify averages by factors in order to attempt to secure an accurate picture. Such procedure gives rise to indexes.

Indexes

An index may be stated as a theoretical number or numerical level obtained by correcting a simple average (as above) by some constant or variable factor

or factors. The factors most commonly used in connection with stock market observations are multipliers, divisors and additive factors. A number of compilations which are published under the title of "averages" are really indexes because they employ one or more of the above types of factors.

Why We Study Averages

It is impractical to study the hourly, daily or weekly movements of all the stocks listed on the New York Stock Exchange, not only because of the vast amount of statistical work which such procedure would involve, but also because there are varying numbers of stock traded from day to day. Unquestionably a daily or weekly series of averages including all stocks, such as those published by the statistical department of the N. Y. Stock Exchange, would be very helpful in making comparison such as will be described in Chapter XVII but the labor involved will probably preclude the possibility of ever having such data. (See Chart 20)

Averages Are Samples

Students of the stock market have, therefore, resorted to the process of sampling, as is done in scientific procedure in other fields (mining and chemistry), when a similar problem presents itself. A comparatively small number of typical stocks is carefully selected and the average of their prices is taken to be representative of the market as a whole.

The sample process furnishes a good picture of the whole market, provided the stocks comprising the sample are scientifically selected, because the bulk of active speculation trading takes place in a varying list of about 200 of the 1200 issues listed (common and preferred). This same element is also important in group averages, such as the rails, steels, motors, etc. Even if a considerable number of stocks is used in a group average, any movements will be influenced by the several active leaders which, when studied alone or in a similar group, would give the same general picture.

Stock Market Data Voluminous

A clear picture of the difficulty of studying the stock market from the great amount of published data, and of the necessity for averages, is given in Arthur F. Burns' brochure, *Stock Market Cycle Research*. Therein it is stated that, "The behavior of the stock market is recorded with meticulous care by our many financial organs. Daily 'high' and 'low', 'opening' and 'closing', 'bid' and 'asked' prices are given, along with the volume of trading. Transactions on the Curb Exchange, Over-the-Counter Market, and Out-of-Town Exchanges are recorded with almost the same painstaking detail as are the dealings on the 'big board'— The volume of raw data on the stock market is larger than that for any other important branch of economic activity.

"But the myriad figures that adorn the pages of financial sheets and periodicals do not, in and of

themselves, convey a clear study on the behavior of the 'stock market'. Such data must be condensed and it is only through synthetic figures that a basis for generalized description of stock market movements can be achieved. For the purpose of a systematic description and explanation of stock market movements, measures of the more important elements of stock market activity, and for the various significant groups into which the 'stock market' may be broken up, are essential." (See Burns, Arthur F., *Stock Market Cycle Research*, page 6)

Brief History of Stock Price Averages

Exactly when and by whom averages of stock prices were first devised and used, the author knows no way of determining. However, the first to be published and attain wide recognition were those known as the "Dow Jones Averages", originally computed and published by Charles H. Dow. As far as can be determined, Dow began computing his industrial average after 1881 and first mentioned it in his writings in 1887. The Dow Jones railroad average was occasionally published from 1884 to 1896. Regular publication of the rail average began after November 2, 1896 and of the industrials on January 1, 1897. The Dow Jones published utility average was not started until December 26, 1929, but with data worked back to January 2 of the same year. (See Charts 3, 15, 21 and 22)

Next to the publication of the Dow Jones Averages (which started out as averages but are now indexes) in the Wall Street Journal, the New York Times has published data on the Times Averages for the longest period. These were not regularly published until 1913, although tabulations showing annual levels back to 1911 are available in the 25 rail, 25 industrial and combined 50 stock averages, as well as in some of the bond averages. (See Chart 4)

The presentation of indexes specifically designed to measure the levels and fluctuations in stock prices was first made by Standard Statistics Company on October 25, 1923. This, the first series of stock price indexes introduced to the public, included an index of the market as a whole, based on prices for 233 stocks, an index each for 31 railroad and 202 industrial stocks and 26 sub-group indexes within the industrial stock list. The indexes were computed from one observation each week, and in order to afford a record for back comparison, were made available by weeks beginning with January 2, 1918. This original computation established firmly the value of index numbers in the study of stock price fluctuation and the importance of sub-group indexes for this purpose. An elaborate revision and enlargement of this first series was therefore undertaken and the revised indexes were completed and released on September 19, 1928. The revised series consisted of 54 indexes computed from prices on 394 stocks and was most notable in that the utility stocks were segregated from the industrials, the first time that their differences were recognized in this manner. (See Chart 8)

The New York Herald-Tribune Averages date back to 1923, although there was no publication until 1925. (See Chart 7) *Barron's*, in 1926, had Professor Krum of Harvard design an average in which component stocks were changed according to activity, but the labor of computation proved to be so great that the average was discontinued in the middle of 1932.

The Axe-Houghton index (See Charts 1 and 2), the original version of which appears in the *Times Annalist*, has been carried back to 1854, but the original work was done between 1925 and 1929 and its first publication was on March 14, 1930.

Averages a Comparatively Recent Development

The fact that only two of the published stock averages were available before 1923 illustrates the fact that averages, like most other data used in technical study, have had their value widely recognized only in recent years. As the interest in them increased, more and more averages were computed by various methods and for various purposes, and made available through publication in newspapers, financial magazines and services.

Classification of Averages

There are a number of ways in which to classify averages. First, there are stock averages, bond averages, commodity averages, etc. Herein we are interested only in stock averages.

Besides averages of prices, there are indexes of volume of trading and averages of the price earnings ratio. However, as Rhea points out:

Security price indexes are more numerous and of greater excellence than measures of volume of security trading or measures of security price - income ratios, because the latter are more difficult to handle and because popular interest is larger in the prices of securities than in any of their other economic characteristics. *The Story of the Averages*

For practical purposes stock price averages may be classified from three points of view;

1. From the point of view of the stocks used:
 - a. Composite averages, composed of a large number of miscellaneous stocks.
 - b. Major group averages, including in each average only Industrials, Rails or Utilities.
 - c. Minor group averages, including in each average only stocks of single industries, or specific divisions of the major groups.
 - d. Special averages for specific purposes.
2. From the point of view of the *time element* concerned in their study.
 - a. General averages, where composites are used and which may be computed monthly, weekly or daily according to the length of trend they are designated to indicate.
 - b. Larger short-interval averages, such as the Dow Jones hourly averages and the former Standard Statistics hourly averages, where the same stocks are used as in the longer term composites.

c. Short-interval averages, where, for reasons of practical utility, a small number of stocks such as from 5 to 15, are used. 3. From the point of view of the statistical

methods used in their computation:

- a. Aggregates, consisting simply of the total of the prices of the stocks used. The writer's 15-Stock Sensitive Aggregate is of this type, and the New York Stock Exchange monthly total of market values of all stocks listed (despite multiplication by the number of shares of each issue) can probably be placed under this classification also.
- b. Common or simple averages. In this classification fall several of the published averages, which consist simply of a summation of the prices of a given number of units, divided by the number of units. The earlier averages were of this type, and present examples are the Dow Jones Utility Average and the New York Sun Average.
- c. Corrected Averages, or Indexes. These are averages corrected for changes in component stocks in cases where such changes would cause the movement of the average level to be distorted. Examples are the Dow Jones Industrials and Rails and the New York Times Averages.
- d. Weighted Averages, or Indexes. These are averages weighted for the purpose of making other statistical corrections. For example, the Standard Statistics Averages are computed by including as a factor (multiplier in this case) the number of shares of each constituent stock in the computation. In other cases, such as the Axe-Houghton averages, indexes are weighted by arbitrarily giving greater values to some stocks than others.

There are other types of averages not specifically included in the above classifications and some of which are used for special purposes. The construction of moving averages is outlined in Chapter XI. Chain-relatives are a type of average in which the bases for each computation are the figures of the computation immediately preceding. For instance, in a daily average of this type, the prices of the previous day would be the basis, and the computations would be made on the changes from the previous prices. The Irving Fisher Index is in this classification, as was Dr. Krum's former *Barron's* average, which also changed its component stocks with the purpose of keeping only the most active stock therein. Square root averages were mentioned previously. There are also logarithmic or geometric mean averages, and a method for computing averages which might be termed the ratio-base. Of late years averages of the logarithms of stock prices have been used.

The most commonly used averages now fall into classifications (3c) and (3d) above. Some of the longer term averages are computed monthly or weekly, but most are for daily intervals, with a growing use of hourly and less-than-hourly averages for keeping

closer track of market movements, especially in minor trend study.

In the following pages, a number of the more important and widely-used stock averages are very briefly described, while wherever possible, sample work-sheets showing the actual manner in which they are computed, appear in the Appendix. The averages so described are:

<i>The Annalist</i>	New York Herald-Tribune
Associated Press	New York Stock Exchange
Axe-Houghton	New York Times
Dow Jones	Standard Statistics

The author's sensitive aggregate of 15 stocks is described on page 8 of Chapter VI. The 45 group averages used by the author (which have no relation to the 51 group averages computed by Standard Statistics) are the only comprehensive set of minor group averages available daily to the public (see Section 9, Appendix I, of this Chapter).

The *Annalist* Index (See Chart 2)

This is an index employing multiplying factors on the individual stocks, and also a multiplying factor for each group. The early history of the index is given in the discussion of the Axe-Houghton Average.

From July 1929 to December 1935, the index represented the original Axe-Houghton weighted average, while E. W. Axe used a revised average. It consisted of a 43-stock composite, broken down into 5 Rails and 5 Utilities, and 33 Industrials this last group being further broken down into minor groups.

However, in January 1936, *The Annalist* average of Group Leaders, as it is called by its sponsors, was revised and enlarged to provide a more accurate measure of group and total market movements, and to give their proper place to groups which have come forward to considerable prominence in the present bull market, such as the Aviation and Amusement issues.

The present *Annalist* averages include a 90-stock composite, broken down into 10 Rails, 8 Utilities and 72 Industrials. This last group is further sub-divided into the following 21 minor groups:

4 Amusements	4 Motors
3 Aviation	5 Motor Accessories
3 Building	4 Office Equipment
4 Chemicals	8 Oils
2 Electrical Equipment	4 Standard Oils
3 Farm Equipment	4 Independent Oils
4 Foods	4 Rail Equipment
2 Liquors	3 Rubber & Tires
5 Merchandise	4 Steels
4 Metals (Non-ferrous)	3 Sugars
	3 Tobaccos

These revised averages are computed by the customary method of weighting each stock in inverse proportion to its normal range of fluctuations. That is, each stock is given an "effective" weight, which is the influence it is to have in the index, and an "adjusted" weight, which is the figure by which the price must be multiplied to give the effective weight (with the exception of U. S. Steel and General Motors, which are

given double weight). The basis for determining the adjusted weight was the average monthly range in the year 1934. In addition, there is a multiplying factor (adjusted weight) for each group.

In computing the group averages, the stock prices are multiplied by their adjusted weights, and the products in each group are added. Then the group total is measured by the group weight; and the final product is divided by 100 to reduce the index to a usable figure.

The multipliers used in each group are for two purposes: (1) to provide continuity with the corresponding groups of the 43-stock index used in the earlier averages; and (2) in the case of new groups, to make the numerical level of the weighted average bear some resemblance to a simple arithmetic mean of the stocks included. For the index of 72 Industrials, the weighted totals for all the groups are added, and multiplied by a weight for the group. The same process is used in computing the 90-stock composite. It will be noted that in the *Times Annalist* and Axe-Houghton averages, no attempt is made to divide by a figure representing the actual number of units or adjustments thereof.

Work sheets for the component groups and the composite appear in Appendix IV-A. When the indexes were revised, they were worked back to November 30, 1935. The work sheet shows the figures for that date.

The Annalist averages, as revised January 1936, are comprehensive, and fairly reflect an excellent cross-section of the market as a whole. Each stock included is statistically weighted from time to time to give greater importance to more active stocks. This is an advantageous point in their favor. Their chief drawback is that, although they are computed daily, they are published only once a week (in *The Annalist*). This slightly impairs their value in technical work to students interested in following stock price movements from day to day. If this average were easily available on a daily basis, it would compare favorably with the Standard 90-stock, and in the opinion of this writer would be a better average than the Herald-Tribune 100.

Associated Press Average

On January 2, 1935, the Associated Press, a news collection and distributing agency serving many newspapers, which previously had been forwarding the Standard Statistics stock price averages to their correspondents, inaugurated the publication of three averages, including 30 Industrials, 15 Rails and 15 Utilities, and a composite consisting of the entire 60 stocks.

This average is a straight arithmetic average which is computed by adding the prices of the three major groups and dividing by their number of stocks. The composite is found by dividing the sum of the prices of the 60 stocks by 60.

As this average is now widely published by the correspondent newspapers of the Associated Press, it is

probably more conveniently available to many readers.

A working paper for these averages, as of September 3, 1935, appears as Appendix IV-B of this Chapter.

As the Associated Press averages have been published for only a short period, during which no complications in computation developed, they are at present equally useful in reflecting the trend of the market as compared with the other widely published averages.

However, it is indeed unfortunate for the market students away from New York to have to accept this poor substitute for the Standard Statistics averages, which the Associated Press averages have replaced.

Axe-Houghton Averages (See Chart 1)

The Axe-Houghton averages are weighted indexes. Each stock in the average is weighted with a multiplier factor, and in addition both a divisor and a multiplier are employed on the total.

This index was originally prepared by Mr. Axe and Miss Houghton between 1925 and 1929. Its first appearance was in *The Annalist* on Friday, March 14, 1930. At that time the index included 33 Industrials. *The Annalist* added 5 Rails and 5 Utilities, bringing the total stocks carried up to 43. As the index now stands, it begins in 1854 and carries through to the present date. From 1854 to 1869, the index consisted only of railroad stocks. All of the data from 1854 to 1882 were prepared by Charles Burgess.

The original work of Axe-Houghton began with 1883 and the averages, as originally published, included only the part from 1883 to date.

After observing the unusual decline from the high of 1929 to the low of 1932, Axe decided that the system of weighting, and, perhaps some of the stocks, had been poorly selected, because none of the other popularly used averages had declined to anything like the 1895 levels, which had been the case with the Axe-Houghton. For his own work Mr. Axe recomputed the series back to December, 1925, using as a matter of convenience only 30 industrials. *The Annalist*, however, continues to publish the original Axe-Houghton average of 33 Industrials.

The Axe-Houghton index is based on monthly high and low prices. The various stocks in the original index were weighted in proportion to their market importance which was gauged partly by the relative size and importance of the corporation itself, but more particularly by the simple fact of the position of the stock as a market leader, as determined by its activity and its characteristic behavior. But the most important principle underlying the construction of these averages was that involved in the computation of the adjusted weights of each stock. Assuming for the moment that it is desirable to give each stock equal effective weight in the composite, each stock was then weighted in inverse proportion to its normal or characteristic width in fluctuation or normal price range. This method recognizes the fact that volatile

stocks invariably dominate the fluctuations of a straight average so that some of the really important stocks with narrow price ranges have very little influence on the movement of the composite.

The work sheet appears as Appendix IV-C and gives a list of the 30 stocks now used in the Axe-Houghton weighted industrial average. The price of each stock is multiplied by its assigned weight. The results are added and the total is divided by 100 and multiplied by one and one-half. The purpose of this was doubtless for continuity.

The new Axe-Houghton 30 stock index is not published at present. It is computed by Axe and appears in the author's Stock Market Data Service.

The outstanding advantage of the original Axe-Houghton index is the fact that it extends back to 1854, although of course, it cannot be said to possess statistical continuity over that period of time. While an attempt has been made to weight the Axe-Houghton average scientifically, the initial weightings drove this index out of line with the other averages in 1929 and 1932, and it is possible that this might happen again with the new weightings.

Dow Jones Averages (See Charts 3, 10, 11, 15, 16 and 21)

These averages consist of a 30-stock Industrial average, a 20-stock Rail average, and a 20-stock Utility average, the first two of which are weighted to correct for changes in component stocks.

The complete history of the Dow Jones averages is given in a book entitled *Dow Jones Averages* published by *Barton's* (30 Kilby Street, Boston). From time to time a number of substitutions were made in this original list, which in 1897 included only 12 stocks, without any change in the method of computation, which was a strict arithmetic average, the sum of the prices being divided by the number of component stocks in the averages. In September, 1916, a list of 20 Industrials was substituted for the old list of 12 stocks.

On November 28, 1924, American Tobacco "A", par \$50.00, was substituted for American Tobacco, par \$100.00. This occasioned the first statistical correction which was made in the Industrial average as the price of American Tobacco "A" was doubled in computing the average.

On March 26, 1926, American Can new was substituted for American Can old, when the six-for-one split took place. From that time on, American Can was multiplied by six. On the same day, Sears Roebuck new was substituted for Sears Roebuck old, to take care of the four-for-one split, and the new stock was multiplied by four. At this time there were four multiplying factors employed. On May 27, 1926, General Electric no par was substituted for General Electric \$100.00 par at the time the stock was split four-for-one. The fifth multiplying factor was then introduced as new General Electric, and multiplied by four. On September 13, 1926, General Motors sold ex a 50 per cent stock dividend, which

resulted in a decrease in price on that day, for the stock, of 70 points, equal to a change downward in the average of 3.55. As far as can be learned, no correction was made for this change. On March 16, 1927, U. S. Drug was substituted for Remington Typewriter. On April 18, 1927, Paramount-Famous-Lasky was substituted for Famous Players. On October 8, 1927, General Motors new stock, resulting from a two-for-one split, was substituted for the old shares. The difference between the new stock and the old on this day was approximately 136.4 points, or the equivalent of 6.82 in the average. Again there was no compensation for this change. On March 26, 1928, Eastman Kodak and National Biscuit were substituted for Western Union and United Drug.

Until September, 1928, all computations were made by the simple arithmetic method except for the five multiplier factors used to compensate for split-ups. In the first nine months of 1928, when a number of such changes were taking place in the component stocks, nothing was done for them in the average, with the result that at times during this period the average did not accurately reflect the market.

Beginning September 10, 1928, however, a new method of computation was followed, which had been evolved to eliminate the occasional distortions resulting from multiplying individual stocks by various factors. In the past, it had been the practice to compensate for stock split ups and stock dividends of 100 per cent or greater by multiplying the split-up stocks, as in the cases mentioned above. Although this method reflected the relative fluctuations of the averages accurately for a time (one day), and at the same time preserved the sequence of the averages, it evidently caused distortions, as, for example, when one of the multiplied stocks moved counter to the general market trend. On the other hand, the old practice of making no compensation for stock dividends of less than 100 per cent sometimes caused serious breaks in the sequence, as in the case of the General Motors changes mentioned above.

The new method of computation was based upon a simple mathematical expedient. Instead of dividing the total of the 20 stocks and their multipliers by 20, the total of the 20 stocks, without any multipliers, was divided by 12.7. This constant divisor was arrived at on the basis of the September 8, 1928, closing prices, and is merely a figure which gave the same average on the new basis on the day before the new method was put into effect. The total of the 20 stocks on the old basis was 4822.375 on September 8. This total divided by 20 gave an average of 241.11. The total of the 20 stocks without any multipliers was 3060.5. Dividing the latter total by 12.7 gave an average of 240.98 or approximately the same as obtained by the old method. Under this method, the constant divisor 12.7 would be used daily and indefinitely until some stock in the last of 20 was split up, or reduced materially in price by a stock dividend or until a substitution was

made in the list of stocks.

On October 1, 1928, the Dow Jones Industrial average was extended to include 30 stocks, instead of the old 20, and at the same time, a few substitutions were made among the old 20. The purpose of these changes was to make the average more representative of a greatly expanded market, to substitute for inactive and unrepresentative issues, stocks of greater activity and significance, not only marketwise, but as indices of the country's business, and to minimize the possibility of unusual fluctuations in any one stock distorting the averages on any given day.

In order that the historical continuity of the average should not be affected by these changes, the total of the new 30 stocks was divided by a constant divisor of 16.67, obtained by matching the new total with the previous closing of the index for the 20 stocks. 16.67 was the number which obtained a result close to the old index closing.

On May 26, 1932, American Tobacco B, Coca Cola, Drug Inc., International Business Machines, Loew's, Nash Motors, International Shoe, and Procter & Gamble were substituted for Hudson Motors, Liggett & Myers B, Mack Truck, National Cash Register, Paramount Publix, Radio, Texaco, and United Aircraft & Transport. The constant divisor was changed from 10.38 to 15.46.

The change made on May 26, 1932, caused considerable criticism because it made a substantial alteration in the averages. One of the outstanding defects of this change was the substitution of International Shoe for United Aircraft. As will be remembered, the former was very active during April and May, 1932, while the latter had been quite inactive. Almost from the day of the change, this phenomenon reversed to the detriment of the average. This defect has now been corrected. The list of stocks comprising the present average are to be found in Appendix IV-D, with work sheets for all three averages and the 70-stock composite as of January 2, 1936.

It is naturally the purpose of the sponsors of the average ultimately to bring the divisor to equal the number of component stocks so that the average will be again a real average rather than an index. At the present time, the Dow Jones Industrial Average must be classified as an index using a constant divisor factor. The Dow Jones Railroad stock average, like the Industrials, is an index employing a constant divisor factor.

The Dow Jones Utility average was started on December 26, 1929, and was then worked back for the whole year.

For the Dow Jones 70-Stock Composite the totals of the stocks in the three averages are added together and divided by 70 (the total number of stocks in all three major group averages). This is a simple average with no factor used, and does not give effect to the changes compensated for in the component parts. In computing all three of these averages, when there is no

sale of a component stock on any particular day, the last previous sale price is used.

Until October 1, 1928, the Dow Jones averages were published only in the form of closing data. After this date, high, low and last were published. The total sales on each of the groups first appeared on April 29, 1931.

Since October 5, 1932, the Dow Jones Averages have been computed and published for every hour of trading time (open, 11A.M., 12 Noon, 1P.M., 2 P.M. and 3 P.M.). These, with the exception of the opening, are published on the Dow Jones Ticker, and all of them are published in the Wall Street Journal and in *Barron's* weekly.⁸

The Dow Jones Averages are the oldest in point of publication, and cover a longer period of time than any other published series of averages, with the exception of the Annalist-Axe-Houghton indexes. Moreover, they are the most widely published averages currently in use. For this reason, they have become most familiar to students of the market, and enjoy wide use. The fact that Dow Theory (see Chapter VII) authorities base their interpretation on the Dow Jones Industrial and Rail averages causes even more demand for their use. Finally, they are the only series of averages published hourly, making them important for the study of intra-day movements.

On the other hand, a glance at the list of stocks comprising these averages will reveal several stocks which are fairly inactive. Another weakness may be discovered in the Industrial Average when it is noted from the tabulation in Appendix IV-D that on January 2, 1936, Allied Chemical, American Can, du Pont, Kodak and International Business Machines represent 35.3% of the total index.

Herald Tribune Stock Averages (See Charts 7, 17 and 36)

The "Herald Tribune Stock Averages" fall in the classification of "Indexes", since additive, and in some cases, subtractive factors are employed.

The additive factors employed in these averages represent the aggregate for all changes and substitutions made since the inception of the averages in 1923. Such changes have been the result of stock split-ups, mergers, and an effort on the part of the sponsors to keep the average representative through the substitution of active and important stocks from time to time, when former component issues have deteriorated in their representative value as part of each index. In the case of stock split-ups, the new stock is taken into the average on the day that the old stock ceases to be traded. In order to adjust the difference, the price of the new stock is subtracted from the price of the old stock and the difference is added to the adjustment factor. From that time on, therefore, each

⁸ GARTLEY'S STOCK MARKET DATA CAHRIES THE FIGURES FOR THE Dow JONES INDUSTRIALS HALF-HOURLY, AS WELL AS DAILY, WEEKLY AND MONTHLY (SEE SECTIONS 1, 3 AND 4, APPENDIX I OF THIS CHAPTER).

calculation of the average level is computed on the basis of the new adjustment factors.

Every effort is being made on the part of the Herald Tribune financial staff to eliminate as quickly as possible all or the adjustment factors, and whenever a logical substitution which would enable a reduction of the factor appears available, it is made.

The stocks comprising the 15 manufacturing group and summary for the 70 Industrials and Utilities, and the 30 Rails, will be found listed on the sample work sheets for September 3, 1935, in the Appendix IV-E to this lesson.

No figures have ever been published on the Herald Tribune averages for less than daily intervals.

The New York Herald Tribune publishes a compilation in brochure form showing the daily high, low and last of the 70 Industrials, 30 Rails and the 100 stock averages, together with the high, low and last annually, back to January 1, 1925.

The appended work sheet shows the method of computation of the different groups and the composites. In the event that a component stock in any of the averages does not sell on the given day, the last previous closing sale price is used.

- The steel group of these stocks has no additive factor, and is, therefore, a straight average. All the other groups and composites carry an additive factor and are, therefore, indexes. The general method of computation in each group is as follows:

1. The high, low and closing prices of the individual component stocks of each group average are each added together.

2. To this sum is added, in the case of all of the averages except the steels, a variable factor which approximately represents the sum of the changes in a particular average since 1923, resulting from mergers, stock split-ups, and the outright substitution of one stock for another.

3. The total sum of the price level and the adjustment factor is then divided by the number of stocks in the group. The dividend represents the published price level of the average.

The 30 rail and 70 industrial and the 100 stock composite averages are computed by taking the sums of the minor group with their additive factors and dividing by the number of stocks in the major groups.

The New York Herald Tribune has been very backward in furnishing information to the public as to its method of computation, despite its comparative simplicity. The Herald Tribune group averages, although they have been extremely useful to students, because they have been the only minor groups available without buying a special service, have often been justly criticized because of the manner in which they have been adjusted for necessary changes since their inception. From the standpoint of statistical method, additive factors employed by the Herald Tribune are hardly justified. Expedient adjustments in these factors are made when necessary, regardless of statistical accuracy. For example, in the case of the

manufacturing index for September 3, 1935, (Appendix IV-E), when the actual value of the component stocks was 1798.7, an additive factor of 1815 was used, which was more than 100 % of the value of the stocks. Hence, the actual index number 240.91 was loaded with a factor of at least 2, meaning that it would move only 1/2 as fast as the actual value of the stocks themselves. Much of the criticism of the Herald Tribune averages centers around this fact that the averages are very sluggish in percentagewise movements as compared with the market. Contrary to the attitude of the sponsors of a number of the other averages, no effort is being made by the Herald Tribune to have their average move percentagewise with the bulk of stocks. There appears no sound reason for this attitude and the lag represents a distinct disadvantage of these averages for general use. Another criticism of the Herald Tribune averages is that very few of the group averages directly reflect the price level of the component stocks because of the additive factors.

However, the Herald Tribune 100 stock average plotted on an arithmetic scale shows the best bear market trend line from 1931-1932 of any of the averages (see Chart 7). Practically everyone of the intermediate corrective phases touch such a trend line without penetrating it in this average, whereas none of the other averages were so accurate in this respect. It is, therefore, evident that the Herald Tribune averages have their use, since it is probable that trend lines apply more accurately to the Herald Tribune 100 stock averages. For this reason this average has gained considerable favor.

New York Stock Exchange Averages (See Chart 20)

The New York Stock Exchange Monthly Bulletin contains a number of aggregates, averages and indexes. A series of these is published on the first pages of the *Bulletin*.

Number 1 is known as a flat average price, and is the average of all prices in dollars, computed by adding the prices of all listed stocks, and dividing the total by the number of listed stocks.

Number 2 is a price index computed from a base, which is January 1, 1925 = 100. This index represents the average price (No. 4 below) adjusted for split-ups, stock dividends, etc.

Number 3 is the Stock Clearing Corporation monthly average price of settled shares in dollars.

Number 4 is an unadjusted average price found by dividing the total market value by the total number of shares listed, in dollars.

Also on the first few pages will be found the number of issues listed, and the total number of shares listed. From these is found the total market value in dollars, computed by multiplying the price of each issue by the number of shares, and totaling them. All these figures are given back to the same month in 1925. There is also a ratio of New York Stock Exchange Member total net borrowings on collateral

(whether share collateral or other) to market values of all listed shares. This ratio is given in percentage back to and including January 1926.

On the second and third pages are found figures on all listed stocks as of the first of the month for which the bulletin is published, divided into groups with classifications into common and preferred stocks, number of companies, number of issues, average price, total shares listed and total market value in each classification.

The next several pages contain charts of these different averages and other figures, including group charts. A large amount of other information on bond yields, sales, etc., is given, including charts, and indexes of stocks on the principal Foreign Exchanges. *The Stock Exchange Bulletin* can be obtained gratis by writing the New York Stock Exchange.

The New York Stock Exchange average of all stocks compiled once a month from opening prices on the first trading day of each month, is *the only complete average of stock prices on this Exchange*. The advantage to be obtained from its use is that it represents the movement of the market as a whole, and can be used to check other more frequently published "sample" averages to see how well they indicate price movements. The main disadvantage, of course, is that this index is compiled but once a month, and therefore is of no use except for long term study.

New York Times Averages (See Chart 4)

These are weighted indexes, but the weighting is confined to the individual issues, and no general divisor or additive factor is employed, factor is employed.

As stated previously, the New York Times averages have been published longer than any other except the Dow Jones. They have been regularly published since 1913, but tabulations showing the annual levels back to 1911 are available.

Originally, the New York Times averages, which consist of an index of 25 rail stocks, an index of 25 industrial stocks and a combined 50 stock index, were straight arithmetic averages, obtained by dividing the total of the daily prices by the number of stocks included in the average. Early in 1928 it was found necessary to adjust the Times averages, but no scientific method was used. When the first split-up in a component stock occurred, a substitution was made by means of selecting an entirely new stock at approximately the same price as the one eliminated. This temporary expedient was used in similar cases as they occurred. Cases soon arose, however, where the new stock substituted went through the same process, and, after several such occurrences, it became more difficult to find logical stocks for purposes of substitution.

Therefore a new method was employed by the introduction of a factor to multiply the changed stock to make it equivalent to its price before the change. For example, if a two-for-one split took place, the new stock was multiplied by 2. This method had the

advantage of keeping a nearly comparable index figure for each group.

In 1931, the old method of substitution was again resumed in an effort to eliminate the use of factors. At that time there were approximately 15 out of the total of 50 stocks in the two groups in which multiplying factors were being used. The change back to the older method was made because of numerous criticisms of the unsoundness of the multipliers being used. Stocks were substituted in the list which approximately filled out the totals without the use of multipliers, but this of course resulted in introducing stocks, in some cases, merely because of their convenient price, regardless of their activity. Subsequent changes again resulted in the use of factors, and, at present, factors for 9 stocks are used in the industrial group. The rail group, however, is now a straight average.

The industrial average includes 6 utility stocks. The sponsors of these averages appear still to consider eliminating by substitution some of the multiplying factors now used, and also the re-substitution for recent substitutions made for the same purpose, certain stocks formerly used, which it is felt, more nearly represented their industries, and were of better quality than those which had replaced them.

The principal source for these averages is, of course, the New York Times. In addition, *The Annalist*, published every Friday by the New York Times, carries the daily high, low and closing quotations for all three stock indexes for the preceding week. In the Middle West, the Times averages can be secured daily from the pages of the Chicago Tribune and the St. Louis Post-Dispatch. (See Section 1, Gartley's Stock Market Data, Appendix I of this Chapter.)

The New York Times averages are subject to the disadvantage of gradual increase in the use of factors. As has been pointed out previously in the description of other averages, these adjustments are exactly correct only on the day they are made, and as the price levels move up or down from the level of the first day of the change, the factors may cause distortion. One of the most extreme examples of the exaggeration caused by the multiplier method took place in General Electric, which, after it was split twice, four times each, resulted in a multiplier of sixteen. This in turn exaggerated the influence of General Electric on the averages as a whole irrationally. The list of stocks used at present will be found in the work sheets. In the case of the railroad average, comparatively few capital changes and substitutions were made, which resulted in the elimination of multiplier factors entirely.

The majority of the criticisms which the Times has received regarding its averages has been in the form of suggestions for substitution changes which would completely change the index and render obsolete all of the present background. This is merely one of the practical difficulties which has been encountered in the case of most of the other averages. It has kept the newspapers from having better averages.

The criticism has also been made that the rails appear to be too large a part of the total average, whereas utilities have not been given a large enough place (not even being designated as a separate classification).

Standard Statistics Stock Indexes (See Charts 6, 8, 29, 31, 32 and 34)

These indexes may be best defined as a base weighted aggregate expressed in relatives, with 100 equal to the average group value during the year 1926. It is not a true base weighted index, due to the corrections in the base necessary in the case of sale of new stock through the issue of rights, consolidations involving stocks not included in the index and additions necessary to keep the indexes representative when new stock issues become available.

The Standard Statistics stock price indexes⁹ include a 419-stock combined weekly average, sub-divided first into 347 Industrials, 32 Rails and 40 Utilities, with the Industrials and Utilities further divided into 64 groups representing all principal branches of industry; *a daily price index of 90 stocks combined with supplementary indexes based on 50 Industrial, 20 Railroad and 20 Public Utility stocks*; the Standard Bank Stock Price Index based on 20 New York City bank stocks, and the Standard Fire Insurance Index of 20 Stocks, and the Standard Casualty and Surety Index of 13 stocks. These represent all the common stock price indexes published by Standard Statistics.

The fact that Standard Statistics Company was the first to present indexes designed to measure the level and fluctuations in stock prices has already been mentioned. On September 19, 1928, when the weekly series was revised, it consisted of 54 indexes computed from prices of 394 stocks, with the Utility stocks segregated from the Industrials for the first time in the history of stock averages. Subsequent need for additional representation within the group indexes, and for new indexes of groups not previously formed, has enlarged this weekly series to some 64 indexes and sub-indexes based upon prices of 419 stocks.

About seventy of the 419 stocks are not listed on the New York Stock Exchange, but are listed on various other exchanges throughout the country.

At the time that revised weekly stock price indexes were released on September 19, 1928, a series of four daily stock price indexes was also first published. This series was designed to follow the market fluctuations between the appearance of the weekly indexes. The four series are composed of 50 Industrials, 20 Railroad and 20 Public Utilities and the 90 stock combined index. These 90 stocks were carefully selected from the longer lists used in computing the weekly indexes. The 50 industrial stocks reflected approximately the relative importance of 27 main industrial groups in the weekly industrial index, and the industrial, rail and utility groups are weighted in the daily indexes to equal their respective importance in the weekly

indexes. *This method of stock weighting and selection in the smaller index to retain the same group relationship existing in the more representative index based on 419 stocks, is a very important detail in their construction.* The daily indexes are computed from high, low and closing prices and began in January 1930, although closing prices were published as early as 1928, with one weekly index for 1926 and 1927. A list of the stocks included in the 90 stock index will be found in the work sheets in Appendix IV-F to this Chapter.

The Standard Statistics 90-stock daily indexes are the most widely published of any stock market averages. The figures on these are released daily to innumerable local newspapers where they have not been replaced by the Associated Press averages; hence the data should be readily obtainable in almost any city. The quotations most widely printed are the closing prices, but many newspapers print the high and low prices for the day as well.

The high regard in informed circles for the Standard averages is illustrated by the fact that the Standard stock price indexes appear in such publications as the *Federal Reserve Bulletin*, published monthly by the Federal Reserve Board, Washington D.C.; the *New York Stock Exchange Bulletin*, a monthly publication of the New York Stock Exchange; the *Survey of Commerce*, Washington, D.C.; *The Economist*, a financial weekly, London, England; *Montly Statistical Bulletin of the League of Nations*, Geneva, Switzerland; and *Review of Business Statistics* published annually and monthly by the Dominion Bureau of Statistics, General Statistical Branch, Ottawa, Canada.

The methods of computation of the Standard Statistics stock-price indexes have been designed to meet the problems arising in such computation by the simplest statistical methods possible. Common stock prices are in a state of perpetual fluctuation wherein price changes of individual issues may or may not run parallel to simultaneous changes in the prices of other stocks. The price change in the individual issue is one problem; the measure of price changes that are taking place in the market as a whole, or in groups of stocks, is a much more complicated one. It involves the consolidation of fluctuating prices in numerous separate issues into a single representative figure or index. Price indexes and averages, irrespective of the method adopted in their construction, do not stand from a practical point of view, cannot exclude prices from all stocks available. The selection of stocks to be included in an index must, however, include a sufficient number of important and active issues to make the resulting average or index as truly representative of the whole as possible. This part of the problem introduces the first difficult question for consideration, which is the ever-increasing list of corporation securities for which prices are available. Provision should be made to keep the indexes generally representative of this expanding list of security prices.

The second difficulty is found in the changes that continually take place both as to the importance in

⁹ SEE APPENDIX V AT END OF THIS CHAPTER.

activity of stocks in the list, the disappearance of some issues and the appearance of other new issues which become important, and as to the changes which take place in the stocks themselves, such as split-ups, stock dividends and mergers. Provision must be made for meeting these conditions when they affect any stock included in the index, to obviate any necessity of constructing a new series of indexes, which might destroy the value of comparison.

It is apparent from the above, as well as from the discussion of the problems in computing averages suggested and implied earlier, that the problem of measuring stock price fluctuations is a very complicated one. The formulae devised for the computation of the Standard Statistics indexes are probably the most satisfactory and accurate in use today. The method, in brief, measures the change in the value of all outstanding stocks included in the index as market prices of individual securities fluctuate. The indexes are continuous and uninfluenced by arbitrary price changes resulting from stock split-ups, stock dividends and rights or from consolidations and substitutions, except in so far as the latter two changes may influence slightly the future general level of the index.

The weekly indexes with their larger detail descriptive of group movements, are designed to follow the price movement in stocks of closely allied activity, such as steels, chemicals, railroad equipment, etc., with particular reference to their longer trends.

While the large number of stocks included in the weekly indexes gives the broadest and most suitable representation, the time involved in their computation was a prohibitive factor off-setting their great desirability as a series of weekly indexes. However, a comparison of fluctuations in the daily indexes with the corresponding indexes in the weekly series shows that a high correlation has resulted, slight differences in the degree of movement being only the natural result of the smaller number of stocks used in the daily indexes.

The method of computation of the daily averages is as follows:

The price of each stock is multiplied by the number of shares outstanding to obtain the current market value of the issue. The market values thus obtained are added together for all issues in each group index, and this total is divided by the average market value of the group for 1926 (also obtained by multiplying prices by shares outstanding). The result is multiplied by 100 converted into the statistical relative. Set forth as a mathematical formula, the method of computation is as follows:

$$\frac{I_1 \text{ The Sum of } P_1 Q_1}{\text{The Sum of } P_0 Q_0} \times 100, \text{ where}$$

I₁ is the current index

P₁ is the current price of the individual stock

Q₁ is the number of shares of the individual stock outstanding

P₀ is the average price of the individual stock for the base period (1926 for the indexes under discussion)

Q₀ is the number of shares of the individual stock outstanding in 1926

The convenient relative is obtained in the formula by multiplying the quotient obtained from division by 100, in that the base value as used is equal to 100 by definition. The same general formulae are used for the stocks in the 419 group and the 90 group. Sample work sheets showing the actual computation are given for 50 Industrials, 20 Utilities and 20 Rails, and lastly the 90 stocks.

Weighting of the component prices of an index is designed to vary the influence of each price in the index in proportion to its importance. The market price in the above formula, multiplied by the number of shares outstanding, gives the current market value for each stock issue and, irrespective of the price of the stock, and whether the number of issues outstanding is large or small, it is an accurate determination of its relative importance. *The market value of an issue of common stock is the market's evaluation of the asset and earning power back of the stock and a measure of the size and importance of the corporation. It is this important factor that is brought into the picture by this method of weighting.* For example, at the time when General Motors stock was selling at \$12 a share, Auburn was selling at \$66. Multiplied by the number of shares outstanding for each of these issues, however, the total market values were found to be \$522,000,000 and \$13,655,070, respectively, a much closer picture of the relative importance than the prices per share. For those corporations having two classes of common stock with like equities except voting power, the total number of shares of both issues has been taken as the weighting factor and the price used is that of the most actively traded of the two stocks.

The market values for the individual stocks in a group are added together to obtain the group value, and it is the change in group values which determines the direction and degree of change in the corresponding indexes. The group values could be used without further modification as indexes except for the inconvenience arising from the difference in total group values (which vary in the weekly indexes from two million to two billion dollars) which makes it difficult to report results and to make comparisons between groups. This inconvenience is overcome by accepting a standard base value for each group and representing the group value as a relative, so that this base value is always equal to 100. On this basis, the indexes for the above mentioned group values are 13.6 and 39.8 respectively. A comparison of the above mentioned figures makes the great convenience of the relative readily apparent.

The base value serves a further useful purpose in making correction for rights and other changes of similar character. The standard base value must be defined by means of a base period. For these indexes

the base value for any index is the average of the 53 weekly group values for the year 1926, this year being arbitrarily selected as the base period for determining base values. The year 1926 was selected as being relatively recent in point of time, and in that year stock prices were in a fairly inactive period without pronounced direction or movement. It so happens that this base period was a fortunate selection, for the 419 stock index advanced to a high of 228.1 in 1929, and declined to a low of 32.5 for the week ending June 1, 1932. The indexes have been computed by dividing the weekly group value by the standard base value as above defined, and multiplying the result by 100 to obtain the desired relative. They are briefly defined as indexes expressed in relatives with 1926 equal to 100.

The method of weighting by multiplying by the number of shares takes care of variations caused by stock dividends, stock split-ups and mergers of corporations that include only stocks already in the index and made by an exchange of common stocks.

If the number of shares in any stock increases or decreases, the total is affected. Therefore the divisor has to be adjusted accordingly.

The new divisor is equal to:

$$\text{Old divisor} \times \frac{\text{New Total obtained by using new weight}}{\text{Old Total obtained by using old weight}}$$

Say Reynolds Tobacco "B" were changed:

<u>Price</u>	<u>Weight</u>
41 3/8	9.000 = 372.4 (new)
41 3/8	9.415 = 389.5 (old)

$$112.391 \times \frac{10716.2 \text{ (new total)}}{10733.4 \text{ (old total)}} = 112.211$$

There is a second class of variations including all situations which without proper correction, would introduce an arbitrary change in the group value of the index, such as sale of additional stock by a corporation, consolidations including stocks other than those already a part of the index and the addition or elimination of stocks in the index. This type of variation has been treated as one class since the revision for the index in 1926, and a standardized formula has been adopted for making the correction necessary to eliminate from the index the resulting false fluctuations that would otherwise be introduced. The general method for such corrections consists of:

1. Determining the exact increase or decrease in the group value of the index produced by changed conditions, and
2. Changing the base value in direct proportion to the change in group value.

A resulting increase in group value requires a proportionate increase in the base value, while a change that decreases the group value results in a proportionate decline in base value. A correction made in a sub-group index must also be made in the larger indexes of which it is a component part.

New stocks have been substituted for those in the indexes whenever it appeared necessary in order to

supply an accurate and continuous measure of stock price fluctuations. The series of weekly indexes were tested in 1931, at which time the market value, based on the 1929-30 mean prices, was computed for about 540 common stocks grouped by industrial activity in the Standard Earnings Bulletin. Stocks were selected from each group on the basis of market valuation to give suitable representation, and the list thus obtained was checked against the list in use at the time of computing the index. In this manner numerous substitutions were effected to improve group representation and some 24 additional issues included in the indexes in order to make use of material not previously available. A test of industrial group representation in the daily industrial stock-price index was made about the same time.

The reasons of Standard Statistics Company for using weighted indexes instead of averages have been briefly summarized by them as follows: (1) the index computed from sound formulae has been shown to be preferable to the common average in theoretical tests of an exhaustive nature, (2) the index has decided advantages in caring for the complex situations present in the subject under consideration, (3) the actual unit in which the results are reported is of very minor, if any, importance.

The advantages of the Standard Stock Price Indexes from the point of view of statistical method have been outlined above, and the fact has also been mentioned of their wide availability. The formulae selected for the computation of the Standard Common Stock-Price Index have a high degree of accuracy in the result produced. It possesses the necessary flexibility to care for the changes within the stocks themselves and in the list, which necessarily arise. The care with which the selection of the stocks is made has already been described, while substitutions and additions to the original list have been made as new or more representative issues became available. The indexes to a very successful degree measure market conditions with the greatest possible accuracy, while at the same time supplying a similar record of past performance for purposes of comparison. *To the author's knowledge they are the only indexes for which the statistical problems involved have been so well smoothed out.*

The Standard Statistics 419-stock composite group is the third largest in the field, being exceeded only by the New York Stock Exchange average of all stocks and that compiled by the Stock Exchange firm of Hamerslag-Borg.

One possible, but comparatively unimportant disadvantage which might arise from the method of weighting by multiplying by the number of shares outstanding, is that the relative market importance, due to some such factor as greater activity or larger floating supply, of a stock with a smaller capitalization, might be greater than that with a larger, in some cases. However, no better method of measuring the importance of stocks generally has been devised, and, when the statistical inaccuracies of various kinds of other averages are remembered, *the Standard Statistics*

indexes must be considered the most thorough in the field.

NOW THAT WE HAVE DISCUSSED THE VARIOUS TYPES OF CHARTS USED IN STOCK PRICE TREND STUDIES, AND HAVE CONSIDERED THE VARIOUS MARKET AVERAGES WHICH ARE USED BY STOCK MARKET STUDENTS FOR THE STUDY OF THE MARKET AS A WHOLE, LET US LOOK INTO A PROPOSED CHART PORTFOLIO SUGGESTED AS THE MEANS OF CONDUCTING A STUDY OF THE TECHNICAL SIDE OF THE MARKET, AS OUTLINED IN COMING CHAPTERS.

GARTLEY'S STOCK MARKET DATA

*A Comprehensive Tabulation of Stock Market Data
Digested for the Use of Stock Market Students*

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APPENDIX I

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NO. 214.

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PAGE ONE

1. STOCK MARKET AVERAGES

STANDARD STATISTICS	HIGH	LOW	CLOSE	NET CHANGE	% NET CHANGE
50 STOCKS	100.62	98.87	100.11	+1.18	+1.17
30 INDUSTRIALS	120.37	118.18	119.81	+1.49	+1.23
20 RAILS	37.75	37.12	37.40	+.16	+.42
20 UTILITIES	81.11	80.00	80.84	+.73	+.98
DOW JONES				RAT. TO ST. 9.0	
30 INDUSTRIALS	141.77	140.97	141.51	+1.16	+1.57
20 RAILS	35.06	34.48	34.74	.79	+.57
20 UTILITIES	28.21	27.76	28.95	26.00	+1.15
NEW YORK TIMES FIGURE CHART MOVE 111.00					
50 STOCKS	111.08	109.94	110.78	+1.00	+.91
30 INDUSTRIALS	154.41	152.82	154.90	+1.85	+.98
20 RAILS	27.75	27.80	27.51	-.16	-.58
NEW YORK HERALD TRIBUNE FIGURE CHART MOVE					
50 STOCKS	109.82	109.14	109.56	+.33	+.30
30 INDUSTRIALS	144.14	143.38	143.67	+.43	+.29
20 RAILS	28.74	28.31	29.06	+.17	+.57
20 UTILITIES	119.35	114.66	114.00	-.27	-.23

2. DOW JONES BOND AVERAGES

(DAILY CLOSINGS)

40 BONDS	N.C.	10 HC RAIL	N.C.	10 2G RR	N.C.	10 UTILS.	N.C.	10 INDUST.	N.C.
96.26	+.12	105.96	+.02	70.45	+.14	104.44	---	104.21	+.32

3. DOW JONES HOURLY AVERAGES

TIME	COMPOS.	N.C.	INDUST.	N.C.	RAILS	N.C.	UTILS.	N.C.	COMMOD.	N.C.	VOLUME	N.C.
11:00	77.93	+.24	140.12	+.28	34.86	+.05	27.74	+.16	56.56	+.18	480M	+.30M
12:00	78.17	+.24	140.54	+.42	34.78	+.12	28.01	+.07	56.52	-.04	480M	---
1:00	78.37	+.20	140.93	+.39	34.81	+.12	28.01	---	56.55	+.03	320M	-160M
2:00	78.38	+.02	140.96	+.03	34.84	-.07	28.01	---	56.56	+.01	210M	-110M
3:00	78.40	+.10	141.31	+.35	34.74	+.19	28.02	+.01	56.58	+.02	550M	+.34M
											TOTAL VOLUME	2,040,000

4. DOW JONES MOVING AVERAGE DATA

TIME	COMPOS.	N.C.	INDUST.	N.C.	RAILS	N.C.	UTILS.	N.C.	COMMOD.	N.C.	VOLUME	N.C.
11:00	77.92	-.02	140.12	-.07	34.63	-.02	27.70	+.02	56.36	---	370M	---
12:00	77.91	-.01	140.41	-.01	34.60	-.02	27.73	+.02	56.36	---	390M	+.20M
1:00	77.91	---	140.11	---	34.79	+.01	27.74	+.01	56.37	+.01	390M	---
2:00	77.81	---	140.11	---	34.78	+.01	27.70	+.02	56.37	---	380M	---
3:00	77.92	+.01	140.14	+.01	34.76	-.02	27.74	+.02	56.36	+.01	410M	+.20M

5. DOW JONES INDUSTRIAL HALF HOURLY AVER.

TIME	N.C.	TIME	N.C.	TIME	N.C.	TIME	N.C.	TIME	N.C.	
10:00	139.99	1:00	140.83	1:01	10:30	139.88	-.01	1:00	139.95	+.02
11:00	140.12	1:13	140.92	1:01	11:00	139.82	---	1:00	139.96	+.01
11:30	140.55	1:43	140.96	1:04	11:30	139.90	+.01	2:00	139.96	+.02
12:00	140.54	2:00	140.99	+.03	12:00	139.91	+.01	2:00	139.89	+.01
12:30	140.92	2:38	141.31	+.02	12:30	139.93	+.02	3:00	140.01	+.02

6. DOW JONES INDUST. HALF HOURLY MOV. AVER.

TIME	N.C.	TIME	N.C.	TIME	N.C.	TIME	N.C.
10:00	136.50	1:00	139.74	1:00	10:30	140.20	141.00
11:00	139.82	1:13	142.67	1:00	11:00	141.55	142.00
11:30	140.06	1:43	143.89	1:00	11:30	142.87	143.00
12:00	140.73	2:00	144.70	1:00	12:00	143.00	143.00

7. DAILY MOVING AVERAGES

	20 DAY	200 DAY	D.J. AVERAGES	VOLUME	RATIO TO TOTAL VOLUME	% POINT MOVES D-J-AVERAGES
DOW-JONES INDUSTRIALS	136.50	139.74	140.20	280,700	14.20	141.00
DOW-JONES RAILS	33.82	32.67	32.00	52,100	4.55	57.00
DOW-JONES UTILITIES	26.06	21.89	19.80	100,600	5.87	55.00
STANDARD 50 STOCKS	84.73	82.70	81.20	1 POINT MOVES STAND. 20	1.00	100.00

APPENDIX

CHAPTER 2

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8. 15 STOCK SENSITIVE INDEX

OPEN 725.5 HIGH 733.6 LOW 723.5 CLOSE 731.2 (20 MINUTES)

TIME	5 INDUST.	NET CHGE	5 RAILS	NET CHGE	5 UTILS.	NET CHGE	15 STOCKS	NET CHGE
10:00	299.0	+.4	177.3	+.1	249.2	+.6	725.5	+.3
10:20	299.3	+.3	178.1	+.6	249.2	---	726.6	+.1
10:40	299.0	-.3	178.2	-.1	249.1	-.1	726.5	-.3
11:00	300.5	+.5	178.1	-.1	249.4	+.3	728.2	+.7
11:20	301.4	+.7	178.2	+.1	249.4	---	729.2	+.0
11:40	301.3	-.1	178.7	+.5	249.3	-.1	729.5	-.3
12:00	301.4	+.1	179.5	+.6	249.5	---	730.4	+.7
12:20	301.5	+.1	179.5	---	249.3	---	730.3	+.1
12:40	302.0	+.3	179.2	-.3	249.4	---	730.5	---
1:00	301.2	-.6	179.2	---	249.2	-.1	729.6	-.7
1:20	301.2	---	179.1	-.1	249.6	+.4	730.1	+.3
1:40	301.4	+.2	179.1	---	249.7	+.1	730.4	+.3
2:00	300.7	-.5	178.6	-.3	249.7	---	729.4	-.1
2:20	300.7	---	178.6	---	249.7	---	729.4	---
2:40	302.1	+.1	179.0	+.2	249.5	+.6	731.8	+.8
3:00	302.1	---	178.6	-.2	249.3	-.2	731.2	-.4

GROUP
AGGREGATE 3096.4

9. GROUP RATIOS

PRICE	RATIO	PRICE	RATIO		
AGRICULTURAL MACHINERY	276.4	3.03	RAILROADS—COALERS	331.6	3.84
ALCOHOLS	89.4	1.02	RAILROADS—EASTERN TRUNK	89.3	.98
AUTOMOBILES	254.1	2.57	RAILROADS—SOUTHEAST TRUNK	98.1	1.06
AUTO ACCESSORIES	258.6	2.84	RAILROADS—TRANSCONTINENTAL	113.4	1.25
AIRCRAFT	49.	.54	RAILROAD EQUIPMENT	185.1	2.04
BUILDING	241.7	2.68	RETAIL STOCKS—LIQUEURS	141.1	1.53
CHEMICALS	812.1	8.93	RETAIL STOCKS—SUPPLIES	184.5	2.03
COPPERS	183.1	2.01	RUBBERS	83.3	.70
DAIRY	43.2	.48	RETAIL GROCERY & MEATS	118.3	1.30
DRUGS	80.7	.89	RESTAURANTS—CHAINS	15.3	.17
DRY STOCKS	278.0	3.03	STORES—CHAINS	194.6	2.14
ELECTRICAL EQUIPMENT	190.4	2.07	STORES—CHAIN DEPT.	228.4	2.61
FOODS (NO MEATS)	373.0	4.10	MAIL ORDER HOUSES	94.7	1.04
GOLD STOCKS	505.2	5.60	STEEL & IRON	255.4	2.61
HOUSEHOLD PRODUCTS—CAPITAL	83.4	.92	SUGARS	103.3	1.14
HOUSEHOLD PRODUCTS—CONSUMER	105.1	1.20	THEATRES	80.7	.89
MACHINERY	197.2	2.17	TOBACCO—CHAINS	3.3	.04
MEAT PACKING	5.1	.58	TOBACCO—CIGARETTE MFG.	303.1	3.33
MINING & SMELTING	202.3	2.22	UTILITIES—HOLDING	148.3	1.63
MISCELLANEOUS MFG.	674.4	7.41	UTILITIES—OPERATING	269.2	2.68
OFFICE & BUSINESS EQUIPMENT	341.2	3.53	UTILITIES—TEL & TEL.	333.5	3.67
OILS	208.7	2.31	UTILITIES—TRACTION	76.3	.64
RAILROADS—GRANGERS	136.4	1.50	WOOLS & WOOLENS	51.3	.57
SILVER	188.2	2.04			

10. COMMODITIES

	HIGH	LOW	CLOSE	N.C.
DEC.	OPT.	98.6	97.4	97.7
MAY	OPT.	98.5	97.1	97.4
CORN				
DEC.	OPT.	59.1	58.0	58.2
MAY	OPT.	59.0	58.1	58.3
COTTON				
DEC.	OPT.	11.08	11.00	11.02
MAR.	OPT.	10.91	10.86	10.86

11. ACCESSORY DATA

	HIGH	LOW	CLOSE	N.C.
ENGLISH POUND	491.6	491.3	491.4	-.2
FRENCH FRANC	698.1	698.7	698.7	-.2
GOLD—U.S.A.			35.00	---
SILVER—NEW YORK			65.3	---
SILVER—LONDON			29.5/16	---
CALL MONEY			.6	---
MOODY'S COMMODITY INDEX			166.8	-.6
NEW YORK DOMESTIC SILVER			77.0	---

12. BREADTH OF THE MARKET DATA

NUMBER ISSUES TRADED	821
NUMBER NEW HIGHS	82
NUMBER NEW LOWS	6
15 MOST ACTIVE STOCKS VOLUME	426,360

15 M.A.S. VOL. RATIO TO TOTAL VOLUME 20.9

RAT. TO
ISS. TRD
MOV. AVG.

13. CORRECTIONS AND COMMENTS

THURS. OCT. 31, 1935

VOL. VOL.RAT.
NPT 38 .210
CG 167 .922

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14. INDIVIDUAL STOCK DATA

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SYMBOL	VOL. IN 100'S	RAT.TO TOT.VOL	OPEN	INDUSTRIALS			RAT.TO ST. 30	RAT.TO GROUP	% NET CHANGE	FIGURE CHART MOVES
				HIGH	LOW	CLOSE				
AB	.47	.230		8.7	8.6	8.6	8.74	7.30	+2.94	
ADN	2	.010		164.3	164.	164.4	164.54	137.51	+ .30	
AH	.47	.230		30.6	35.7	36.2	38.21	30.26	+2.11	
AJ	.88	.123		14.	13.7	14.	13.92	11.00	+ .90	
ACD	.48	.235		165.4	163.6	164.	163.84	136.89	+1.20	164
AA	.21	.133		82.4	78.4	82.	81.82	68.45	+4.45	82
ARC	.14	.C30		75.5	74.	75.	74.93	62.60	+ .67	74-75
AF	.47	.230		24.4	23.2	24.2	24.26	20.24	+8.45	24-4-24
AM	5	.025		14.	13.6	14.	13.99	11.66	---	
FC	.22	.108		143.1	142.	143.1	142.98	119.47	+ .61	143
AKA	1	.005		AT	91.7	91.78	78.60	+	.13	
ACF	215	1.054		35.3	35.3	34.8	34.72	20.01	+5.30	34-35
HI	.16	.088		3.7	3.5	3.6	3.75	3.13	---	
LPT	10	.049		38.	35.4	35.5	35.58	29.74	+1.72	
AL	.49	.240		9.4	9.3	9.4	9.19	7.93	+2.70	9.4
ALO	.34	.187		19.1	18.3	18.6	18.73	15.35	+3.44	16
APX	4	.020		28.2	28.	28.2	29.22	23.58	+ .86	
ADT	.98	.471		18.2	17.8	18.	17.98	15.03	---	
AG 1	.89	.338		28.7	28.4	28.7	28.85	24.10	+1.31	
AF	.85	.417		60.6	58.	60.4	60.44	50.50	+1.89	80
AS 3	2	.010		54.	53.7	53.7	53.82	44.17	+1.41	
AT-B	.13	.084		104.4	103.	104.4	104.40	87.32	+1.45	104
WY	8	.022		9.4	9.2	9.3	9.37	7.05	---	
AM	.31	.152		4.6	4.5	4.5	4.62	3.86	---	4.6
API	.26	.127		23.	22.4	23.1	23.10	19.30	+1.64	
AAC	138	.876		41.6	37.	37.4	37.48	31.30	-12.00	40-41-37
C	204	1.000		22.	21.0	21.7	21.85	18.30	+2.35	22
AVC	10	.049		3.4	3.3	3.4	3.50	2.92	+7.65	
B	.38	.188		3.1	3.	3.1	3.12	2.61	+4.16	
BOL	.31	.152		10.5	10.1	10.2	10.24	8.56	---	
BV	5	.025		13.6	13.2	13.3	13.36	11.16	+1.83	
DEX	.33	.162		22.3	22.	22.1	22.10	18.37	+1.72	
ES	.87	.917		40.5	39.6	40.1	40.08	33.49	= .81	
JPL	.59	.191		48.	46.5	47.6	47.70	39.86	+ .20	47
RDC	.33	.177		26.	25.6	25.6	25.72	21.41	+1.47	26
BOR	.27	.132		60.6	59.8	60.4	60.44	50.50	+ .83	
BSI	.45	.211		54.4	53.1	53.4	53.45	44.66	+ .45	54
ABY	1	.005		AT	18.	18.	17.98	15.03	+2.85	18
DGL	.71	.348		14.6	14.	14.2	14.24	11.81	+3.65	14.4
CTM	.59	.289		105.2	101.3	105.2	105.14	87.55	+4.20	105-104-105
CTR	9	.044		56.2	55.8	56.2	56.19	46.99	+ .44	
CLZ	.85	.417		30.	29.2	29.4	29.47	24.66	+1.72	30
COP	.97	.475		81.5	60.2	61.2	61.10	51.19	+2.20	61
CGG	18	.088		11.1	10.8	11.	10.99	9.18	+4.76	11
CI	5	.023		AT	8.	7.99	6.60	-1.53		
K	279	1.269		86.8	84.7	86.2	86.16	72.00	+1.32	86
KO	2	.010		AT	276.0	275.72	230.38	+2.22		276
CPL	.29	.142		18.6	18.1	18.2	18.25	15.23	-2.31	16.4
CBN	.18	.088		98.	96.	97.8	97.65	81.50	+2.69	98
CV	.199	.534		18.5	17.6	18.2	18.25	15.23	+2.09	
CNI	.86	.422		9.2	9.1	9.1	9.12	7.63	---	
CLL	128	.618		24.2	23.7	24.2	24.23	20.24	+1.04	
CH	11	.054		94.4	93.	94.4	94.41	78.66	+1.06	94
CFG	.59	.289		69.4	67.5	69.4	69.43	58.01	+3.15	69
CCK	.39	.191		43.3	42.	43.3	43.33	36.21	+3.79	43
CWZ A	18	.078		8.	7.7	8.	7.88	6.61	+1.65	
DER	.26	.127		58.3	54.4	58.	58.24	46.14	+1.83	
D	12	.059		88.	87.4	87.8	87.43	81.31	+ .48	
DOU	23	.113		33.8	32.6	33.2	33.22	27.79	+ .75	
DD	11	.054		136.	135.4	135.8	135.61	113.31	+1.30	136
EK	3	.015		AT	186.1	186.33	136.99	+ .30		
ELO	.48	.325		87.	86.2	86.5	86.59	34.87	+ .86	37
ER	2	.012		8.3	8.4	8.2	8.62	5.53	+1.92	
FST	7	.034		47.8	47.2	47.2	47.20	36.42	---	
FWC	.98	.485		21.4	19.6	21.4	21.48	17.35	+8.68	21-4
TCF	.85	.338		19.3	19.3	19.2	19.23	15.07	+8.20	19
FT	.32	.157		28.4	28.4	29.4	29.47	24.02	+5.35	29
GAM	.24	.113		8.3	9.2	9.5	9.62	8.03	+4.05	
GMT	.30	.147		47.2	42.2	42.2	42.21	35.47	-2.02	
GL	.94	.461		38.	35.3	38.	35.96	30.03	+1.05	36
GF	.30	.147		33.1	32.8	33.	32.97	27.55	- .75	
GH	678	3.524		52.5	52.1	54.4	54.45	40.40	+2.83	54
GLZ	8	.029		7.	6.7	6.7	6.87	5.74	-1.78	
GRS	24	.118		35.	33.5	35.	34.97	20.21	+1.44	34-35
GIL	.27	.132		12.1	10.7	12.	10.93	14.11	-	
G3	188	.922		11.2	10.3	11.2	11.24	9.39	+12.50	11
SK	21	.103		12.2	10.7	12.	10.98	14.19	-1.44	
ALS	318	1.559		7.5	7.2	7.3	7.37	6.16	+1.72	7-4

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INDUSTRIALS—CONT'D

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PAGE FOUR

SYMBOL	VOL IN	RAT TO 100'S	TOT VOL	OPEN	HIGH	LOW	CLOSE	RAT TO ST. \$0	RAT TO GROUP	% NET CHANGE	FIGURE CHART MOVES
HMT	86	.431		16.6	16.2	16.5	16.36	15.87	15.87	+2.34	16.4
ILR	8	.039		34.2	34.	34.	33.97	26.38	—	—	
IMN	2	.010		AT		182.	181.89	151.02	151.02	+ .97	182.
HR	37	.181		58.4	57.5	58.4	58.44	40.83	40.83	+1.96	58
N	331	1.623		32.3	31.4	32.3	32.34	27.02	27.02	+2.87	32
IR	5XD	.025		114.6	112.4	114.	113.89	95.16	95.16	+2.70	114.
JMP	22	.108		87.	85.	87.	86.91	72.82	72.82	+1.45	85-87
KLV	14	.089		13.7	13.5	13.6	13.74	11.66	—	—	
KN	324	1.589		27.2	26.7	27.5	27.80	23.06	23.06	+5.75	27.4
KG	19	.093		27.2	27.	27.2	27.22	22.75	22.75	—	
KR	33	.162		27.4	27.	27.2	27.22	22.75	22.75	+ .92	
LAM	11	.052		23.4	22.7	23.4	23.48	19.62	19.62	+1.17	
LOF	29	.142		47.4	46.7	47.	46.95	30.23	30.23	+1.07	
LM-B	7	.034		115.	115.4	116.	115.88	98.88	98.88	+ .86	118
LW	24	.118		48.	48.4	48.7	48.83	40.80	40.80	+1.55	48
LR	38	.186		11.3	10.4	11.3	11.36	9.40	9.40	+0.63	11
LO	2	.010		38.4	38.2	38.2	38.21	31.93	31.93	+ .65	
LOR	40	.196		28.1	25.8	28.	25.97	21.20	21.20	—	
MTY	24	.118		35.	33.8	35.	34.97	31.22	31.22	+2.21	34-35
MV	NS										
MCK	287	1.407		9.1	8.4	8.5	8.62	7.120	7.120	+1.98	9
MD	14	.069		24.4	23.4	24.	23.98	20.03	20.03	-2.04	
MZ	21	.103		53.2	52.3	53.2	53.20	44.45	44.45	—	
M	85	.319		34.3	33.8	34.	33.97	28.30	28.30	+2.25	34
MFI	18	.089		12.2	12.1	12.1	12.11	11.12	11.12	—	
AKL	5	.025		32.5	32.3	32.5	32.59	27.23	27.23	+1.16	
MRW	14	.069		13.4	13.2	13.5	13.38	11.16	11.16	+1.90	13.4
MNS	2	.010		14.5	14.1	14.3	14.36	11.00	11.00	—	
BI	117	.574		35.2	34.6	35.	34.97	28.32	28.32	-1.06	
NCR	9	.044		18.	18.9	18.7	18.80	15.76	15.76	+2.02	18
NAD	150	.735		33.2	32.6	32.7	32.84	37.4	37.4	+1.54	33
NBS	67	.328		17.7	17.5	17.4	17.48	14.81	14.81	+1.44	
NPT	87	.328		18.	17.4	17.4	17.48	14.81	14.81	+ .70	18-17.4
NAV	56	.275		4.1	3.7	4.	4.00	3.64	3.64	+3.22	
OHO	37	.181		11.3	11.1	11.2	11.24	9.10	9.10	-1.09	
OPS	14	.089		10.	9.	10.	9.98	8.35	8.35	+2.10	10
OST	40	.196		16.	15.6	15.6	15.73	15.04	15.04	= .78	
OT	29	.142		20.	19.5	20.	19.98	16.88	16.88	+1.81	20
OS	8	.044		126.	123.4	124.1	124.38	105.22	105.22	+1.42	125
PAK	159	.779		6.6	6.5	6.5	6.62	5.58	5.58	—	6.6
PEJ	10	.049		80.	79.2	80.	79.92	65.78	65.78	+ .62	80
PUY	153	.750		12.1	11.6	12.	11.99	10.02	10.02	+1.05	
PPK	NS										
P	60	.324		35.	34.1	35.	34.97	29.23	29.23	+3.56	35
PRC	2	.010		2.8	2.5	2.8	2.75	2.30	2.30	+4.76	2.6
PU	56	.275		37.1	36.4	37.1	37.09	30.99	30.99	+1.71	37
PGM	5	.025		50.4	50.	50.3	50.32	42.05	42.05	+ .49	
R	163	.799		8.1	7.7	8.	7.99	6.88	6.88	—	
R-I-F-B	12	.059		78.4	77.4	78.4	78.42	65.65	65.65	+1.61	
REY-B	66	.324		57.	56.5	56.5	56.57	47.37	47.37	+ .22	
RKO	49	.240		5.	4.7	5.	5.00	4.17	4.17	—	
RR	11	.054		14.4	14.3	14.4	14.49	11.10	11.10	—	
FBC	110	.538		18.4	18.	18.1	18.11	15.13	15.13	+ .89	18.4
SAF	6	.029		34.5	34.	34.	35.27	26.48	26.48	+1.44	
FHK	47	.230		10.1	9.5	10.	9.99	8.15	8.15	+3.69	10
SHN	157	.770		55.	53.	54.7	54.82	43.81	43.81	+4.77	55
SOV	88	.431		12.3	12.1	12.1	12.11	10.12	10.12	-2.02	
SB	167	.819		15.	14.6	15.	14.99	12.52	12.52	+1.89	15
SPC	19	.093		12	11.7	11.7	11.86	9.01	9.01	-1.04	
SCD	64	.314		37.2	36.6	37.1	37.21	30.69	30.69	+1.02	37
STX	20	.098		17.8	17.5	17.5	17.81	14.71	14.71	+2.17	
J	64	.314		48.2	48.7	48.7	48.83	40.80	40.80	+ .52	49
LMS	10	.049		24.6	24.2	24.5	24.35	20.58	20.58	- .51	
TX	76	.373		25.2	23.	23.	23.10	19.30	19.30	+2.20	
TXL	7	.034		8.7	8.6	9.7	9.87	6.82	6.82	+1.28	
TG	26	.127		32.2	31.6	32.	31.98	28.71	28.71	—	
TKR	48	.235		62.	60.6	62.	61.94	61.75	61.75	+1.63	62
TA	53	.280		9.8	9.5	9.8	9.74	8.14	8.14	+1.29	
UNX	NS										
UN	35	.172		71.1	70.	70.4	70.43	56.64	56.64	+ .35	70-71
UAR	51	.250		20.2	19.6	19.7	19.88	16.01	16.01	- .62	
UCB	4	.020		71.8	71.	71.8	71.68	59.89	59.89	+1.41	
UD	20	.343		47.5	46.4	48.4	48.45	38.61	38.61	- .26	47
USG	13	.084		84.2	83.2	84.2	84.17	70.33	70.33	+ .29	
LX	NS										
RU	100	.490		15.	14.2	15.	14.99	12.62	12.62	+5.26	15
UV	26	.127		98.4	96.	98.	97.90	81.60	81.60	+2.34	98
CJ	28	.127		20.2	19.6	20.1	20.10	16.80	16.80	+3.20	20
X	222	1.088		47.	46.7	46.9	46.38	38.92	38.92	+ .81	47
X-PR	11	.054		109.	108.	108.	107.89	90.15	90.15	+ .46	109-108
VA	23	.113		18.6	18.2	18.5	18.61	15.35	15.35	+ .67	18.4

INDIVIDUAL STOCK DATA

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PAGE FIVE

SYMBOL	VOL. IN 100'S	RAT. TO TOT. VOL.	INDUSTRIALS—CONT'D				RAT. TO ST. 90	RAT. TO GROUP	% NET CHANGE	FIGURE CHART MOVES
			OPEN	HIGH	LOW	CLOSE				
WD-A	NS									
WAN	2	.191		3.7	3.6	3.6	3.75	3.15	-3.22	
WX	58	.284		90.3	89.4	89.6	89.66	74.91	+ .41	90
WKM	75	.308		27.7	28.6	27.6	27.72	23.16	+ 4.71	27
WIL	135	.862		7.1	7.	7.	8.89	5.54	---	
TCL	45	.221		7.	8.7	7.	8.99	5.04	-3.70	7
Z	42	.209		59.1	59.1	59.	59.84	49.35	+ 1.84	59
WPU	12	.059		21.3	20.4	21.3	21.35	17.84	+ 5.55	21
YB	113	.594		29.3	27.9	29.2	29.22	24.42	+ 4.48	20
ZP	19	.083		5.8	5.3	5.4	5.49	4.59	+ 2.22	5.8-5.4
SOR	128	.827		20.6	19.3	20.6	20.73	17.32	+ 6.41	20
S	29	.142		59.6	59.	59.2	59.19	49.46	+ .85	
BVL	15	.074		11.3	11.1	11.1	11.11	9.29	---	
MUY	26	.373		18.3	19.1	19.1	19.11	16.66	---	
PDO	15	.074		25.1	24.8	25.1	25.10	20.67	+ 3.07	26
GEY	22	.108		69.1	66.6	67.3	67.31	56.24	+ 1.64	87
BOE	33	.309		13.4	13.2	13.3	13.36	11.16	---	
ULT	35	.172		9.4	9.2	9.4	9.49	7.05	+ 2.70	8.4-9.2-9.4

RAILS

AYY	2	.910		41.		1.3	1.37	3.66	---	
	38	.188		49.2	48.2	48.6	48.70	100.35	+ .51	
AX	18	.066		20.	25.2	25.7	25.85	69.11	+ 3.50	26
BO	35	.172		19.1	14.6	16.	14.99	40.11	+ 1.69	
CP	60	.294		8.1	8.	8.	8.29	44.06	+ 1.36	9
CO	12	.059		45.	44.6	45.	44.96	120.32	+ .84	
ST	1	.095		AT		1.	1.10	24.57	---	
NW	8	.039		AT		2.1	2.12	5.66	---	
RI	1	.095		AT		1.2	1.23	3.36	---	
DL	11	.054		14.7	14.4	14.8	14.74	30.44	+ .85	
DH	9	.044		24.5	34.	34.	33.97	20.31	+ .74	
E	3	.015		19.2	19.	19.1	19.11	27.07	+ 1.25	
GO	100	.490		27.2	26.5	26.7	26.65	71.98	+ .93	
IL	14	.069		15.1	14.8	15.	14.90	40.11	+ .84	
LV	3	.015		8.6	8.5	8.6	8.74	20.40	+ 2.94	
LN	10	.049		46.2	45.7	46.	45.95	122.97	+ .54	
KT	10	.049		4.5	4.3	4.5	4.62	12.27	+ 5.21	
MOP	NS									
CN	80	.392		23.3	22.5	22.5	22.80	60.40	-1.09	
NKP	8	.029		11.	19.7	11.	19.39	20.41	+ 2.32	
V	31	.152		3.1	2.7	3.	3.00	8.02	---	
NFK	3	.015		195.4	193.4	195.4	193.31	51.738	+ 1.02	194
PA	44	.216		27.7	27.3	27.5	27.60	73.88	---	
RDG	6	.029		35.	34.	35.	34.97	88.56	+ 2.16	34-35
BK	58	.275		18.4	18.	18.2	18.22	48.80	---	16-18.4
SR	12	.050		9.3	9.	9.2	9.24	24.76	---	9
UP	3	.020		95.2	94.4	95.2	95.15	254.08	+ 1.80	85
WM	2	.010		8.	7.5	7.5	7.02	20.30	-1.81	
WH	NS									
NP	94	.461		18.	17.	17.5	17.61	47.13	+ 2.91	18

UTILITIES

APW	1	.054		6.7	6.6	6.7	6.87	8.51	+ 1.85	
AOW	40	.188		8.3	8.	8.	7.89	9.23	---	
T	33	.182		148.	144.	145.	144.66	179.00	+ .86	146-145
AWW	91	.446		10.3	19.	19.	18.98	23.57	+ 1.32	
BMT	90	.441		44.5	42.3	44.5	44.38	53.37	+ 5.30	44
CW	70	.343		2.2	2.1	2.2	2.25	2.70	+ 5.88	
CG	151	.740		15.2	15.4	15.5	15.81	19.39	+ .80	
G	74	.383		29.7	29.4	29.3	29.72	24.50	+ .84	
EOS	215	1.054		16.6	16.3	16.5	16.61	20.86	+ 2.30	16.4
EL	41	.201		8.	5.6	5.6	5.74	7.13	---	6-5.6
EPU	17	.083		7.4	7.1	7.4	7.49	9.31	+ 3.44	7.4-7.2-7.4
IPA	1	.005		AT		2.4	2.50	3.10	---	
IT	68	.333		10.8	10.4	10.5	10.61	13.16	+ 3.40	
NA	131	.657		25.4	25.1	25.2	25.22	31.32	+ .48	25.4
NPL	32KD	.157		10.5	10.4	10.4	10.49	13.06	+ 1.20	
NRP	97	.475		9.5	9.1	9.3	9.62	11.04	+ 2.66	3.2-8.4
PUB	16	.078		44.2	44.	44.3	44.33	56.08	+ 1.14	
SO	10	.049		5.	4.6	5.	5.00	6.30	---	
SW	468	2.294		14.3	12.7	14.2	14.24	17.80	+ 13.15	14
U	130	.837		8.1	8.	8.	8.93	7.44	---	
UGI	52	.225		17.6	17.4	17.5	17.61	21.87	---	
W	118	.578		82.4	82.2	83.	82.91	78.10	+ 2.42	63

▲ □ GARTLEY'S □ ▲ STOCK MARKET DATA

*A Comprehensive Tabulation of Stock Market Data
Digested for the Use of Stock Market Students*

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VOL. 4 NO. 148				APRIL 4, 1936									
				PAGE ONE									
1. STOCK MARKET AVERAGES (WEEK OF 4/4/36)													
STANDARD STATISTICS													
50 STOCKS	122.66	117.38	122.25	+4.40	+3.73								
50 INDUSTRIALS	146.09	140.31	146.49	+5.70	+4.04								
20 RAILS	52.67	49.80	52.51	+2.27	+4.52								
20 UTILITIES	92.08	89.04	91.02	+1.05	+1.18								
DOW JONES													
30 INDUSTRIALS	161.89	155.18	161.50	+5.96	+3.83								
20 RAILS	40.30	48.64	49.10	+1.54	+4.11								
20 UTILITIES	33.00	31.71	32.66	+1.79	+2.47								
NEW YORK TIMES													
50 STOCKS	125.15	120.18	124.88	+4.38	+3.63								
25 INDUSTRIALS	211.44	203.38	210.99	+7.24	+3.55								
25 RAILS	38.08	37.01	38.74	+1.53	+4.11								
NEW YORK HERALD TRIBUNE													
100 STOCKS	120.16	117.75	119.97	+2.81	+1.70								
70 INDUSTRIALS	154.18	151.55	154.00	+2.25	+1.48								
30 RAILS	40.78	38.75	40.57	+1.48	+3.73								
8 UTILITIES	122.44	121.00	122.28	+1.03	+1.18								
2. DOW JONES CLOSING BOND AVERAGES (WEEK OF 4/4/36)													
40 BONDS	N.C.	10 HG RR	N.C.	10 2G RR	N.C.	10 UTILS.	N.C.						
102.25	+.44	110.88	+.28	85.95	+1.09	108.21	+.18						
10 INDUST.	N.C.					105.95	+.24						
3. COMMODITY FUTURES (WEEK OF APRIL 4, 1936)													
WHEAT	HIGH	LOW	CLOSE	N.C.									
MAY	OPT.	97.2	93.5	84.1	-2.4								
JULY	OPT.	88.	83.3	84.1	-3.3								
CORN													
MAY	OPT.	60.6	69.6	60.	+1	TOTAL MARKET VOLUME	6,240,000 RAT. TO TOTAL						
JULY	OPT.	60.2	58.7	59.2	-1.5	D.J. INDUSTRIAL VOLUME	889,000 11.84						
COTTON													
MAY	OPT.	11.34	11.14	11.20	-.10	D.J. RAIL VOLUME	201,900 4.76						
JULY	OPT.	10.98	10.80	10.89	-.04	D.J. UTILITY VOLUME	589,600 8.98						
4. FOREIGN EXCHANGE (WEEK OF APRIL 4, 1936)													
ENGLISH POUND	HIGH	LOW	CLOSE	N.C.									
	426.	494.6	495.2	+.67									
FRENCH FRANC	680.2	658.5	659.	+.45									
DOW JONES VOLUME DATA													
5. ACCESSORY DATA													
GOLD—U.S.A.	CLOSE	N.C.			CLOSE	N.C.							
	\$ 35.00	—			\$ 36.00	—							
SILVER—NEW YORK	\$ 44.8	—			MODY'S COMMODITY INDEX								
SILVER—LONDON	d 19 15/16	+1/16			NEW YORK DOMESTIC SILVER								
15 STOCK SENSITIVE INDEX													
HIGH	883.5	841.2	880.7										
LOW													
CLOSE													

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14. INDIVIDUAL STOCK DATA

APRIL 4, 1986
PAGE TWO

SYMBOL	VOL IN 100'S	RAT. TO TOT.VOL	INDUSTRIALS				RAT. TO ST. 90	RAT. TO GROUP	% NET CHANGE	FIGURE CHART MOVES
			OPEN	HIGH	LOW	CLOSE				
AE	150	.078	13.2	11.8	13.2	10.83	8.04	+10.41		
ADM	12XD	.014	188.4	186.2	188.4	154.15	128.07	+5.53		
AH	275	.328	39.	45.4	50.	40.68	34.13	+7.52		
AJ	63	.077	15.	14.6	14.6	12.08	10.07	+1.86		
ACD	45	.053	208.	189.4	207.	189.28	14.30	+3.50		
AA	21	.025	143.4	138.4	123.	116.93	97.61	+3.06		
ARC	36	.045	116.4	110.	115.1	94.54	76.92	+5.17		
AF	55	.065	36.4	34.4	36.2	29.84	24.74	+6.81		
ABS	67	.079	22.3	20.1	21.2	17.38	14.51	-		
AC	83	.110	125.4	118.4	123.8	101.18	84.47	+3.99		
ACJ	2	.002	AT	90.	74.20	81.98	-2.17			
ACF	70	.083	30.3	29.	29.1	24.01	20.08	+3.09		
HI	38	.045	7.7	7.4	7.5	6.23	5.20	+1.61		
HPT	29	.034	40.8	39.7	40.6	33.52	27.82	+1.55		
AL	53	.063	12.1	10.7	12.	9.81	8.19	+9.09		
ALO	32	.038	31.5	29.3	31.5	25.86	21.50	+8.11		
AFX	68	.078	25.7	23.4	25.6	21.05	17.58	+8.18		
ADT	412	.488	24.	22.4	24.	19.82	16.38	+5.49		
AGM	437	.517	31.2	28.3	30.7	25.05	21.06	+6.81		
AR	140	.186	87.5	84.2	85.3	69.81	58.28	+1.94		
ABP	54	.084	54.8	51.6	54.6	44.77	37.37	+4.28		
AT-B	55	.065	94.	81.4	93.8	76.68	63.99	+1.90		
WY	28	.033	10.4	10.	10.1	8.28	8.91	-1.21		
AM	290	.344	5.7	5.4	5.5	4.80	3.84	--		
AFI	474	.582	33.1	33.	34.5	28.31	23.63	+5.72		
AAC	151	.179	51.6	46.4	50.	40.88	34.13	+3.62		
C	910	1.078	37.3	34.2	37.2	30.46	25.43	+7.58		
AVC	395	.468	7.5	7.1	7.2	5.93	4.98	--		
B	274	.325	5.	4.	4.7	3.09	3.23	+5.40		
BDL	500	.592	18.8	17.	18.5	15.25	12.71	+7.97		
BV	20XD	.024	15.4	14.3	14.3	11.73	9.81	+4.16		
BEX	856	1.014	29.2	27.3	29.	23.71	19.80	+5.93		
BS	597	.707	61.1	55.6	61.1	49.98	41.72	+8.64		
BHL	67	.103	52.3	56.4	58.7	46.14	40.19	+5.32		
BDO	84	.100	26.2	27.1	27.4	22.49	18.77	+3.90		
BOR	79	.094	62.	79.	81.2	68.44	55.48	+1.24		
BGI	219	.259	62.4	49.	81.2	50.08	41.81	+1.23		
ABY	74	.088	23.8	21.4	23.4	19.22	16.04	+8.04		
DGL	51	.060	14.5	13.5	14.	11.45	9.56	+1.81		
CT/4	115	.136	164.	149.	152.6	130.62	103.44	+6.12		
C TR	96	.114	77.	73.	78.6	62.76	52.39	+6.59		
CLZ	338XD	.398	30.1	27.6	29.6	24.23	20.31	+6.72		
CDF	93	.110	55.2	53.4	54.3	49.48	37.12	+2.08		
CGG	18	.021	17.3	16.5	17.	13.90	11.80	+3.03		
CI	45	.051	17.6	16.5	17.1	13.00	11.89	+.73		
K	1232	1.460	101.6	94.3	100.5	82.28	82.89	+5.38		
KO	27	.032	90.	87.4	89.	7.77	80.75	-1.38		
CPL	109	.129	18.6	17.6	18.3	15.02	12.54	--		
CBN	37	.044	123.	112.4	123.	100.57	83.98	+11.18		
CV	493	.584	22.3	20.7	21.7	17.89	14.93	+4.79		
CNI	548	.647	14.7	14.1	14.5	11.96	9.98	+2.63		
CLL	242XD	.287	36.5	35.6	38.4	29.84	24.97	+6.68		
CH	73	.088	62.6	80.5	80.6	68.03	55.12	-.92		
CFG	155XD	.184	74.7	71.	73.5	80.20	50.26	+3.33		
GCK	141	.167	54.7	48.6	55.6	41.77	37.37	+10.32		
CWZ-A	241	.289	18.2	17.1	17.5	14.41	12.03	-1.39		
DER	34	.040	88.	84.	87.4	71.55	59.73	+5.26		
D	30XR	.036	45.	43.6	43.7	35.87	24.95	+.28		
DOU	185	.219	71.3	68.2	69.6	57.03	47.81	--		
DD	133	.158	151.4	144.2	151.1	123.57	108.10	+3.50		
EK	68	.081	170.4	163.2	169.	138.18	115.36	+3.20		
ELO	318	.377	43.	39.6	42.6	34.36	29.18	+5.35		
ER	43	.051	9.	8.3	8.7	7.26	6.05	+7.37		
FST	56	.066	45.8	45.4	45.5	37.31	31.14	+5.49		
FWC	85	.101	35.4	32.4	35.1	28.72	23.98	+8.91		
TCF	22	.026	28.4	27.3	27.5	22.59	18.86	+2.31		
FT	66	.078	32.3	30.8	32.	26.17	21.84	+1.99		
GAM	53	.063	11.3	10.4	11.1	9.10	7.59	+2.29		
GMT	45XR	.033	56.	51.4	51.5	42.31	35.24	-6.13		
GE	482	.547	40.	38.	30.	32.71	27.30	+4.23		
GF	318	.374	36.3	34.7	36.3	29.74	24.83	+3.55		
GM	2196	2.602	70.	65.	70.1	57.34	47.87	+6.25		
GLZ	82	.073	10.3	9.4	10.1	8.28	6.91	+5.19		
GRS	23	.027	46.	45.	45.4	39.20	31.06	+1.11		
GIL	93	.110	17.2	17.	17.1	14.00	11.69	--		
GG	150	.178	20.2	18.1	20.	16.35	13.65	+3.22		
GK	83	.098	20.4	19.3	20.	16.35	13.65	+1.91		
ALS	402	.476	9.	8.2	8.6	7.15	5.97	+6.06		

SYMBOL	VOL IN 100'S	RAT.TO TOT.VOL	INDUSTRIALS--CONT'D					RAT.TO ST. 90	RAT.TO GROUP	% NET CHANGE	FIGURE CHART MOVES
			OPEN	HIGH	LOW	CLOSE					
HMT	331	.392	18.7	17.2	18.7	15.43	12.68	+7.85			
ILR	229	.271	82.7	29.4	32.4	26.57	22.18	+7.86			
IMN	23	.027	183.	176.	185.	149.63	124.91	+3.33			
HR	141	.167	87.4	84.3	87.4	71.55	58.73	+4.78			
N	281	.333	50.3	47.4	49.7	40.76	34.04	+4.43			
IR	22	.026	135.2	131.	134.	109.57	91.42	+7.75			
JMP	80	.095	115.	107.	115.	94.03	78.50	+3.80			
KLV	304	.487	23.4	22.2	23.	18.81	15.70	--			
KN	403	.477	39.	37.2	38.8	31.68	28.45	+2.64			
KG	63	.098	23.1	22.2	22.7	18.70	15.61	+2.80			
KR	90	.107	25.	24.1	24.6	20.24	16.89	+2.08			
LAM	49	.047	23	22.5	22.7	18.70	15.81	+1.10			
LOF	67	.079	61.4	57.4	61.4	50.29	41.98	+6.49			
LM-B	21	.025	103.	101.2	101.2	82.79	69.11	+1.89			
LW	164	.184	48.2	46.5	47.5	38.94	32.81	+1.32			
LR	34	.040	15.4	14.5	14.6	12.06	10.07	+3.27			
LO	12	.014	44.2	41.5	44.2	38.18	30.20	+5.35			
LOR	82	.087	23.2	22.2	23.	18.81	15.70	+3.37			
MTY	53	.027	43.5	39.8	41.4	33.93	28.33	+3.76			
MV	18	.021	110.1	106.	110.	89.94	75.09	+4.76			
MCK	406	.481	11.3	10.1	10.7	8.89	7.42	+4.81			
MO	141	.187	35.6	32.1	35.6	29.26	24.40	+9.16			
MZ	152	.180	47.2	45.1	47.	38.43	32.08	+4.15			
M	1173	1.382	45.1	40.6	44.7	38.69	30.63	+10.12			
MFI	280	.261	19.	16.2	18.8	15.63	12.80	+10.29			
AKL	84	.100	24.2	32.1	33.7	27.70	23.12	+5.44			
MRW	67	.079	20.3	19.5	20.5	16.86	14.08	+6.12			
MNS	7	.008	15.4	15.	15.4	12.87	10.58	+4.20			
BI	305	.361	36.	33.7	35.5	28.92	24.15	+4.04			
NCR	93	.110	28.2	28.3	28.	22.89	19.11	+5.86			
NAD	195	.231	32.6	31.1	32.4	26.57	22.18	+3.17			
NSS	288	.341	20.3	19.	20.2	16.56	13.82	+5.69			
NPT	108XR	.235	24.	23.1	23.7	19.52	16.21	+2.68			
XA	47	.056	32.7	37.	32.7	32.60	27.22	+8.50			
NAV	260	.308	10.1	8.4	9.7	8.07	6.74	+2.59			
OHO	284	.388	15.2	14.5	15.	12.26	10.24	+1.89			
OPS	38	.045	18.4	12.5	12.6	10.43	8.70	-1.92			
OST	262	.310	20.2	18.4	20.	16.35	13.65	+5.98			
OT	98	.114	31.8	29.	31.4	25.76	21.50	+7.89			
OB	24	.028	157.	154.	157.	125.27	107.12	+.31			
PAK	1017	1.205	11.7	11.2	11.6	9.61	8.02	+2.17			
PEJ	82	.109	77.	74.	78.0	62.76	52.39	+7.71			
PIY	359	.425	23.7	22.5	23.7	19.52	16.40	+3.80			
PKK	19	.023	69.	67.	68.2	55.81	46.59	+7.73			
P	397	.470	48.3	47.5	48.1	32.35	31.85	+.26			
PRC	58	.069	2.6	2.4	2.5	2.15	.72	-4.54			
PU	128	.149	43.6	41.6	42.6	34.06	29.18	+2.39			
FGM	101	.120	47.1	46.~	46.7	38.33	34.00	+.53			
R	1225	1.451	15.5	12.5	15.5	10.63	8.04	+2.41			
P-P-B	155	.184	99.5	98.	98.5	80.83	67.32	+.89			
RH-B	84	.100	53.5	52.8	53.	42.34	36.18	+.70			
RKO	140	.168	7.7	7.4	7.5	6.23	5.20	--			
RR	105	.124	21.5	20.4	21.5	17.68	14.76	+4.21			
RBC	791	.937	25.3	22.6	25.3	20.75	17.32	+9.13			
SAF	142	.188	34.5	31.3	34.2	28.11	23.48	+10.86			
PHK	161	.191	16.8	15.1	16.6	15.70	11.3	+7.20			
SHN	63	.075	47.2	45.4	48.2	37.82	31.57	+1.09			
SOV	501	.212	14.7	14.	14.7	12.16	10.15	+5.30			
SB	510	.604	16.7	16.1	16.3	15.50	11.15	+1.55			
EPC	841	.759	21.8	19.4	21.5	17.08	14.76	+6.79			
BCD	154	.122	45.7	41.1	45.5	37.31	31.45	+2.39			
STX	246	.291	24.	21.3	23.5	19.32	16.13	+8.42			
J	515	.610	87.2	64.7	66.3	54.37	53.31	+2.50			
LMS	227	.269	32.2	28.	31.7	26.06	21.76	+15.38			
TX	263	.312	38.6	37.	38.2	31.28	26.11	+.65			
TXL	87	.103	12.6	12.1	12.4	10.32	6.53	--			
TG	98	.116	35.4	34.1	35.4	29.03	24.22	+4.41			
TKR	63	.075	69.6	67.5	69.5	50.32	47.53	--			
TA	150	.188	14.	13.1	13.8	11.24	9.38	+3.97			
UNX	36	.043	93.4	92.	92.4	76.45	63.82	+2.60			
UN	130	.154	65.1	51.4	65.	66.50	58.32	+1.28			
UAR	510	.604	27.5	24.6	27.2	22.33	18.60	+7.38			
UCB	7	.008	75.	73.4	75.	61.32	51.19	+4.16			
UD	758	.898	59.	47.6	56.8	46.40	36.74	+17.31			
USQ	28	.033	104.4	95.	104.	85.74	71.63	+8.33			
LX	8	.007	8.4	8.2	8.4	6.98	5.43	+3.03			
RU	489	.579	29.7	28.1	29.8	24.33	20.31	+4.38			
UV	42XD	.050	91.	89.	90.	73.59	61.43	+27			
CJ	74XD	.088	37.7	35.4	37.8	30.67	25.77	+5.36			
X	1795	2.127	70.	63.6	69.3	56.93	47.53	+9.00			
X-PR	40	.047	130.4	128.	129.7	106.19	86.65	+1.07			
VA	122	.145	24.5	22.	24.	19.82	16.36	+9.09			

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INDIVIDUAL STOCK DATA

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SYMBOL	VOL IN 100'S	RAT. TO TOT.VOL	OPEN	HIGH	LOW	CLOSE	INDUSTRIALS—CONT'D			FIGURE CHART MOVES
							RAT. TO ST. 90	RAT. TO GROUP	% NET CHANGE	
WD-A	NS.									
W&R	102	.238		10.2	8.5	8.3	7.87	8.40	+8.69	
WX	198	.235		121.4	113.4	121.	108.94	82.50	+8.14	
W&M	80X0	.107		44.4	42.5	44.	35.98	30.03	+2.92	
W&L	111	.132		9.	8.6	8.7	7.86	8.08	+1.42	
T&L	160	.190		10.7	10.	10.4	8.99	7.17	+2.46	
Z	182	.227		50.9	48.42	50.	49.38	34.13	+1.28	
W&H	28	.034		34.4	33.1	34.	27.89	23.21	+8.25	
YD	270	.320		56.9	49.2	55.7	45.69	38.14	+11.47	
ZC	82	.196		8.5	8.	8.3	8.85	5.72	+3.07	
G&R	226	.268		29.5	28.2	29.5	27.22	20.22	+3.94	
S	457	.541		98.	95.3	98.	96.94	47.10	+5.34	
S&V	157	.186		22.2	21.2	21.2	17.28	14.51	-8.02	
M&Y	251	.297		22.7	19.9	20.2	19.69	13.81	+4.51	
P&O	95	.113		39.	38.2	38.4	31.48	26.28	+3.57	
G&Y	87	.103		60.	59.	60.	51.51	43.00	-7.28	
B&E	107	.127		22.4	22.3	22.2	12.01	15.82	+2.10	
U&L	389	.432		21.	17.8	20.7	17.07	14.25	+18.08	

RAILS

AYY	118	.190		3.6	3.4	3.5	2.88	3.80	+3.52	
A	1.4	.136		78.	72.5	78.	62.78	128.57	+8.11	
AX	79	.094		30.7	28.3	30.4	24.94	58.10	+3.55	
DO	301	.357		21.6	19.2	21.5	17.65	41.12	+1.12	
CP	411	.487		13.5	12.3	13.3	10.84	25.48	+5.94	
CO	138	.161		52.8	52.8	52.5	47.12	109.73	+1.65	
ST	14	.017		AT	2.1	1.7	1.7	4.05	58.05	
NW	38	.048		3.7	3.5	3.7	3.17	7.39	+3.33	
RI	12	.014		2.4	2.2	2.4	2.05	17.78	---	
DL	256	.303		20.6	18.8	20.5	16.89	38.28	+7.61	
D&H	104	.123		27.	23.	27.	38.42	82.52	+8.30	
E	37	.079		1.5	1.47	1.51	1.237	29.81	+7.07	
G&G	283	.312		38.2	35.3	38.6	31.86	73.81	+8.01	
IL	159	.188		25.7	23.	25.6	21.05	48.05	+10.75	
LV	60	.095		1.87	1.73	1.84	1.022	43.81	+8.69	
LN	38	.045		7.3	6.8	7.03	82.76	146.19	+5.10	
KT	57	.019		8.5	8.5	8.4	8.95	18.19	+2.91	
M&P	5	.003		3.4	3.2	3.2	2.82	8.40	---	
CN	778	.019		39.8	34.5	39.9	31.36	23.12	+3.10	
N&P	23	.031		30.	28.	29.2	23.82	55.71	+2.63	
V	24	.028		4.2	4.1	4.1	3.37	7.83	---	
N&F	5	.006		231.	226.4	229.4	117.24	33.19	+1.29	
PA	257	.305		35.	32.4	34.2	28.41	88.19	+6.10	
RDG	81	.025		43.7	40.8	43.2	35.48	12.35	+0.70	
SX	442	.524		36.5	34.8	36.2	21.64	60.05	+10.71	
S2	174	.208		10.3	10.2	10.	14.72	34.23	+5.10	
UP	27	.032		13.4	13.0	13.4	108.10	25.29	+1.21	
WM	46	.055		10.8	9.6	10.4	8.28	19.29	+1.25	
WR	11	.013		3.	2.5	2.7	2.37	5.54	+4.5.	
NP	250	.298		33.7	30.	33.5	27.49	64.05	+11.15	

UTILITIES

AFW	185	.219		8.2	8.5	8.7	2.28	9.75	+1.38	
A&W	319	.374		12.8	12.	12.	9.81	12.19	+3.03	
T	129	.148		62.	58.3	60.4	39.14	182.27	+2.82	
AWW	232	.275		22.1	21.5	22.4	18.40	24.73	+2.27	
B&M	88X0	.104		50.2	41.6	49.2	40.32	54.12	+1.00	
CW	633	.750		3.1	3.	3.1	2.56	6.43	+1.12	
CG	1228	1.455		21.	18.	20.4	18.76	22.51	+5.60	
G	202	.239		31.8	31.	31.3	28.11	32.27	+2.31	
EDS	1205	1.428		21.8	22.7	21.3	18.11	25.84	+2.09	
EL	537	.636		15.3	15.7	15.2	11.05	15.83	-5.72	
EPU	101	.120		10.2	10.4	10.	10.72	12.37	+20.93	
IP-A	15	.018		5.8	5.7	5.7	5.80	6.41	+2.17	
IT	680	.813		17.4	16.2	16.7	13.89	18.5	+9.05	
NA	637	.295		27.3	26.3	27.	22.08	29.31	+1.51	
NPL	128	.149		11.5	11.1	11.2	9.89	12.33	-2.17	
NHP	542	.842		10.5	9.4	10.3	8.48	11.40	+0.41	
PUB	125	.152		41.	40.1	40.3	33.16	56.51	+1.51	
SG	111	.136		8.4	7.4	8.3	6.85	8.20	+3.27	
SW	420	.503		19.2	17.5	19.1	15.04	21.02	+4.05	
U	564	.698		7.4	7.	7.2	5.93	7.97	---	
UGI	322	.382		16.1	16.	16.	13.08	17.58	+1.52	
W	172	.204		9.	8.4	9.	73.59	98.90	+7.73	

GARTLEY'S STOCK MARKET DATA

*A Comprehensive Tabulation of Stock Market Data
Digested for the Use of Stock Market Students*

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MAY 13, 1936
PAGE ONE

1. STOCK MARKET AVERAGES

(MONTH OF APRIL 1936)

STANDARD STATISTICS	HIGH	LOW	CLOSE	NET CHANGE	% NET CHANGE
30 STOCKS	124.09	105.24	108.38	-9.16	-7.74
30 INDUSTRIALS	148.53	126.02	130.94	+10.99	+7.74
20 RAILS	54.69	44.89	48.53	-3.81	-7.10
20 UTILITIES	93.77	78.98	81.88	-7.57	-8.46
DOW JONES					
30 INDUSTRIALS	163.97	141.53	145.87	-10.87	-6.82
20 RAILS	50.53	41.71	43.26	-3.65	-7.27
20 UTILITIES	33.70	26.06	29.19	-2.74	-8.58
NEW YORK TIMES					
50 STOCKS	128.00	112.07	115.85	-5.45	-4.50
25 INDUSTRIALS	212.69	161.28	197.13	-7.62	-3.81
25 RAILS	39.94	32.68	34.17	-3.08	-8.26
NEW YORK HERALD TRIBUNE					
100 STOCKS	120.89	111.70	113.25	-4.87	-4.12
70 INDUSTRIALS	154.79	144.80	146.52	-5.51	-3.62
30 RAILS	41.58	34.48	35.63	-3.20	-8.54
4 UTILITIES	123.69	115.26	116.79	-4.46	-3.67

2. DOW JONES CLOSING BOND AVERAGES

(MONTH OF MAY 1936)

40 BONDS	N.C.	10 HG RR	N.C.	10 2G RR	N.C.	10 UTILS.	N.C.	10 INDUST.	N.C.
100.21	+.70	110.80	+.40	82.31	+2.40	105.60	-.05	104.74	-.72

3. COMMODITY FUTURES

(MONTH OF MAY 1936)

	HIGH	LOW	CLOSE	N.C.
WHEAT				
MAY OPT.	101.7	93.2	98.0	+3.4
JULY OPT.	94.1	83.3	87.5	+2.6
CORN				
MAY OPT.	65.3	59.1	63.5	+3.2
JULY OPT.	63.4	58.6	61.8	+2.3
COTTON				
MAY OPT.	11.80	11.13	11.45	+1.13
JULY OPT.	11.31	10.80	11.04	+1.05

4. FOREIGN EXCHANGE

(MONTH OF MAY 1936)

	HIGH	LOW	CLOSE	N.C.
ENGLISH POUND	426.0	491.1	433.8	+1.2
FRENCH FRANC	650.2	658.1	658.4	-.4
DOW JONES VOLUME DATA				
TOTAL MARKET VOLUME				
D-J INDUSTRIAL VOLUME				
D-J RAIL VOLUME				
D-J UTILITY VOLUME				

5. ACCESSORY DATA

	CLOSE	N.C.	CLOSE	N.C.
GOLD—U.S.A.	\$ 35.00	---	---	---
SILVER—NEW YORK	\$ 44.6	---	169.8	-.1
SILVER—LONDON	d 20 15/16	+1.1	77.0	---

AXE-HOUGHTON INDEX FOR APRIL 1936

HIGH LOW
280.21 192.48

FLAT AVERAGE PRICE OF ALL LISTED SHARES COMPUTED BY N.Y.S.E.

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14. INDIVIDUAL STOCK DATA

MAY 13, 1938
PAGE TWO

SYMBOL	VOL. IN 100'S	RAT. TO TOT.VOL	OPEN	HIGH	LOW	CLOSE	INDUSTRIALS			FIGURE CHART MOVES
							RAT. TO ST. 90	RAT. TO GROUP	% NET CHANGE	
AB	558	.218		13.5	8.5	10.4	8.81	8.02	+12.50	
ADN	231	.059		81.7	58.	80.	54.89	45.84	NEW	
AH	654	.219		50.4	40.4	43.	39.34	32.85	+7.27	
AJ	214	.105		15.	13.4	14.3	15.15	10.68	+4.16	
ACD	212	.054		208.	177.	182.	166.51	139.04	-9.00	
AA	1301	.035		144.	115.8	122.	111.82	93.20	+12.85	
ARC	112	.028		116.4	98.4	102.	93.32	77.92	+12.86	
AF	404	.102		38.4	30.	31.4	28.82	24.08	-10.00	
ABS	454	.115		24.1	18.6	23.2	21.27	17.78	+5.68	
AC	401	.124		127.4	119.1	125.	114.36	95.49	+4.71	
ACJ	31	.008		91.2	69.2	89.2	81.68	68.18	-2.98	
ACF	257	.085		80.3	23.1	24.	21.96	18.33	+16.15	
HI	389	.098		7.7	6.6	8.2	5.72	4.72	+18.03	
HPT	154	.036		41.3	37.5	38.2	35.00	26.28	+5.28	
AL	750	.190		13.3	8.5	10.8	8.49	7.83	+4.59	
ALO	285	.072		32.	23.1	26.	22.87	19.10	+15.61	
AFX	227	.058		28.2	21.2	22.2	20.38	17.00	+6.31	
ADT	2257	.372		24.2	18.6	19.4	17.84	14.90	+14.28	
AGM	1781	.457		31.5	26.2	27.1	24.82	20.72	+7.85	
AR	1068XD	.371		87.4	70.4	72.4	68.33	55.39	+14.32	
ASR	166	.043		53.1	49.2	50.	45.75	38.20	+5.83	
AT-B	301	.078		94.4	90.	90.4	82.80	69.14	+1.08	
WY	171	.043		10.4	7.6	8.2	7.55	6.80	-.48	
AM	1284	.320		8.	4.6	4.8	4.35	3.83	+13.83	
AM	1014	.259		35.1	27.6	29.	26.55	22.15	+16.24	
AAC	707	.178		51.8	30.4	33.4	30.63	25.50	+3.86	
C	5779	.470		39.8	30.1	32.7	30.08	25.11	+5.73	
AVC	1063	.270		7.4	6.8	9.	4.57	3.82	+33.33	
B	1555	.394		6.	3.	3.	2.74	2.29	+33.33	
BOL	1940XD	.492		20.	16.4	17.	15.55	12.99	+2.15	
BV	178	.045		15.4	13.1	14.2	13.04	10.89	+6.55	
BEX	3195	.810		31.8	86.	27.3	26.05	20.91	-.45	
BS	2989	.709		63.6	45.6	49.7	45.83	39.10	+11.72	
BHL	284	.087		58.3	48.2	48.	43.92	36.67	+15.80	
BDO	363	.143		26.2	25.5	26.3	24.13	20.15	+5.38	
BOR	384	.100		82.2	65.2	66.7	63.01	52.62	+12.81	
BGI	1290	.327		62.4	43.2	46.4	42.55	35.52	+22.33	
ABY	328	.083		24.2	16.4	17.	15.55	12.99	+22.72	
DGL	331	.084		14.5	10.3	11.4	10.52	8.79	+17.85	
CTM	569	.144		72.6	69.1	44.7	32.55	110.68	+5.31	
c TR	337	.085		79.	65.	66.8	61.07	50.97	+9.49	
CLZ	938	.268		30.3	22.2	23.2	21.27	17.76	+16.96	
CDP	657	.217		58.	49.4	58.2	48.72	40.88	+1.84	
CGG	105	.027		17.3	12.4	12.8	11.87	9.74	+25.00	
CI	249	.063		17.8	12.7	13.8	12.58	10.58	+17.29	
K	7384	1.075		103.7	91.5	95.3	87.28	72.86	-.65	
KO	157	.040		21.4	84.2	24.5	22.20	16.40	+6.25	
CPL	392	.125		18.6	15.7	18.2	14.87	12.41	+9.09	
CBN	184	.047		34.	105.4	107.6	98.58	82.31	+4.22	
CV	1943	.493		22.3	17.	19.5	18.13	13.48	+17.03	
CNI	2634	.668		14.7	11.4	12.	10.98	8.17	+17.24	
CLL	1085	.278		36.5	29.1	31.2	28.59	23.87	+13.19	
CH	402	.102		82.6	73.	73.8	67.97	58.34	+6.50	
CFG	859	.216		77.6	70.5	71.6	65.85	52.81	+4.34	
CCK	788	.184		88.6	49.7	55.4	50.78	42.40	+8.08	
CWZ-A	1456	.369		16.2	12.5	13.4	12.35	10.31	+21.18	
DEN	405	.103		89.2	72.1	75.4	69.08	57.88	+10.11	
D	498	.126		54.2	43.7	51.4	47.12	39.34	+16.38	
DOU	2158	.347		71.3	54.4	58.1	61.82	42.88	+18.26	
DD	588	.144		153.	133.	139.	122.17	108.18	+5.11	
EK	154	.039		170.4	156.	156.8	143.41	119.75	+8.83	
ELO	1006	.255		43.1	30.8	34.	31.11	25.87	+15.78	
ER	112	.028		9.	8.2	8.3	5.83	4.87	+23.88	
FST	155	.039		46.	40.	41.	37.51	31.32	+8.83	
FWC	331	.084		27.7	24.1	26.7	24.59	20.53	+18.58	
TCP	161	.041		28.4	23.	24.2	22.19	18.53	+14.15	
FT	339	.066		32.4	20.6	30.	27.45	24.92	+3.22	
GAM	258	.065		11.2	9.	9.1	8.35	6.87	+13.09	
GMT	718	.182		52.6	42.2	45.9	40.14	33.52	+19.88	
GE	3298	.836		41.1	34.4	35.8	32.71	27.81	+8.84	
GF	1397	.354		39.4	35.1	37.2	34.08	28.46	+8.04	
GM	10165	2.577		71.	58.2	81.	55.81	48.80	+9.82	
QLZ	208	.053		10.3	7.6	8.	7.32	6.11	+17.84	
GRS	77	.020		46.	32.4	33.8	31.46	28.78	+26.00	
GIL	539	.137		17.2	15.5	18.	14.84	12.22	+5.88	
GG	2608	.661		23.7	17.8	18.8	17.15	14.32	+3.22	
GK	592	.150		20.4	17.2	17.6	16.24	13.58	+10.12	
ALS	972	.246		9.	6.8	7.4	6.86	5.73	+14.28	

VO...
NO. 30

INDUSTRIALS—CONT'D

MAY 13, 1938
PAGE THREE

SYMBOL	VOL. IN 100'S	RAT. TO TOT.VOL	OPEN	HIGH	LOW	CLOSE	RAT. TO ST. 90	RAT. TO GROUP	% NET CHANGE	FIGURE CHART MOVES
HMT	1355	.343		19.4	13.5	12.3	13.15	10.87	+10.01	
ILR	860	.223		54.5	27.8	25.3	25.98	21.88	+3.87	
IMN	85	.018		185.2	180.	182.	146.22	23.78	-8.27	
HR	845	.212		38.2	28.1	26.	25.18	61.12	-5.88	
N	1842	.467		50.3	43.7	45.4	41.83	34.78	-8.90	
IR	61	.021		135.2	105.4	110.	100.84	84.03	-16.56	
JMP	480	.122		115.2	88.	85.	88.92	72.57	-12.03	
KLV	1532	.388		24.7	18.2	20.1	18.41	15.37	-11.53	
KN	2748	.605		41.5	33.1	35.2	32.25	23.93	-7.23	
KG	398	.100		23.1	20.4	21.2	19.44	18.23	-5.55	
KR	359	.091		25.	22.5	22.4	20.59	17.18	-9.08	
LAM	229	.058		23.	18.4	20.	18.30	15.28	-13.04	
LOF	413	.104		61.7	48.4	49.5	45.40	37.91	-15.71	
LM-B	162	.046		104.	100.5	101.2	92.63	77.35	-1.81	
LW	856	.217		47.7	43.	45.8	41.86	34.95	-2.91	
LR	174	.044		18.	12.4	13.	11.59	9.93	-16.33	
LO	48	.012		24.2	41.	41.	37.51	31.32	-1.50	
LOR	438	.109		23.2	21.1	22.1	20.24	16.90	-1.11	
MTY	368	.093		45.1	40.4	42.	38.43	32.09	+2.12	
MV	71	.018		110.6	104.	104.	95.15	79.45	-1.88	
MCK	908	.230		11.3	6.5	9.	8.23	6.88	-15.25	
MO	512	.130		35.	28.	29.	26.53	22.15	-10.04	
MZ	455	.115		47.2	40.1	40.7	37.40	31.23	-9.41	
M	3224	.868		45.2	36.8	38.6	35.45	29.60	-7.73	
MFI	628	.159		19.1	14.	15.1	13.82	11.55	-12.31	
AKL	286	.067		32.2	27.4	28.	25.32	21.39	-15.51	
MRW	381	.088		20.7	15.8	17.7	16.35	13.86	-10.08	
MNS	10	.003		15.4	13.2	13.2	11.95	9.95	-11.88	
BE	1065	.275		38.1	31.1	32.7	30.08	25.11	-4.01	
NCR	512	.130		26.3	21.7	23.	21.34	17.57	-14.81	
NAD	1102	.270		32.8	27.3	28.5	26.12	21.87	-9.48	
NSS	1238	.314		21.	16.3	17.3	15.90	13.27	-8.55	
NPT	984	.249		24.	21.	21.4	19.87	16.42	-7.02	
XA	158	.039		40.	28.	26.	25.87	21.39	-24.32	
NAV	1778	.451		10.2	7.4	7.7	7.20	6.02	-17.10	
OHO	1129	.286		15.2	12.4	13.3	12.24	10.22	-10.08	
OPS	88	.023		13.4	9.	9.	8.23	8.86	-28.71	
OST	1174	.286		20.3	13.	13.5	12.47	10.41	-27.33	
OT	548	.088		32.	24.8	25.1	22.88	18.19	-15.89	
OB	118	.029		164.	137.4	141.	128.00	107.72	-8.88	
PAK	4441	.126		12.	8.5	9.2	8.46	7.07	-18.68	
PEJ	278	.070		78.2	72.4	73.	66.78	55.77	-2.01	
PUY	2180	.553		23.7	17.7	18.	17.38	14.51	-17.38	
PKF	73	.018		70.4	67.	67.2	61.53	51.38	+.37	
P	1250XD	.317		49.3	40.4	42.2	38.86	32.28	-11.97	
PRC	251	.064		2.6	2.	2.	1.85	1.53	-27.27	
PU	825	.209		45.7	39.4	41.	37.51	31.32	-3.52	
PGM	288	.074		47.1	41.4	42.	38.43	32.09	-9.91	
R	7914	.2007		13.8	9.8	10.1	9.26	7.72	-20.58	
R-PF-B	489	.124		10.6	9.2	9.3	8.59	7.05	-5.82	
REY-B	489	.124		53.4	50.	50.7	48.55	38.87	-4.48	
RKO	1166	.206		7.7	5.2	5.7	5.03	4.20	-22.95	
RR	888	.225		22.7	19.4	21.1	19.33	16.14	+ .59	
RBC	3746	.450		28.2	16.7	18.4	16.93	14.13	-20.00	
SAF	278	.070		34.5	30.3	31.4	28.82	21.03	-3.88	
FHK	367	.093		16.6	13.1	13.4	12.35	10.31	-13.35	
SHN	408	.103		47.3	38.3	40.	36.60	30.51	-13.08	
SOV	3041	.771		15.1	13.	13.1	12.01	10.31	-7.88	
SD	2151	.545		16.7	14.3	15.2	13.85	11.15	-8.47	
SPC	1788	.448		21.8	15.7	16.8	15.32	12.80	-15.72	
SCD	1048	.266		46.	37.2	38.2	35.30	29.22	-13.31	
STX	828	.210		24.4	18.4	18.1	18.58	13.85	-13.18	
J	2712	.668		37.3	55.7	58.7	53.97	44.98	-9.42	
LMS	709XR	.180		32.4	22.3	23.5	21.31	17.05	-17.45	
TX	1849	.418		39.4	31.5	33.3	30.5	25.50	-10.40	
TXL	733	.188		13.	9.	10.	8.15	7.84	-18.37	
TO	390	.089		36.	33.7	34.2	31.34	28.19	-7.92	
TKR	338	.086		89.6	58.	57.4	52.31	43.93	-14.81	
TA	1005	.255		14.	11.	11.5	10.4	8.98	-12.28	
UNX	115	.029		86.4	86.	86.	78.56	55.90	-8.52	
UN	836	.212		86.3	78.	77.2	70.82	59.01	-5.79	
UAR	2712	.686		27.5	20.5	22.	20.13	15.81	-12.60	
UCB	188	.048		78.2	73.2	72.2	68.10	55.19	+ .54	
UD	1626	.412		58.	44.7	47.4	43.48	35.21	-5.00	
USG	171	.043		10.4	85.2	86.2	78.81	85.89	-10.38	
LX	21	.005		8.6	6.3	6.4	5.95	4.87	-21.21	
RU	4755	.206		34.5	20.3	28.4	26.08	21.77	- .48	
UV	558	.141		95.3	85.1	88.7	81.31	67.90	-1.25	
CJ	453XR	.115		38.4	31.4	32.2	29.51	24.64	-9.15	
X	8204	2.080		72.3	56.	57.8	52.84	44.12	-10.98	
X-PR	208	.052		132.8	121.2	123.1	12.65	94.08	-3.80	
VA	383	.027		25.	16.2	17.7	13.35	13.68	-20.00	

INDIVIDUAL STOCK DATA

MAY 13, 1936
PAGE FOUR

SYMBOL	VOL. IN 100'S	RAT.TO TOT.VOL	INDUSTRIALS—CONT'D				RAT.TO ST. NO	RAT.TO GROUP	% NET CHANGE	FIGURE CHART MOVES
			OPEN	HIGH	LOW	CLOSE				
WD-A	18	.004	14.4	13.	13.	13.	11.21	9.37	-7.14	
WAR	543	.214	10.2	7.4	6.2	7.55	6.30	-18.45		
WX	1115	.283	122.5	101.1	105.3	98.41	80.50	-7.15		
WKM	428	.109	45.4	34.8	35.4	32.38	27.78	-14.81		
WIL	1222	.310	9.2	7.5	8.	7.32	6.11	-8.57		
TCL	610	.155	10.7	7.5	8.1	7.43	6.21	-18.75		
Z	899	.227	50.6	44.6	45.2	44.14	38.88	-24.52		
WPU	107	.027	34.6	23.1	24.	21.96	19.33	-28.88		
YB	1134	.288	61.4	47.4	51.6	47.38	39.23	+4.72		
ZP	332	.084	8.5	5.7	6.4	5.95	4.97	-20.00		
GOR	2277	.577	31.7	23.3	24.5	22.53	16.81	-12.83		
S	1269	.322	69.2	52.	65.	59.57	48.88	-28.80		
SVL	842	.213	22.3	17.3	18.4	16.93	14.15	-15.42		
MUY	1271	.322	20.7	14.	15.	13.72	11.48	-24.05		
PDO	1008	.256	40.2	30.5	31.6	29.05	24.28	-15.89		
GEY	485	.123	66.	52.	54.	49.41	41.25	-18.80		
BOE	592	.140	29.9	18.2	17.4	18.91	12.37	-28.65		
ULT	1058	.268	81.	15.2	16.3	14.98	12.51	-10.27		
RAILS										
AYY	588	.149	3.6	2.4	2.5	2.40	5.65	-25.03		
A	1177	.208	88.5	87.	70.4	84.50	151.81	-4.08		
AX	447	.113	31.2	21.5	23.6	21.73	51.00	-18.10		
BO	1551	.393	22.5	15.7	17.1	15.97	36.83	-12.73		
CP	1718	.456	13.5	11.	11.2	10.59	24.19	-10.89		
CO	729	.165	58.3	52.8	54.	49.41	11.613	-4.84		
ST	137	.035	2.2	1.4	1.4	1.37	3.23	-28.41		
NW	252	.084	3.7	2.4	2.6	2.52	5.91	-28.86		
RI	58	.014	2.4	1.4	1.4	1.37	3.23	-3.33		
DL	957	.245	21.1	14.7	15.7	14.52	34.14	-18.93		
DH	829	.210	50.2	38.8	39.	35.89	83.87	-11.36		
E	291	.074	15.8	11.	12.2	11.21	28.34	-12.50		
GO	1326	.336	39.6	32.3	35.1	32.14	75.54	-2.43		
IL	1017	.258	28.7	18.5	20.	18.30	43.01	-16.23		
LV	286	.075	13.	8.5	8.2	6.46	19.89	-19.56		
LN	89	.023	77.4	63.	65.4	59.10	136.58	-8.86		
RT	530	.134	9.4	6.8	7.1	6.52	13.32	-10.93		
MOP	41	.016	3.4	2.2	2.2	2.06	4.84	-35.71		
CN	5395	1.368	42.2	31.3	34.2	31.34	73.86	-2.83		
NKP	99	.025	30.	20.4	20.4	18.79	44.08	-28.07		
V	284	.067	4.3	3.	3.	2.74	6.45	-27.27		
NFK	23	.009	233.6	220.	220.	201.89	473.12	-3.83		
PA	1370	.347	35.8	28.2	29.4	28.02	63.44	-10.26		
RDG	54	.014	44.8	38.4	36.5	35.12	82.86	-10.98		
SX	2770	.702	38.1	27.5	30.2	27.68	85.05	-8.33		
SR	886	.220	18.4	12.6	14.2	13.04	30.65	-14.28		
UP	192	.049	134.8	117.	124.	113.45	268.87	-5.16		
WM	262	.068	10.7	8.1	9.	8.23	19.35	-10.00		
WR	27	.007	3.	2.	2.	1.88	4.42	-27.27		
NP	2003	.506	55.2	45.5	27.5	25.27	59.41	-10.16		
UTILITIES										
AFW	114	.262	9.5	6.4	6.8	6.18	8.24	-22.85		
AOW	2125	.538	13.1	9.	9.5	8.81	11.75	-21.42		
T	782	.198	171.	149.4	155.	141.61	189.28	-5.48		
AWW	3527	.894	25.2	19.1	20.2	18.53	24.73	-8.35		
BNT	393	.099	50.2	45.3	48.2	42.31	56.47	-5.37		
CW	3235	.820	3.1	2.2	2.4	1.29	3.05	-16.66		
CG	4099	1.059	21.5	16.4	17.4	16.01	21.37	-9.09		
G	1926	.489	36.2	27.2	29.3	26.68	35.87	-10.98		
EBS	6304	1.598	24.3	17.	18.1	16.58	22.13	-21.19		
EL	3497	.887	15.8	12.6	13.4	12.35	18.18	-8.89		
EPU	237	.060	15.	11.2	12.	10.78	14.65	-9.09		
IP-A	110	.028	8.2	3.6	3.6	3.43	4.58	-34.78		
IT	2563	.650	17.4	12.1	13.3	12.24	18.93	-19.54		
NA	1905	.483	28.8	23.1	24.2	22.19	29.61	-9.76		
NPL	879	.223	11.7	8.6	10.	8.15	12.24	-11.11		
NMP	961	.244	10.5	7.6	7.7	7.20	9.82	-21.25		
PUB	559	.142	43.2	39.	40.	36.60	48.84	-2.43		
SG	415	.105	8.4	5.1	5.8	5.28	7.02	-26.98		
SW	2211	.561	21.2	15.2	16.4	15.10	20.15	-8.96		
U	3239	.821	7.4	5.3	5.5	5.15	6.87	-12.64		
UGI	1507	.382	18.4	14.3	14.7	13.61	18.18	7.03		
W	1002	.254	91.	73.	78.3	68.88	93.25	-11.19		

GARTLEY PRICE LIST

CHART SHEETS — SMALL SIZE (11" x 17")

SHEET NO.	LEFT SCALE	RIGHT SCALE	PRICES			
			12 SHEETS	25 SHEETS	50 SHEETS	100 SHEETS
42.402	1-4½	2-8½	\$.85	\$ 1.50	\$ 2.80	\$ 5.00
42.404	3-12½	6-25	.85	1.50	2.80	5.00
42.406	12-52	24-104	.85	1.50	2.80	5.00
42.408	24-102	48-204	.85	1.50	2.80	5.00
42.412	142-610	142-610	.85	1.50	2.80	5.00
41.406*	12-52	24-104	.70	1.25	2.30	4.00
41.408*	24-102	48-204	.70	1.25	2.30	4.00
Figure Chart	Arithmetic	10" x 10" one side	.85	1.50	2.80	5.00
300.8	Velocity		1.50	2.75	5.00	8.75

Sheet 42.402 is in eighths on the left scale, quarters on the right scale; 42.404 is in eighths on the left scale, quarters on the right scale; sheet 42.406 is in eighths on the right scale, quarters on the left scale; sheet 42.408 is in eighths to 50 and quarters to 102 on the left scale, quarters to 100 and half points to 204 on the right scale; sheet 42.412 is in points to 400 and two points to 610. Orders of less than \$2.00 should add \$.15 for handling and mailing charges.

*Transparent

Chart Sheets — Large Size (28" x 31½")

Sheet No.	Scale	Prices			
		1 Sheet	12 Sheets	25 Sheets	50 Sheets
5	1-10	\$.60	\$ 6.85	\$ 13.75	\$ 25.00
7	3-30	.60	6.85	13.75	25.00
9	5-50	.60	6.85	13.75	25.00
11	10-100	.60	6.85	13.75	25.00
13	70-700	.60	6.85	13.75	25.00
11P**	10-100	.60	6.85	13.75	25.00

**Transparent

Chart Sheets — Weekly (20" x 28")

Sheet No.	Scale	Prices			
		1 Sheet	12 Sheets	25 Sheets	50 Sheets
1	2½-125 20-1000	\$.50	\$ 5.40	\$ 10.00	\$ 19.00

Data Sheets (11" x 8½")

Sheet No.	Title	Prices			
		25 Sheets	50 Sheets	100 Sheets	
250.01	Individual Stock, Daily	\$.30	\$.55	\$ 1.00	
250.02	Individual Stock, Weekly	.30	.55	1.00	
250.03	Individual Stock, Monthly	.30	.55	1.00	
250.04	Individual Stock, Yearly	.30	.55	1.00	
250.05	Comparative Velocity Study	.30	.55	1.00	
250.01	Hourly Price Data	.30	.55	1.00	
251.02	Hourly Volume Data	.30	.55	1.00	
251.03	Moving Average Computation	.30	.55	1.00	

Sheets for Dow Jones Hourly and Sensitive Index Averages

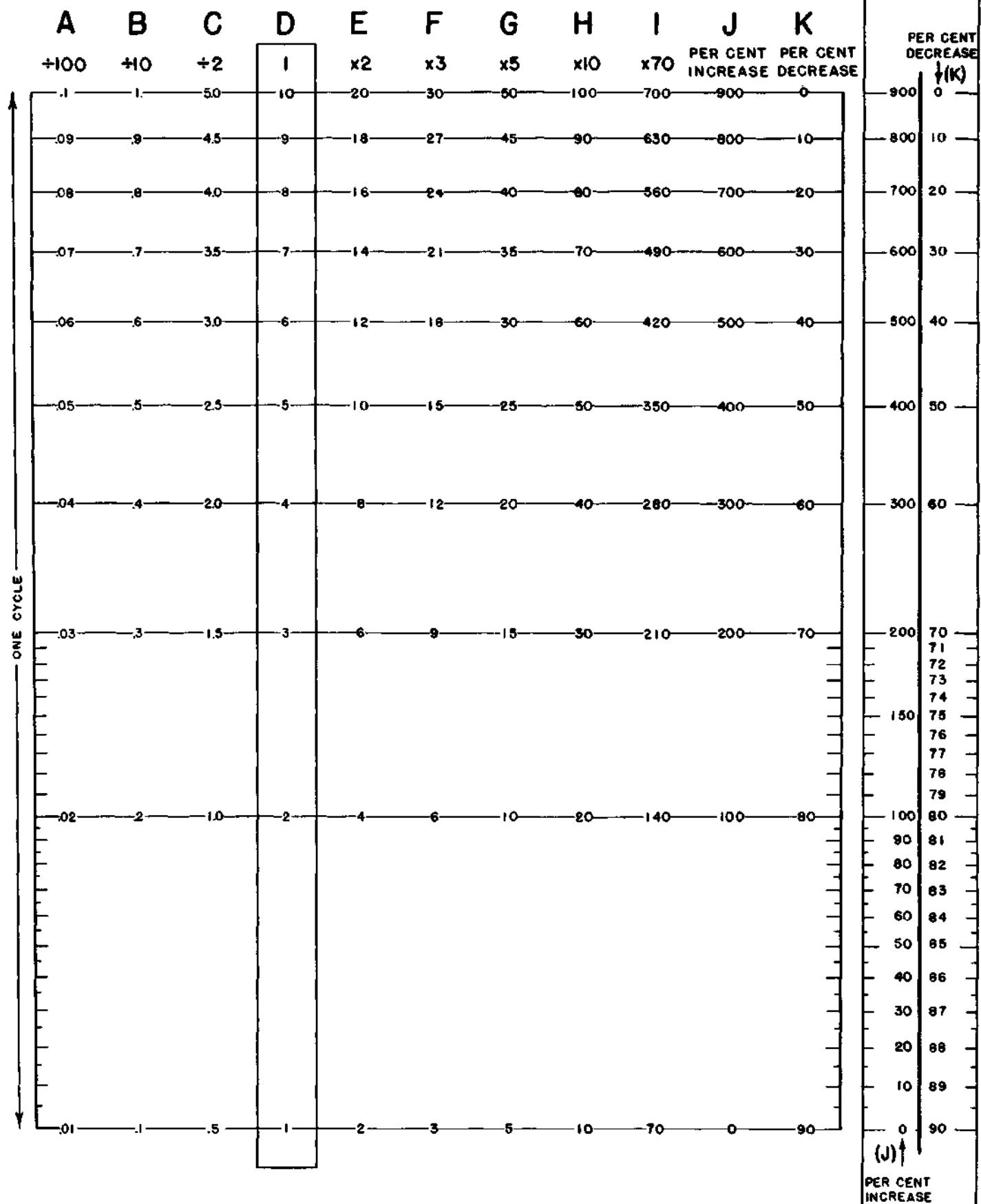
Sheet 52.127, size 17" x 22", arithmetic grid (6 + 4 divisions), designed for plotting hourly averages and (or) sensitive index averages (either line or 1 point figure plotting). It may be obtained from Codex Book Co., Norwood, Mass., at a cost of \$2.00 for 12 sheets, \$3.50 for 25 sheets, \$6.00 for 50 sheets and \$10.00 for 100 sheets.

Scale Dividor (celluloid — for large and small size chart sheets) — \$6.00

APPENDIX IIIA

SHOWING

A ONE CYCLE RATIO OR LOGARITHMIC SCALE COVERING RANGE FROM 1 TO 10 (D), WITH 8 ENUMERATIONS OF SCALE VALUES (A,B,C,E,F,G,H,&I), AND PLUS AND MINUS SCALE DIVIDERS (J&K).



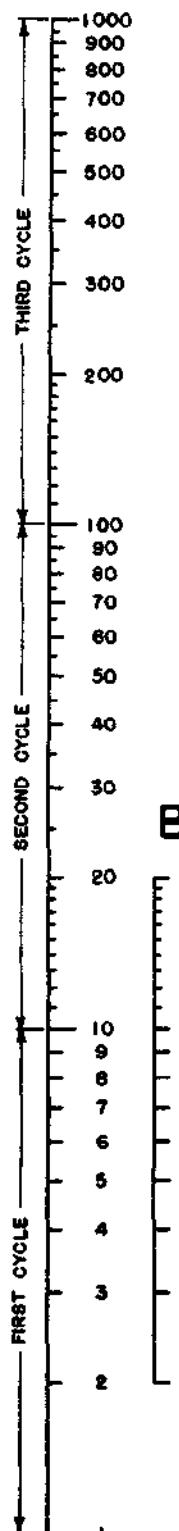
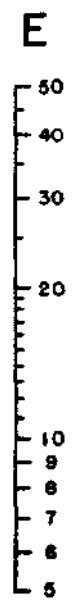
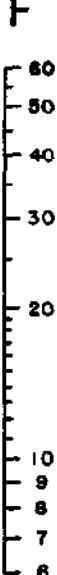
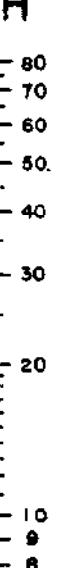
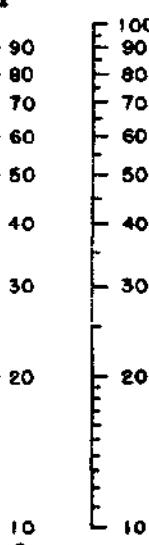
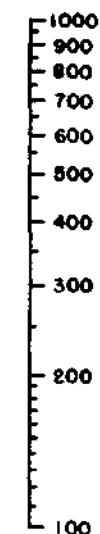
CHAPTER 2

**SCALE
DIVIDER**

SHOWING
A THREE CYCLE RATIO OR LOGARITHMIC SCALE COVERING RANGE FROM 1 TO 1,000 (D),
WITH 8 ENUMERATIONS OF SCALE VALUES (A,B,C,E,F,G,H,&I)
AND PLUS AND MINUS SCALE DIVIDERS (J & K).

SHOWING

A THREE CYCLE RATIO OR LOGARITHMIC SCALE COVERING RANGE FROM 1 TO 1000 AND A SERIES OF RELATED SINGLE CYCLE SCALES.

A**B****C****D****E****F****G****H****I****J****L**

APPENDIX IV-A

ANNALIST AVERAGE OF 72 INDUSTRIALS
AS OF THE CLOSE, NOVEMBER 30, 1935

Group	Adjusted Weight (A)	Close Nov. 30 (B)	A x B (C)
4 Amusements			
Loew's	.189	51.8	9.8
Paramount	.312	8.8	2.7
Radio	.667	11.0	7.3
Warner Bros.	.667	8.8	<u>5.9</u>
Total			25.7
3 Aviations:			
Curtis-Wright	.556	3.9	2.2
Douglas Aircraft	.169	34.8	5.9
United Aircraft	.208	22.9	<u>4.8</u>
Total			12.8
Multipled by 1.5			19.2
3 Building:			
American Radiator	.370	21.1	7.8
International Cement	.189	33.0	6.2
Johns-Manville	.110	91.0	<u>10.0</u>
Total			24.1
Multipled by 2			48.2
4 Chemicals:			
Air Reduction	.125	171.0	21.4
Allied Chemical	.080	162.2	13.0
Du Pont	.106	137.2	14.5
Union Carbide	.185	70.8	<u>13.1</u>
Total			62.0
Multipled by 2			124.0
2 Electrical Equipments:			
General Electric	.333	37.9	12.6
Westinghouse Electric	.145	91.1	<u>13.2</u>
Total			25.8
Multipled by 2.05			52.9
3 Farm Equipments:			
Case, J.I.	.084	98.0	8.2
Deere & Company	.159	50.9	8.1
International Harvester	.154	60.0	<u>9.2</u>
Total			25.6
Multipled by 2			51.2
4 Foods:			
Corn Products	.119	70.9	8.4
General Foods	.385	33.1	12.7
National Biscuit	.244	33.8	8.2
National Dairy Products	.435	19.2	<u>8.4</u>
Total			37.8
2 Liquor:			
National Distillers	.200	31.2	6.2
Schenley Distillers	.154	50.5	<u>7.8</u>
Total			14.0
Multipled by 3			42.0

APPENDIX**5 Merchandise:**

Kroger Grocery	.263	26.2	6.9
Montgomery Ward	.250	37.4	9.4
Penney, J.C.	.139	80.5	11.2
Sears Roebuck	.167	64.8	10.8
Woolworth	.213	56.4	<u>12.0</u>
Total		50.3	
Multipled by 0.88			44.3

4 Metals (non-ferrous):

American Smelting	.152	60.6	9.2
Anaconda	.385	25.9	10.0
International Nickel	.370	40.2	14.9
Kennecott Copper	.286	28.2	<u>8.1</u>
Total		42.1	
Multipled by 1.12			47.2

4 Motors:

Chrysler	.133	82.9	11.0
General Motors	.392	54.6	21.4
Hudson Motors	.222	14.9	3.3
Nash Motors	.222	16.6	<u>3.7</u>
Total		39.4	
Multipled by 2.43			95.7

5 Motor Accessories:

Borg Warner	.217	62.5	13.6
Briggs Manufacturing	.204	51.0	10.4
Eaton Manufacturing	.270	27.1	7.3
Electric Auto-Lite	.169	33.5	5.7
Timken Roller Bearing	.185	67.2	<u>12.4</u>
Total		49.4	

4 Office Equipments:

Burroughs Adding Machine	.385	26.0	10.0
National Cash Register	.278	19.2	5.3
Remington Rand	.385	15.9	6.1
Underwood-Elliott-Fisher	.149	80.0	<u>11.9</u>
Total		33.4	

8 Combined Oils**4 Standard Oils:**

Atlantic Refining	.244	23.4	5.7
Socony Vacuum	.435	12.8	5.6
Standard Oil of California	.238	36.6	8.7
Standard Oil of New Jersey	.263	48.2	<u>12.7</u>
Total		32.7	
Multipled by 0.85			27.8

4 Independent Oils:

Continental Oil of Delaware	.323	27.6	8.9
Phillips Petroleum	.385	33.9	13.1
Texas Corporation	.303	24.5	7.4
Union Oil of California	.476	20.0	<u>9.5</u>
Total		38.9	
Multipled by 1.12			43.6

4 Railroad Equipments:

American Brake Shoe	.209	39.1	8.2
American Car & Foundry	.200	29.5	5.9
American Locomotive	.189	26.2	5.0
American Steel Foundry	.227	22.5	<u>5.1</u>
Total		24.1	

3 Rubber and Tires:

Goodrich	.370	11.8	4.4
Goodyear	.179	21.0	3.8
U.S. Rubber	.238	14.8	3.5
			<hr/>
Total			11.6
Multiplied by 1.92			22.3

4 Steels:

Bethlehem Steel	.139	48.5	6.7
Inland Steel	.172	106.0	18.2
National Steel	.147	75.2	11.1
U. S. Steel	.270	47.1	12.7
			<hr/>
Total			48.7
Multiplied by 0.67			32.6

3 Sugars:

American Sugar	.118	52.6	6.2
Great Western Sugar	.192	32.1	6.2
South Porto Rico Sugar	.208	26.2	5.4
			<hr/>
Total			17.8
Multiplied by 2			35.6

3 Tobaccos:

American Tobacco "B"	.137	102.5	14.0
Liggett & Meyers "B"	.132	111.0	14.7
Reynolds Tobacco "B"	.263	58.1	15.3
			<hr/>
Total			44.0
Multiplied by 2			38.0

72-Industrial Composite

Total of Industrial Groups	94.5
Multiplied by 1.76	166.3

APPENDIX IV-A

ANNALIST AVERAGE OF 10 RAILROADS
AS OF THE CLOSE, NOVEMBER 30, 1935

Name of Stocks	Adjusted Weight (A)	Close Nov. 30 (B)	A x B (C)
Atchison	.103	52.6	5.4
Baltimore & Ohio	.196	16.6	3.3
Great Northern PFD	.179	30.8	5.5
Illinois Central	.172	19.5	3.4
New York Central	.159	27.1	4.3
Northern Pacific	.167	23.0	3.8
Pennsylvania	.208	30.0	6.2
Southern Pacific	.175	24.1	4.2
Southern Railway	.161	14.2	2.3
Union Pacific	.092	105.9	9.7
Total			48.1
Multiplied by 0.88			42.4

ANNALIST AVERAGE OF 8 UTILITIES

American Telephone	.132	160.2	21.1
Columbia Gas & Electric	.333	14.0	4.7
Consolidated Edison	.179	32.5	5.8
Electric Power & Light	.588	5.2	3.1
North American	.278	24.4	6.8
Public Service of N.J.	.217	43.6	9.5
United Gas Improvement	.500	17.4	8.7
Western Union	.118	70.2	8.3
Total			67.0
Multplied by 0.35			23.8

90-Stock Composite

Name of Group	Group Average
72 Industrials	945.0
10 Railroads	42.4
8 Utilities	23.8
Total	<u>1011.2</u>
Divided by 100	101.0
Multplied by 0.50	50.5

APPENDIX IV-B

ASSOCIATED PRESS AVERAGES

<u>30 Industrials</u>	<u>Last</u>	<u>% Influence On Average</u>	<u>15 Utilities</u>		
Air Reduction	141.4	7.29	Amer. Gas & Electric	34.5	6.38
Allied Chemical	159.6	8.25	Amer. Tel. & Tel.	136.5	25.19
American Can	138.0	7.13	Amer. Water Works	15.4	2.86
American Smelting	44.6	2.31	Columbia Gas & Electric	11.6	2.17
Bohn Alum. & B.	47.0	2.43	Consolidated Gas of N.Y.	27.2	5.02
Case, J.I.	71.2	3.68	Detroit Edison	93.4	17.24
Chrysler	60.4	3.12	National Power & Light	11.0	2.03
Comm'l. Invest. Trust	70.2	3.63	North American	19.7	3.66
Corn Products	65.5	3.39	Pacific Gas	25.4	4.70
Du Pont	117.0	6.04	Peoples Gas	38.0	7.01
Eastman Kodak	149.2	7.70	Public Service of N.J.	41.2	7.60
Electric Auto-Lite	26.6	1.38	So. Cal. Edison	21.6	4.01
General Motors	42.1	2.17	Standard Gas & Electric	6.1	1.14
Goodyear Tire & Rubber	19.2	.99	United Gas Improvement	15.1	2.79
International Harvester	53.4	2.76	Western Union	44.4	8.20
Johns-Manville	65.0	3.35	<u>15 Utilities — Total</u>	<u>542.3</u>	
Kennecott	23.1	1.19	Average	36.1	<u>100.00</u>
Kroger Groc. & Bak.	30.6	1.59			
Liggett & Myers B	116.0	5.99			
Loew's Inc.	41.5	2.15			
National Biscuit	28.6	1.48			
Pullman, Inc.	40.7	2.11			
Sears-Roebuck	54.4	2.81			
Standard Oil of Cal.	32.2	1.66			
Standard Oil of N.J.	45.3	2.34			
Texas Corp.	19.7	1.03			
Union Carbide & Carbon	64.0	3.30			
U.S. Steel	43.2	2.23			
Westinghouse El. & Mfg.	65.0	3.35			
Woolworth	61.0	3.15			
<u>30 Industrials — Total</u>	<u>1937.7</u>	<u>100.00</u>			
Average	64.6				
Composite					
<u>Total</u>	<u>2857.25</u>				
Average	47.6				

<u>15 Rails</u>	<u>Last</u>	<u>% Influence On Average</u>
Atchison	49.0	13.00
Baltimore & Ohio	15.2	4.05
Chesapeake & Ohio	45.5	12.10
Dela., Lack. & West.	15.2	4.15
Erie	11.0	2.92
Great Northern PFD.	21.3	5.67
Illinois Central	14.2	3.78
Missouri-Kansas-Texas	4.3	1.16
New York Central	22.4	5.97
New Haven	7.0	1.86
Northern Pacific	17.0	4.50
Pennsylvania	27.3	7.26
Southern Pacific	18.5	4.93
Southern Railway	9.3	2.49
Union Pacific	99.0	26.26
<u>15 Rails — Total</u>	<u>377.0</u>	<u>100.00</u>
Average	25.1	

APPENDIX

APPENDIX IV-C

Axe Houghton
 Weighted Index of 30 Industrials
 September, 1935

September, 1935										
Stocks	Wt.	High		Low		% Influ. on Avg.	High	Low	Close Jan. 2	% Influ. on Average
		High	Low	High	Low		On Avg.			
ACD	3	173.0	159.4	519.00	478.50	4.32	4.48		Stocks	1936
AC	6	146.5	137.0	879.75	822.00	7.33	7.70		ACD	159.0
AR	9	51.2	44.2	461.25	398.25	3.84	3.73		AC	133.4
C	7	22.0	18.2	154.00	127.75	1.28	1.20		AR	59.7
BS	10	41.4	36.0	415.00	360.00	3.46	3.37		AT-B	100.0
K	6	74.5	59.6	447.75	358.50	3.73	3.36		BS	52.4
CLL	12	21.3	18.7	256.50	226.50	2.14	2.12		K	90.4
DD	7	135.2	116.2	946.75	813.75	7.89	7.62		CFG	69.4
GL	12	35.0	30.1	420.00	361.50	3.50	3.38		DD	140.4
GM	10	47.0	41.7	470.00	418.75	3.92	3.92		EK	157.6
GG	6	10.4	8.5	63.00	51.75	.52	.48		GE	38.0
HMT	6	14.7	10.4	89.25	63.00	.74	.59		GF	34.0
HR	8	60.4	53.0	484.00	424.00	4.03	3.97		GM	55.6
JMP	3	77.4	64.6	232.50	194.25	1.94	1.82		GOR	24.2
KN	10	26.1	22.3	261.25	223.75	2.18	2.09		IMN	176.4
LO	10	41.0	37.2	410.00	372.50	3.42	3.49		HR	61.4
LW	10	45.2	41.0	452.50	410.00	3.77	3.84		N	45
MQ	4	25.5	21.4	102.50	86.00	.85	.81		JMP	94.4
R	10	8.3	6.5	83.75	66.25	.70	.62		LW	52.4
RBC	7	19.7	16.4	139.125	115.50	1.16	1.08		NSS	17.7
REY-B	17	57.0	54.5	969.00	928.625	8.07	8.69		NAD	30.0
S	4	61.3	54.3	245.50	217.50	2.05	2.04		NAX	74.4
SCD	14	33.7	32.0	474.25	448.00	3.95	4.19		PGM	48.4
J	14	45.5	42.5	638.75	596.75	5.32	5.58		S	65.2
TKR	8	56.0	48.4	448.00	388.00	3.73	3.63		SCD	40.4
UN	9	69.6	63.6	627.75	573.75	5.23	5.37		J	51.6
RU	8	16.1	13.1	129.00	105.00	1.07	.98		TX	29.5
X	6	48.6	42.4	292.50	255.00	2.44	2.39		UN	72.0
WX	4	80.2	64.2	321.00	257.00	2.67	2.41		X	49.3
Z	9	63.3	60.0	570.375	540.00	4.75	5.05		WX	96.7
									Z	55.0
										2.53
		Total		12004.00	10682.125	100.00	100.00		Total	2176.375
		Total -		120.04	106.82				Divisor	15.1
		100							Avg. of 30 Indus.	2176.375 = 144.13
		Total x 1.5 -		180.06	160.23					15.1

Dow Jones Average
of 20 RailsDow Jones Average
of 20 Utilities

20 Rails	Close Jan. 2 1936	% Influence on Average	20 Utilities	Close Jan. 2 1936	% Influence on Average
Atchison	60.0	7.38	American & Foreign Power	7.2	1.22
Atlantic Coast Line	30.6	3.78	American Gas & Electric	37.4	6.31
Baltimore & Ohio	16.4	2.03	American Power & Light	8.6	1.47
Canadian Pacific	11.5	1.43	American Water Works	22.4	3.79
Chesapeake & Ohio	51.3	6.32	Amer. Tel. & Tel.	158.6	26.71
Delaware & Hudson	37.6	4.64	Brooklyn Union Gas	54.0	9.09
Delaware, Lack. & Western	16.3	2.01	Columbia Gas & Electric	14.2	2.40
Erie	12.4	1.54	Commonwealth & Southern	3.0	.50
Great Northern Preferred	33.4	4.12	Consolidated Edison	31.0	5.22
Illinois Central	20.5	2.54	Electric Power & Light	6.6	1.14
Louisville & Nashville	58.0	7.13	Eng. Public Service	7.4	1.26
New York Central	28.2	3.47	International Tel. & Tel.	13.4	2.27
N. Y., Chicago & St. Louis	17.6	2.18	National Power & Light	10.2	1.72
N. Y., New Haven & Hartford	4.1	.51	Niagara Hudson Power	8.6	1.47
Norfolk & Western	210.0	25.82	North American	26.7	4.52
Northern Pacific	24.4	3.01	Pacific Gas & Electric	31.6	5.34
Pennsylvania	31.4	3.87	Public Service of N.J.	46.0	7.74
Southern Pacific	24.0	2.95	Southern Calif. Edison	25.4	4.29
Southern Railway	14.1	1.74	Standard Gas & Electric	6.2	1.05
Union Pacific	110.0	13.53	Western Union	74.2	12.49
Total	813.25	100.00	Total	594.375	100.00
Divisor	20.0		Divisor	20.0	
Average of 20 Rails	813.25 -	40.66	Average of 20 Util.	594.375 =	29.72
	20.0			20.0	

Dow Jones Composite Average
of 70 Stocks

	Total Close Jan. 2, 1936	% Influence on Average
Industrials	2176.375	60.72
Rails	813.25	22.69
Utilities	594.375	16.59
Total	3584.00	100.00
Divisor	70.0	
Average of 70 Stocks	3584.00 =	51.20
	70.0	

APPENDIX

APPENDIX IV-E

Herald-Tribune
15 Manufacturing

	Close Sept. 3, 1935	% Influence On Average
Air Reduction	141.4	7.87
Allied Chemical	159.6	8.88
American Can	138.0	7.67
American Tobacco	99.4	5.53
Coca-Cola	244.0	13.56
Columbia Carbon	88.0	4.89
Continental Can	83.4	4.65
Du Pont	117.0	6.50
Eastman Kodak	149.2	8.30
General Electric	30.0	1.72
Int'l. Business Machines	184.0	10.23
Int'l. Harvester	53.4	2.90
National Lead	181.0	10.06
Union Carbide	64.0	3.56
Westinghouse Elec. & Mfg.	65.0	3.61
	1798.7	100.00
Add Factor	1815.0	
	3613.7	
Average of 15 Manufacturing =	3613.7 =	240.91
	15	
Composite Average of 30 Rails		
	Group Total	% Influence On Average
20 Grade A Rails	810.6	91.60
10 Grade B Rails	74.4	8.40
	885.0	100.0
Average of 30 Rails =	885.0 =	29.50
	30	

	Composite Average of 70 Industrials	
15 Manufacturing	3613.7	37.45
10 Motors	1217.2	18.61
5 Foods	353.6	3.73
4 Equipments	356.1	3.68
5 Stores	2018.0	20.91
6 Steels	235.5	2.41
7 Coppers	515.6	3.34
10 Oils	460.7	4.77
8 Utilities	878.1	9.10
	9646.5	100.00
Average of 70 Industrials =	9646.5 =	157.81
	70	

	Composite Average of 100 Stocks	
70 Industrials	885.0	8.40
30 Rails	9646.5	91.60
	10561.5	100.00
Average of 100 Stocks =	10531.5 =	105.32
	100	

APPENDIX IV-F

New York Times Index
25 Railroads

	Close Sept. 3, 1935	% Influence on Average
Atchison	49	7.11
Atlantic C. Line	25	3.63
Baltimore & Ohio	15.2	2.21
Chesapeake & Ohio	45.5	6.62
Chicago R. I. & Pacific	1.5	.24
Chicago & Northwest	2.6	.40
Delaware & Hudson	35.1	5.10
Delaware & Lackawanna	15.2	2.21
Erie	11.	1.60
Great North. Pfd.	21.3	3.10
Illinois Cent.	14.2	2.07
Lehigh Valley	8.6	1.28
Mo. Kans. & Tex.	4.3	.64
Mo. Pacific	2.	.29
N. Y. Central	22.4	3.27
N. Y. Chicago & St. Louis	9.6	1.42
New Haven	7.	1.02
Norfolk & Western	189.4	27.51
Northern Pacific	17.	2.47
Pennsylvania	27.3	3.97
St. Louis & San Francisco	1.2	.18
Reading	36.	5.23
So. Pacific	18.5	2.70
So. Rail	9.3	1.36
Union Pacific	99.	14.37
Total	688.75	100.00
Average of 25 Railroads	688.75 =	27.55
	25	

New York Times Index
50 Stocks

	Close Sept. 3, 1935	% Influence on Average
25 Industrials	4427.75	86.54
25 Rails	688.75	13.46
50 Stocks	5116.50	100.00
Average of 50 Stocks	5116.50 =	102.33
	50	

New York Times Index
25 Industrials

	Weights	Close Sept. 3, 1935	Weighted Prices	% Influence on Average
Air Reduction	3	141.4	424.5	9.59
Allied Chemical & Dye	1	159.6	159.75	3.61
American Can	6	138.	828	18.70
American Tel. & Tel.	1	136.5	136.625	3.09
American Tobacco "B"	2	99.4	199.	4.49
Brooklyn Union Gas	1	64.1	64.125	1.45
Case, J. I.	1	71.2	71.25	1.62
Coca Cola	1	244.	244.	5.51
Consolidated Gas	1	27.2	27.25	.61
Corn Products Refining	1	65.5	65.625	1.48
Detroit Edison	1	93.4	93.4	2.11
DuPont	7	117.	819.	18.50
Eastman Kodak	1	149.2	149.25	3.37
First National Stores	1	52.	52.	1.17
General Electric	4	30.7	123.5	2.79
General Motors	1	42.1	42.125	.95
International Business Mach.	1	184.	184.	4.15
International Harvester	4	53.4	214.	4.83
National Biscuit	2½	28.6	71.875	1.62
People's Gas	1	38.	38.	.86
Public Service of New Jersey	1	41.2	41.25	.93
Standard Oil of New Jersey	1	45.3	45.375	1.02
Texas Gulf Sulphur	4	34.4	138.	3.12
United States Steel	1	43.2	43.25	.98
Woolworth	2½	61.	152.5	3.45
Total			4427.75	100.00
Average of 25 Industrials			4427.75 =	177.11
			25	

APPENDIX

APPENDIX IV-C
Standard Statistics Index
50 Industrials

	Weights	Close Sept. 3, 1935	Weighted Prices	% Influence on Average
Allied Chemical	2.401	159.6	383.5	3.22
Allis Chalmers	1.331	26.	34.6	.29
American Can	2.474	138.	341.4	2.87
American Locomotive	0.768	16.	12.3	.10
American Radiator	10.158	17.4	177.8	1.49
American Smelting & Refining	1.830	44.6	81.9	.69
American Sugar Refining	0.450	54.4	24.5	.21
American Tobacco "B"	4.744	99.4	472.0	3.97
American Woolen	0.400	7.7	3.1	.03
Anaconda	8.674	18.7	163.7	1.38
Armour "A"	4.060	4.1	16.7	.14
Bethlehem Steel	3.195	36.5	117.0	.98
Briggs Manufacturing	1.979	41.2	81.6	.69
Burroughs Adding Machine	5.150	17.3	89.5	.75
Chrysler	4.332	60.4	262.1	2.21
Crown Zeller	1.868	5.1	9.6	.08
Cuban American Sugar	1.000	6.1	6.1	.05
Eastman Kodak	2.251	149.2	336.00	2.83
Endicott-Johnson	0.405	64.	25.9	.22
General Electric	28.846	30.7	890.6	7.49
General Foods	3.251	34.4	181.2	1.52
General Motors	43.500	42.1	1832.4	15.41
Goodyear	1.494	19.2	28.7	.24
International Harvester	4.246	53.4	227.2	1.91
International Mer. Marine	0.614	3.1	1.9	.02
International Nickel	14.584	29.	422.9	3.56
International Paper A & B	0.998	3.3	3.4	.03
International Paper C	2.498	.7	2.2	.02
Kennecott	10.769	23.1	249.0	2.09
Kresge	5.518	25.6	142.1	1.20
Loews	1.464	41.5	60.9	.51
National Biscuit	6.289	28.6	180.8	1.52
National Cash Register A	1.628	16.2	26.5	.22
Pullman	3.820	40.7	156.1	1.31
Radio	13.131	6.7	90.3	.76
Reynolds B	9.000	54.7	493.9	4.15
St. Joseph Lead	1.956	19.4	38.1	.32
Sears Roebuck	4.795	54.4	261.3	2.20
Standard Brands	12.645	13.5	172.3	1.45
Standard Oil of California	13.103	32.2	422.6	3.55
Standard Oil of New Jersey	25.856	45.3	1173.2	9.86
Stewart-Warner	1.247	11.6	14.7	.12
Texas Corporation	9.350	19.7	185.8	1.56
Timken Roller Bearing	2.411	48.4	116.9	.98
Twentieth Century	1.226	18.6	23.0	.19
Union C & C	9.001	64.	576.1	4.84
United Fruit	2.925	72.	210.6	1.77
United States Rubber	1.464	13.4	19.8	.17
United States Steel	8.703	43.2	376.4	3.16
Westinghouse A & B	3.172	25.1	79.7	.67
Woolworth	9.750	61.	594.8	5.00
Total		112.385		100.00
Index of 50 Industrials		11894.7 -	105.84	
		112.385		

Standard Statistics Index of 20 Rails

	Weights	Close Sept. 3, 1935	Weighted Prices	% Influence on Averages
Atchison	2.427	49.0	118.9	6.06
Atlantic Coast Line	0.813	25.0	20.3	1.03
Baltimore & Ohio	2.563	15.2	39.1	1.99
Canadian Pacific	13.400	10.1	135.7	6.92
Chesapeake & Ohio	7.653	45.5	349.2	17.80
Chicago & Northwestern	1.584	2.6	4.4	.22
Delaware & Lackawanna	1.689	15.2	25.8	1.31
Great Northern Pfd.	2.487	21.3	53.2	2.71
Illinois Central	1.358	14.2	19.4	.99
Lehigh Valley	1.210	8.6	10.6	.54
Louisville & Nashville	1.170	41.0	48.0	2.45
New York Central	4.993	22.4	112.3	5.72
New York Chicago & St. Louis	0.337	9.6	3.3	.17
Norfolk & Western	1.406	189.4	266.4	13.58
Northern Pacific	2.480	17.0	42.2	2.15
Pennsylvania	13.168	27.3	360.5	18.37
Reading	1.400	36.0	50.4	2.57
Southern Pacific	3.772	18.5	70.3	3.58
Southern Railway	1.298	9.3	12.2	.62
Union Pacific	2.223	99.0	220.1	11.22
Total	52.413		1962.3	100.00
Index of 20 Rails =		1962.3 -	37.44	
		52.413		

Standard Statistics Index of 20 Utilities

American Power & Light	3.014	7.3	22.2	1.07
American Water Works	1.751	15.4	27.1	1.30
Brooklyn-Manhattan	0.736	42.0	30.9	1.48
Brooklyn Union Gas	0.745	64.1	47.8	2.29
Columbia Gas & Electric	11.739	11.6	137.9	6.62
Consolidated Gas	11.477	27.2	312.7	15.00
Detroit Edison	1.272	93.4	118.9	5.71
Electric Power & Light	3.409	5.2	17.9	.86
Interborough Rapid Transit	0.350	18.2	6.4	.31
Int'l. Tel. & Tel.	8.399	10.2	65.6	3.15
National Power & Light	5.456	11.0	60.0	2.88
North American	8.605	19.7	171.0	8.20
Pacific Gas & Electric	6.261	25.4	159.7	7.66
Pacific Tel. & Tel.	1.805	110.3	199.2	9.57
Public Service of N. J.	5.503	41.2	227.0	10.89
So. Calif. Edison	3.115	21.6	67.8	3.25
Standard Gas & Elec.	2.163	6.1	13.2	.63
Twin City Rapid	0.220	3.1	0.7	.03
United Gas Improvement	23.252	15.1	351.7	16.87
Western Union	1.045	44.4	46.5	2.23
Total	29.511		2084.2	100.00
Index of 20 Utilities =		2084.2 -	70.62	
		29.511		

APPENDIX

Standard Statistics Index of 90 Stocks

Group	Total Weights	Weighted Prices Sept. 3, 1935	Weighted Value	% Influ- ence on Average
50 Industrials	2	11894.7	23789.4	79.50
20 Rails	1	1962.3	1962.3	6.57
20 Utilities	2	2084.2	4168.4	13.93
Total			29920.1	100.00
Index of 90 Stocks =	<u>29920.1</u>	= 89.03		
	336.068			

APPENDIX V

Standard Statistics
Weekly Averages

Early in June 1936, the Standard Statistics Company published a new edition of their statistical base book, in which a number of revisions of the Standard Statistics Weekly Averages appear. A number of changes have been made in the component stocks of the minor groups, and the total composite was reduced from 421 to 419 stocks.

The following shows the revised list of groups:

419 Stock Composite
347 Industrials
32 Rails 40
Utilities

6 Advertising	5 Agricultural	5 Office & Bus. Equip.
Machinery	9 Airplane	14 Oils
4 Transportation		5 Paper
5 Manufacturing		6 Radio
6 Apparel		10 Rail Equipment 4
10 Automobiles		Rayon 25 Retail
9 Autos, Excl. Gen.		Trade
Motors	17 Chain Stores	
General Motors	16 Auto	5 Retail Grocery
Parts & Accessories		4 Restaurant Chains
6 Auto Tires, Rubber	10	1 Tobacco Chain
Beverages	15 Building 14	5 50 to \$1 Chains
Chemicals		2 Drug Chains
4 Coal - Anthracite		6 Department Stores 2
4 Coal - Bituminous		Mail Order
6 Container		6 Shipping
7 Copper & Brass		3 Shoes
7 Cottons		3 Silks
10 Drugs		11 Steel & Iron
3 Electrical Equipment		10 Steel, Excl. U.S. Stl.
3 Fertilizers	25 Food (No	U. S. Steel
Meat)		7 Sugars
9 Gold Mining	14	5 Theatres
Household Products		24 Textiles
6 Lead & Zinc		10 Tobacco
3 Leather		6 Tobacco - Cigars 4
10 Machinery		Tobacco - Cigarettes
5 Meat Packing		4 Woolens
8 Mining & Smelting		13 Utility - Holding
5 Misc. Manufacturing		8 Utility - Operating
4 Misc. Services		5 Utility - Telephone
		10 Utility - Traction

At this writing, the Standard Weekly Group Averages are, without question, the most comprehensive series of stock price indexes available to the stock market student. A set of charts of these averages is almost essential in the management of a stock portfolio of any size.

The Gartley Laboratory has prepared such a set of charts, on specially designed weekly sheets (see page

51 of this chapter), showing the weekly closing level (as of Wednesday), and the ratio of the group level to the 419-Stock Composite. These charts cover the period from January 1934 to date, with ample space to carry the charts on to the last week in 1938. Copies of these charts, mounted in a durable binder, are available for a small fraction of the cost of the original set.

CHAPTER III

A CHART PORTFOLIO

REFERENCES

(Although many financial books, particularly those concerning Wall Street, make mention of stock market charts, none seems to have outlined a specific portfolio of charts which might be used in the study of the technical side of the stock market. It will be the purpose of this Chapter to make a modest beginning in supplying this information which is so needed by those persons who are just starting stock market study.)

In Chapter I, an effort was made broadly to suggest some of the problems which arise in stock market studies and in stock trading. The scope of the technical study field was sketched, and suggestions were made for studying the technical side of the market. In the preceding Chapter, the various types of charts or graphs employed in technical studies were described, with references to the large charts which accompany this work. The subject of "Averages" was also dealt with.

Now, before proceeding to a detailed review of the methods employed by the stock market technician, in studying stock price trends, let us examine briefly what may be termed as an ideal chart portfolio.

The Practical Side Necessary Charts

As we proceed through the Chapters which follow, it will be found that constant references are being made to a small group of charts, and it will become apparent that certain charts are absolutely essential in technical studies. Without these, the whole subject becomes impractical.

Charts are just as necessary to the technical student as medical instruments are to the surgeon, or mechanical paraphernalia to the chemist, or a law library to the lawyer. They are the instruments or raw material of the trade. As in any profession, the proper selection and quality of the instruments used has an important effect on the results accomplished.

Unfortunately, many stock traders who have not had the benefit of special training know very little about choosing the best suited charts. To make a logical study of stock price movements, a minimum number of charts is essential. On the other hand, many market students, not accustomed to organized research, prolifically waste time and effort in preparing useless charts. The type and necessary number of charts naturally depend upon the final purpose of each individual user. A market student interested only in the intermediate trend (which should be the chief interest of most students) requires different charts than the trader interested in the minor

trend, or the investor interested only in the major trend.

As the market is a living thing, changing from day to day, one of the greatest essentials in studying stock price movements by means of charts is that they be kept up to date. A chart portfolio allowed to lag for a week or a month is as useless as an automobile without gasoline. Thus, it is essential that the number of charts used be kept at such a minimum that the task of keeping them up to date does not become so burdensome as to discourage the whole study.

This suggests another vital point. A mere keeping of charts is only the beginning. Nice pictures do not make stock market profits. By far the greatest emphasis, of course, has to be placed upon the study and interpretation of the price trends which the charts are picturing from day to day and from week to week. A few well-chosen charts, religiously studied, can be of far greater use in making decisions to buy and sell stocks, than a large portfolio including several hundred stocks, which receive only casual attention.

In Chapter I, it was suggested that the primary object of technical students was the determination of two main questions, namely:

1. "When" to buy or sell, and
2. "What" to buy or sell.

Naturally, a chart portfolio must be systematically arranged, with a view to providing the means for answering these primary questions.

As the "When" to buy or sell question is essentially one of determining the direction and reversal of price trends, as a whole (it being conceded that most stocks follow the market), this problem is studied by means of charts of the averages.

As the "What" to buy or sell question is essentially one of determining the relative movements of the more important major and minor groups, as well as numerous individual stocks, the problem is studied by means of charts of these various units.

It will become obvious as we proceed through coming Chapters, that a systematic study of the

market requires a group of a minimum number of charts, for each of these branches of study. As in the choice of instruments used in any profession, there are a variety of charts which may be used in studying the "When" question. However, there are very few alternatives in the necessary charts which must be employed in studying the "What" question.

A most important aspect of selecting charts for a portfolio is that they be tied together to one basic study, in order that the user may develop an unconscious understanding of the study as a whole. For example, if the "When" question studies are based upon observing the movements of the Standard Statistics daily average, the group and individual stock studies used in studying the "What" question should be related to the Standard averages; while if the Dow Jones averages are the base studies for the "What" question, the group and individual stock studies should be related to these.

Chart Portfolio Should Be Designed to Meet Requirements

In laying out a chart portfolio, the first essential is naturally a study and understanding of the final objectives of the user. There is no point in having an elaborate portfolio which requires arduous labor to keep up to date, if the user's total interest in the market (limited by his capital account) represents only a few thousand dollars. On the other hand, an investment counsel organization, an investment trust, or a Stock Exchange firm, catering to a number of clients, can justifiably employ a substantial number of studies which may require the full time of one or two persons to keep up to date. The large individual trader can also easily justify the expense of a comprehensive study.

In the following resume, two chart portfolio programs will be suggested. The first will include the minimum number of charts required for an intelligent study of the technical side of the market. The second will encompass a more comprehensive program. Somewhere between the two suggested programs will probably lie the ideal portfolio of the average reader.

General Classification of Charts

As we will learn in Chapters IV, V and VI, stock market trends are customarily studied in terms of the long-term, the major, the intermediate and the minor trends. As each of these classifications is more or less dependent upon the matter of time, charts used in their study, which is part of the approach to the "When" question, may be classified according to the following table, as customarily used by technical students:

Time Period of Charts	Trend in Which They Are Used
Monthly	
Weekly	Major
Daily	Intermediate
Hourly	
Less-than-Hourly	Minor

EVERY SALE

This classification applies to charts of the averages, in studying the "When" question, and to charts of individual stocks in studying the "What" question.

Monthly Charts

Samples of monthly charts are Charts 1, 2, 3, 4, 20, 21 and 27, which include studies of the Axe-Houghton, *The Annalist*, the Dow Jones, the New York Times, and the New York Stock Exchange averages. For a minimum study, a monthly bar chart like Chart 1 of the Axe-Houghton, Chart 4 of the New York Times, or Chart 27 of the Dow Jones Industrials, is sufficient. The New York Stock Exchange average may be observed simply by obtaining copies of the *New York Stock Exchange Bulletin* regularly.

A preferred substitute for any of these, in a minimum chart portfolio would be the Standard 90-stock index high-low bar chart, monthly. One monthly chart is sufficient. The Axe-Houghton (Chart 1) and *The Annalist* (Chart 2) have some advantages, in that they run back for many years. In a comprehensive program, monthly bar charts of the Dow Jones Industrials, Rails and Utilities, or preferably the Standard Statistics Industrials, Rails and Utilities might be included.

No monthly individual stock or minor group charts are suggested in the minimum study, and it is questionable if they have great value in a comprehensive study. Weekly charts are to be preferred, because they present a more useful picture.

Weekly Charts

Sample weekly charts are Charts 5, 16, 24 and 41. Chart 5 shows American Can, an individual stock, while Charts 16 and 24 show the Dow Jones Industrial average, and Chart 41 shows Chrysler.

For the average trader who is interested only in the longer swings, or the investment trust manager, primarily interested in the major trend, weekly charts are, without question, to be preferred over all others, because they present sufficient detail of price movement, and yet do not confuse long-term judgment by the numerous minor trend fluctuations in which the longer-term investor or trader shrewdly chooses to have no interest. For a minimum portfolio, weekly bar charts of the Dow Jones 70-stock composite, 30 Industrials, 20 Rails, 20 Utilities, present a good "When"

question background. Better yet, weekly charts showing the high, low and last of the Standard 90-stock average, the Standard 50 Industrials, 20 Rails and 20 Utilities might be used. As a poor third alternative, weekly charts of the New York Times 50 and Times 25 Industrials and 25 Rails, or the New York Herald-Tribune 100 stocks, 70 Industrials and 30 Rails, might be suggested. For students interested primarily in Industrial stocks, a weekly chart of *The Annalist* 72 Industrials might be recommended; or as a combined average, including 10 Rails, *The Annalist* 90-stock index.

For a minimum study, either the 4 Standard Statistics, or 4 Dow Jones averages are to be preferred. In a comprehensive study, the Standard, Dow Jones, and the Herald-Tribune 100-stock average might be included.

Weekly charts of the minor group averages, such as Aircraft, Automobile, Building and Chemical groups, have an important place in a comprehensive program, but of necessity must be omitted from a minimum program unless the student subscribes to *The Annalist* which publishes excellent group charts. However, the minimum program should include, providing daily charts are not used, a group of from 50 to 100 bar charts of individual stocks.

Daily Charts

Samples of daily charts are shown in the cases of Charts 7, 8, 15, 22 and 23, which show the Dow Jones and Herald-Tribune averages, and also Charts 25, 40 and 42, which show Delaware & Hudson, Chrysler and U. S. Steel respectively. Charts 37, 38 and 39 illustrate daily charts of groups.

Daily charts of both averages and individual stocks are extremely useful to all market students who have the time and facilities to keep them up to date. They are especially useful to those interested in minor trends. However, as we will learn later, the average person interested only in the intermediate trend, finds daily studies, which include the minor trend, of great value in making more timely intermediate trend commitments.

Probably the largest number of technical studies are conducted with daily charts. As to the averages, about the same selection of daily charts, as outlined above for weekly charts, applies. In the minimum program, the market student is obliged to choose between weekly and daily charts, as the labor in keeping them up to date usually rules out the possibility of keeping both. In more comprehensive programs, where the work of keeping charts current is not a problem, a series of both types, covering the same averages and stocks, proves extremely useful. Some individual students who like to cover a broad field use a combination of weekly and daily charts, keeping weekly charts of the averages and individual stocks in which they have a general interest, and daily charts of those in which they have a special, or particularly active interest.

For the minimum study, charts including from 20 to 30 individual stocks, and not more than from 4 to 8 averages, is a good limit. From time to time, the aver-

age market student invariably adds charts to his portfolio as he becomes interested in certain stocks, with the result that a small portfolio is quickly expanded beyond the point where it can be kept up to date in the time available, if there is sufficient time left for study and interpretation.

In a comprehensive portfolio, daily charts for at least the Standard and Dow Jones averages should be kept, and most certainly a group of individual stock charts, including all of the important market leaders, as well as every other stock in which actual commitments are retained. In the larger organizations, where adequate mechanical assistance is available, a chart portfolio should include daily charts of all the minor groups, such as shown in Charts 37, 38 and 39, should be available, as well as individual stock charts for from 150 to 250 stocks, including representative issues in all the important group classifications.

Hourly Charts

Charts 11, 12 and 28 are samples of hourly charts of the Dow Jones averages. Hourly charts are chiefly valuable in two ways: First, they are an important part of the minor trend trader's working equipment; and secondly, they form a good sensitive barometer which informs the market student interested chiefly in the longer trends, of the detailed action of the market during the course of a trading day.

To the intermediate trend trader, the hourly charts are interesting because they provide him with an informed feeling. By annotating various news events, an hourly chart of the Dow Jones averages becomes an excellent historical record. But the intermediate trend trader knows by experience that his interest in the minor trend must be only academic, or his longer-term views may easily be distorted.

On the other hand, the minor trend trader must place great dependence upon hourly charts of the averages, because they show him the minor reversals which are the foundation of his operations.

The minor trend trader who wisely confines his operations to a limited list of 5 or 10 active leaders, frequently finds hourly charts of such individual stocks of great value. But unless practically all of one's time is being devoted to stock market operations, the keeping of hourly charts for individual stocks represents more work than is worthwhile. In the minimum study, the most that might be suggested is one chart showing the three Dow Jones averages similar to Chart 11, and this should be kept only if the data is conveniently available.

In a comprehensive study, wall charts of the Dow Jones averages will be found very convenient, as a means of "knowing what the market is doing" from day to day.

		"When Question Charts"		
Time	Study	No. of Stocks	Type of Stocks	Type of Charts
A. Monthly	1. Axe-Houghton	30	Industrials	High-Low Bar
	2. The Annalist	90	Miscellaneous	High-Low Bar
	*3. Standard Statistics	90	Miscellaneous	High-Low Bar
	4. Dow Jones	70	Miscellaneous	High-Low Bar
	5. New York Times	50	Miscellaneous	High-Low Bar
	*6. N. Y. Stock Exchange	All Listed	Miscellaneous	Line
B. Weekly	7. The Annalist	90	Miscellaneous	High-Low Bar
		72	Industrials	High-Low Bar
	*8. Standard Statistics	90	Miscellaneous	High-Low Bar
		50	Industrials	High-Low Bar
		20	Rails	High-Low Bar
		20	Utilities	High-Low Bar
	9. Dow Jones	70	Miscellaneous	High-Low Bar
		30	Industrials	High-Low Bar
		20	Rails	High-Low Bar
		20	Utilities	High-Low Bar
	10. New York Times	50	Miscellaneous	High-Low Bar
		25	Industrials	High-Low Bar
		25	Rails	High-Low Bar
	11. New York Herald-Tribune	100	Miscellaneous	High-Low Bar
		70	Industrials	High-Low Bar
		30	Rails	High-Low Bar
C. Daily	12. The Annalist	90	Miscellaneous	High-Low Bar
		72	Industrials	High-Low Bar
	13. Standard Statistics	90	Miscellaneous	High-Low Bar
		50	Industrials	High-Low Bar
		20	Rails	High-Low Bar
		20	Utilities	High-Low Bar
	14. Dow Jones	70	Miscellaneous	High-Low Bar
		30	Industrials	High-Low Bar
		20	Rails	High-Low Bar
		20	Utilities	High-Low Bar
	15. New York Times	50	Miscellaneous	High-Low Bar
		25	Industrials	High-Low Bar
		25	Rails	High-Low Bar
	16. New York Herald-Tribune	100	Miscellaneous	High-Low Bar
		70	Industrials	High-Low Bar
		30	Rails	High-Low Bar
	17. Breadth of Market		General Market	Line
D. Hourly		70	Miscellaneous	Line
		30	Industrials	Line
		20	Rails	Line
		20	Utilities	Line
E. Less-Than-Hourly	19. Gartley 20-Minute Sensitive Aggregate	15	Miscellaneous	Line

"What" Question Charts				
F Weekly	20. Standard Groups 21. Annalist Groups 22. Gartley Groups 23. N. Y. Herald-Tribune Groups 24. Individual Stocks	66 Groups 22 Groups 45 Groups 9 Groups	Miscellaneous Miscellaneous Miscellaneous Miscellaneous	Line Line line Bar or Line
G Daily	25. Annalist Groups 26. Gartley Groups 27. N. Y. Herald-Tribune Groups 28. Individual Stocks	22 Groups 45 Groups 9 Groups	Miscellaneous Miscellaneous Miscellaneous	Bar or Line Line Bar or Line
H Hourly	29. Individual Stocks			Bar
I. Less-Than-Hourly	30. Individual Stocks			Line

Less-Than-Hourly Charts

Charts 13 and 14 show a 15-stock aggregate and U. S. Steel common respectively, plotted at 20-minute intervals, while Chart 26 shows the half-hourly ranges on American Can. These are charts of what might be called the sub-minor trend. They are of use only to minor trend traders, and of course cannot be considered in a minimum program. As a matter of fact, less-than-hourly charts (of the averages) have no place in the study program of the average person interested in the stock market. They are working tools used only by the trader who keeps his eyes glued to the stock tape. Unless, skilled by long experience, one is accustomed to this type of chart, they are usually rather a dangerous instrument, producing many false impressions.

Every-Sale Charts

Figure 4, page 160 of Chapter VI, shows a sample line chart of every sale of Chrysler. This type of chart is, of course, useful only to the minor trend trader, tape reader, or pool operator who feels it necessary to have a graphic record of all the trading. The best that can be said about this type of chart is to sound a warning to keep away from them.

Outline of Chart Portfolio

On pages 84 and 85, a condensed outline of a complete chart portfolio is presented. It will be noted that this outline is divided into two general sections, covering the "When" and "What" questions, with nine general categories, with a total of 30 sections. The items which are starred may be considered as those which should be included in a minimum chart portfolio. At a later point, we will expand this outline to include a description of a more comprehensive program.

The person interested in the stock market as a sideline, who must devote the majority of attention to his profession or business, seldom has time both to keep up to date and study a chart portfolio of more than minimum size. If assistance for all the mechanical work is available, then group averages might be added

to the "What" question study (see page 88).

Assuming that a portfolio of charts has been decided upon, the next step in an organized plan is the determination of the specific phenomena which are to be shown on each chart. Naturally, various technical students hold different opinions as to this problem. We shall suggest the middle course between a group of studies which are too rudimentary to be useful, and a group which might be too complex to be practical. It is always to be remembered that in stock market study, a primary objective is to get results by the simplest means. Complicated studies which take a long time for the practical details of preparation are often accomplished too late to be worthwhile. The reader must guard against involved studies.

Let us divide our discussion of the specific phenomena on each chart by trends.

Long Term Trend Charts

As the long term trend is academic, and of only general interest, a single chart such as Chart 1, showing the Axe-Houghton Index¹ back to 1854, with the price trend plotted once a month, is ample. Some students may like to add a series along the bottom of the chart, showing the total volume of trading monthly, as, for example, in the case of Chart 21.

Others may choose to follow the long-term changes in various economic factors, as compared with stock prices, as shown, for example, in Chart 2. This may be done quite easily by carrying this chart forward with the monthly figures furnished in *The Annalist*,² which appear in the first copy each month. For those who may be interested in the Dow Jones averages, a graph

¹ LARGE WALL COPIES OF THIS CHART 42.1" BY 117.1" MAY BE OBTAINED FROM H.M. GARTLEY, INC.

² COPIES OF THIS CHART, MEASURING 9.2" BY 22.7", WITH OPEN SPACE TO CARRY ON FOR ONE YEAR, MAY BE OBTAINED BY WRITING TO THE ANNALIST, TIMES SQUARE, NEW YORK, ENCLOSING ONE DOLLAR.

similar to Chart 3 may be preferred as a long-term picture.³

Major Trend Charts

In studying the major trend, weekly charts showing the high and low, which might also include the weekly closings, with weekly volume of trading, such as Chart 5, are preferable. Some market students prefer to study the major trend by dividing the market into three major groups (Industrials, Rails and Utilities), making separate charts showing the weekly high, low and last of each. Unless a chart of this kind⁴ has 10 or 15 years' background (Rails and Industrials; Utility figures not available) including at least the two or three previous major trends (bull and bear markets), it is of little value.

More advanced technical students plot ratios of the three major groups to the market as a whole (see Chapter XVII) on weekly major trend charts, similar to the lines shown in Figure 17 of Chapter XVII. It is to be remembered that major trend charts are for the purpose of observing the general trends. Detail is not their objective.

Difficulty arises in drawing a line between major and intermediate trend charts, as many students use daily charts, such as Charts 7 and 8, with a background of three or four years, sufficient to cover the previous major trend studies. These are also used, of course, in studying the intermediate trend.

A typical major trend study of an individual stock is shown on Chart 41. Here we see a chart which includes the weekly price range, and weekly closing price; the ratio (see Chapter XVII) of price to the market (Standard 90); the weekly volume of shares traded; the ratio (see Chapter XIV) of shares traded to the market (total volume); and the weekly per cent net changes (see Chapter XIII). If individual stocks are used for both the "When" and "What" question studies, more data are needed than in the case of average charts, which are used for just the "When" question.

Intermediate Trend Charts

For intermediate trend study, charts showing the daily price range and total volume for both the averages and individual stocks are to be preferred, such as, for example, Charts 7 and 8 for the averages,⁵ and Charts 40 and 42 for individual stocks.⁵

³ COPIES OF THIS CHART, WHICH INCLUDES A TABULATION OF THE IMPORTANT ECONOMIC EVENTS SINCE 1875, WITH ROOM TO CARRY ON PLOTTING, MAY BE OBTAINED BY WRITING TO BARRON'S, 30 KILBY STREET, BOSTON, MASS., ENCLISING ONE DOLLAR.

⁴ WEEKLY CHARTS SHOWING PRICES AND VOLUME OF THE MORE IMPORTANT AVERAGES, ARE AVAILABLE (ADDRESS DETAILED REQUEST TO H.M. GARTLEY, INC.).

⁵ CHARTS OF ALL THE MORE IMPORTANT AVERAGES AND INDIVIDUAL STOCKS, INCLUDING WHATEVER BACKGROUND IS DESIRED, ARE AVAILABLE (ADDRESS DETAILED REQUEST TO H.M. GARTLEY, INC.).

On the average charts, the more advanced students customarily plot the daily high, low and last, 200-day moving average, 28-day moving average, and total volume of trading (see Charts 7 and 8). For individual stocks, which are used for both "When" and "What" question studies, the daily high, low and last, the price ratio the market, the shares traded, the volume ratio (per cent of total trading) are the most important phenomena (see Chart 40). More advanced students who have the time also observe the daily per cent change in the closing price (shown on the bottom line of Chart 40).

Intermediate trend charts, to be really more useful, must have a background of from 8 to 12 months, which should include part or all of one or more of the previous intermediate cycles (see Chapter V).

Minor Trend Charts

A large variety of charts are used in studying the minor trend. As the only hourly averages available include the Dow Jones Industrials, Rails and Utilities, these are the chief general market charts.⁸ Usually market students plot all three averages, including total volume of trading hourly, on one chart, such as, for example, Chart 11. A background of from 3 to 6 months should be available, if such charts are to be of any real value. It is good practice, and very useful, to annotate the important financial news items concerning the market as a whole or any of the three major groups, on a chart of this kind. Thus the technical student is able to build up an excellent historical background for future reference.

For those market students interested chiefly in the minor trend, average charts, including a small list of stocks, such as the 15-stock aggregate shown on Chart 13, which is plotted at intervals of 20-minutes each, are very valuable⁷ (see page 159, Chapter VI).

Individual stock minor trend charts, plotted hourly or at shorter intervals, usually include only the price trend, although some students include volume at short intervals. The amount of work necessary in doing this, however, is beyond the ability of most students.

Minor trend charts for both the averages and individual stocks, to be most useful, require at least two or three months' background.

A Minimum Chart Portfolio

For the average reader interested in the intermediate trend, we might tabulate a detailed minimum chart portfolio, as follows:

⁶ WORKING REPRODUCTIONS OF CHART n, WITH SPACE FOR CONTINUING THE PLOTTING, ARE AVAILABLE (ADDRESS DETAILED REQUEST TO H.M. GARTLEY, INC.).

⁷ WORKING REPRODUCTIONS OF CHART 13, COVERING WHATEVER BACKGROUND IS DESIRED, ARE AVAILABLE (ADDRESS DETAILED REQUEST TO H.M. GARTLEY, INC.).

1. A long-term trend chart, such as Chart 2, which can be reviewed once every three months, by consulting the quarterly issues of *The Annalist*. (With *The Annalist* quarterlies available there is no need to keep this long-term chart.)
2. A major trend chart, of either (a) Standard 90, (b) Dow Jones 70, (c) Herald Tribune 100, (d) Times 50, plotted weekly, showing weekly high, low and last price, and weekly total trading, such as, for example, Chart 4.
3. Intermediate trend charts, as follows:
 - a. One chart each showing the daily price range and closing of the three major groups, (Industrials, Rails and Utilities), plotted daily, Standard Statistics or Dow Jones, the Industrial chart to include total volume of trading.
 - b. From 20 to 30 individual stock charts, including price range and closing, price ratio to market, shares traded, and volume ratio (like Chart 40).
4. A minor trend chart, showing the Dow Jones averages (Industrials, Rails and Utilities) hourly, with hourly volume of the total market.

If the program has to be cut from the above outline, the hourly chart might be dropped, and the volume ratio on the individual stock charts might also be omitted.

Market students interested in the Dow Theory might substitute a geometric closing line chart such as Chart 15, for a high, low and last bar chart of the Industrial and Rail averages, keeping the Utilities on a separate chart.

It is always a problem for the person just beginning technical studies to select the individual stocks for his technical studies. No set list could be suggested which would be more than temporarily current. Perhaps the best general guide in the selection of individual stocks is to include only such stocks as have appeared in the 100 most active list in the preceding year. The average person interested in the stock market as a sideline should avoid issues which are not steadily active. Also, the very low-priced stocks ranging from one to three or four dollars usually limit speculative opportunities because the brokerage commissions and tax charges are proportionately large compared with the profit margin available.

With the exception of Case, Deere and perhaps Johns-Manville, the list of stocks which appears on page 171 of Chapter VI may be considered well suited to the purpose of the average intermediate trend trader. Also, the stocks which appear in the individual stock section of the author's weekly *Stock Market Review* may be considered good candidates for the average minimum chart portfolio. There is a special advantage in having the charts of these stocks which appear in the weekly *Review*, in that the running discussions of them may be more usefully followed if charts are available.

This proposed minimum portfolio of charts should require between 30 and 50 minutes a day to keep them

up to date, depending upon the skill and practice of the user. A person to whom the subject is new might easily spend 1 1/2-2 hours in the work of keeping even this small portfolio up to date. However, with a month or two of practice, most persons should be able to cut the time down to about 40 minutes a day.

Intermediate trend traders, except at critical points, sometimes make a practice of plotting their charts twice a week, so that two periods of 2 or 3 hours each are adequate for the purely mechanical work. This method leaves time in the remaining part of the week for the necessary study and interpretation of the charts. The ideal situation is, of course, to have someone do all the mechanical work once a day, preferably before the market opens. With the mechanical work out of the way, a half-hour conscientiously spent every day in consistent study of even a small chart portfolio, will, in the course of a year or two, tremendously broaden the average person's understanding of stock price movements; and unless one has no aptitude whatsoever for stock trading, (there are many such persons), material benefits should result in two ways: First, the average person should attain a feeling of much greater certainty about stock market operations; and secondly, a much more specific viewpoint as to trading opportunities should develop.

The minimum chart portfolio suggested above cannot be considered as wholly ideal, because it is too limited. But it is far better to use a small portfolio of this kind to its fullest extent, than to attempt a much broader study sacrificing the necessary time for interpretation and the planning of market operations, in favor of the mere mechanical work which, in itself, does not make profits.

Comprehensive Study

The investment counsellor, investment trust manager or corporate trustee in charge of stock operations, or the large individual stock market trader naturally requires a far more complete program which should include most of the items in the outline presented on pages 84 and 85. Reducing a technical study chart portfolio to the essentials required by those interested in a larger way in the market, it will be found that from 200-300 charts, requiring from 6 to 8 man-hours a day to keep up to date, are usually needed.

For the major trend monthly and weekly charts showing the range of the Standard Statistics and Dow Jones averages (composite, Industrials, Rails, Utilities) form the background. To these should be added daily charts of the Standard and Dow Jones composites and groups. These are used for the intermediate trend study.

As part of the "When" question study, a comprehensive program should include at least one breadth-of-the-market chart, such as Chart 32.

To study the Dow Theory, another chart should be included on which the daily closing levels of the Dow Jones Industrials and Rails are plotted in geometric style, such as in Chart 15.

Added to these to complete the "When" question

picture there should be an hourly chart of the Dow Jones averages. All the average charts should carry a series showing volume as well as price. The Standard 90 should carry total volume for the market as a whole; as the volume for the Standard major groups (Industrials, Rails, Utilities) is not published, these charts need carry no volume; total market volume should be carried on the chart of the Dow Jones 70 stock composite; and the chart of each of the Dow Jones major groups should carry volume for that group.

This makes a total of 19 charts for the averages, including the breadth of market study. Some readers might feel that there was no need to keep charts of both the Standard and Dow Jones averages. However, the author believes that in a comprehensive study, both averages must be included, because they serve different purposes, in that on the one hand, the Dow Jones are very popular, widely talked about in financial circles, and thus necessary to informed market opinion. On the other hand, there is no question about the statistical superiority of the Standard averages, which, for this reason, should form the background of comparative studies used in selecting groups and individual stocks. Thus both groups of averages are really needed.

Group Charts

In the "What" question study department of a comprehensive program, the necessary charts are divided into group charts and individual stock charts. The chief difference of the comprehensive program, as compared with the minimum program, is that the former includes many group studies which cannot be practically included in the latter. Unfortunately, the sources of data for group studies are somewhat limited. Unless a considerable amount of computing is to be done, either the Standard Statistics weekly group averages, or the author's daily group averages have to be employed. For the major and intermediate trends, the Standard Statistics weekly group averages⁸ are without question the outstanding source of data for group studies; while from the minor and intermediate trend viewpoints, the minor group averages furnished by the author,⁹ because they are available at daily intervals, are probably most useful.

In a comprehensive program, which is used for the major trend, such as for example, in supplementing the work of an investment trust, weekly closing line charts of the Standard Statistics group averages,⁸ of which there are 66, give broad coverage of the im-

⁸ IN APRIL, 1936 THE GARTLEY LABORATORY PUBLISHED A SET OF 66 STANDARD STATISTICS WEEKLY GROUP CHARTS PREPARED ON SPECIALLY DESIGNED LOGARITHMIC PAPER 20" X 28", COVERING BACKGROUND BEGINNING THE FIRST WEEK IN 1934 WITH ROOM TO CARRY ON UNTIL THE END OF 1938. EACH CHART SHOWS THE PRICE TREND OF A GROUP WITH ITS RATIO TO STANDARD

419 STOCKS COMPOSITE. THIS PORTFOLIO OF CHARTS IS NOT ONLY INVALUABLE FOR MARKET STUDY, BUT ALSO MAKES AN EXCELLENT EXHIBIT FOR BROKERS, INVESTMENT COUNSELLORS, ET CETERA.

portant investment groups. The data for these are published by the Standard Statistics Company, and appear weekly on Tuesdays in the *Standard Statistics Trade and Security Bulletins*. Where greater detail is useful in studying the intermediate trend, the Gartley group aggregates and group ratios, daily, (see Chapter XVII) have considerable advantage, although there are fewer groups (45 instead of 66). A comprehensive portfolio should certainly include a series of one or the other of these group averages.

For most market students interested in the management of fairly large sums, the Gartley daily group aggregates" or the Standard weekly group indexes *with their ratios* should prove to be of the greatest value, first, because they are available daily, and secondly because the group ratios enable a far more complete comparative study of current market action.

The weekly group charts should have a background of from two to five years, preferably including the previous major trend; at least group studies should encompass a two or three year background. For the most part, line charts showing weekly closings of the averages are sufficient, although bar showing the weekly ranges, in presenting somewhat greater detail, are useful. Volume figures for the groups are not available.

The daily group charts should have a background of at least one year. In these, a closing line is quite sufficient. Unless all the figures including daily high and low as well are available, the work involved in making bar charts of the groups is excessive.

Although there are other group averages, such as *The Annalist*, and the Herald-Tribune groups, there is no point in using these less comprehensive group series if the others are available, because the Herald-Tribune group averages are very badly balanced, as we learned in connection with the 15 Manufacturing stock group in the discussion in the previous Chapter. *The Annalist* group averages, which now include 22 groups, are available in small charts published weekly on a daily high-low basis. For the student with little time available, these are by far the best group studies available.

Individual Stock Charts

For the comprehensive program, a large number of individual stock charts are essential. Usually, a well-diversified corporation or individual list of stocks will include from about 50 to 110 individual issues; and in the course of, let us say, a five-year period, the changing interest from time to time may include about 200 of the more active stocks of outstanding corporations.

Carefully checking through the list of stocks which appear in the larger trust portfolios, and upon the approved lists of the outstanding investment counsellors, we find approximately 110 individual issues

⁹ SEE APPENDIX I, CHAPTER II.

have appeared in the course of the last three years, as those in which the greatest interest centers.

It seems safe to say that a comprehensive portfolio of individual stocks should include about 200 issues, varying, of course, dependent upon issues in which holdings are retained, or in which there is believed to be a future potential interest. The amount of time involved in keeping a portfolio of individual stocks up to date, particularly if two persons are employed to do the mechanical work, differs only by an hour or two each day, if 100 or 200 studies are maintained.

The ideal layout for a comprehensive program is a series of both weekly and daily charts, with weekly charts for those issues in which there is a lesser or a dormant interest (these should have a background of at least 2-3 years),¹¹ and daily charts for the issues in which there is a more active interest. Like Charts 40 and 41, the daily and weekly charts should include the price range and closing, the price ratio to the market (Standard 419 or 90-stock index), the shares traded, and the ratio of volume (percentage of total trading). The daily charts should have a background of at least 8 to 12 months.

For the large corporate investor, the shares traded daily are of greater significance than for the small trader, because it is often necessary to determine the volume of shares which might be offered for sale, or bid for, without running the market up or down substantially. An observation of the previous shares traded figures is helpful in estimating the answer to this question.

Other Charts

Depending upon the time available, the objectives of the user and the detail which individual experience indicates is most useful, a comprehensive chart portfolio can be varied to include a number of experimental charts, as well as those that might be employed in checking the results obtained from practical operations. For example, if there is a substantial trading interest in from three to five stocks, it is worthwhile making a detailed study of these which might include, in addition to the weekly and daily charts, hourly or even half-hourly charts, or, in a few rare cases, every-sale charts.

As for checking operations, it is always worthwhile to make ratio charts of the switches which are made

"WEEKLY RATIO CHARTS OF ALL THE MORE ACTIVE INDIVIDUAL STOCKS ON THE BLG BOAHD AND CURB ARE AVAILABLE, SHOWING (1) WEEKLY HIGH, LOW AND LAST; (2) RATIO OF CLOSING TO STANDARD 419 STOCKS; (3) SHARES TRADED WEEKLY; AND (4) RATIO OF SHARES TRADED TO TOTAL VOLUME. THESE CHARTS ARE DRAFTED ON THE SAME FIVE-YEAR SHEETS (20" x 28") AS THE STANDARD WEEKLY GROUP CHARTS MENTIONED IN NOTE 8, AND HAVE A BACKGROUND BEGINNING THE FIRST WEEK IN 1934 WITH ROOM TO CARRY ON UNTIL THE LAST WEEK IN 1938. EACH CHART HAS A PRINTED FORM AT THE RIGHT OF THE PLOTTING GRID WHICH ENABLES THE USER TO ACCUMULATE CONVENIENTLY ON THE CHART SUCH DATA AS CAPITALIZATION OF COMPANY, EARNINGS, DIVIDENDS, ET CETERA. IN REQUESTING INFORMATION, PLEASE STATE SPECIFIC STOCKS IN WHICH THERE IS AN INTEREST."

from time to time in a large portfolio of stocks. For example, let us assume that an investment manager decided to sell 1000 shares of Chesapeake & Ohio and buy an equivalent amount of Pacific Gas & Electric as of January 2, 1935. A chart can easily be constructed to show the outcome of the switch for any given period of time following the operation, by merely dividing the daily or weekly dollar value of the number of shares of the stock purchased by the comparable daily dollar value of the shares which were sold. Naturally, if this resulting percentage rises, and the line or ratio on the chart shows an uptrend, the switch has been profitable; while if it declines and shows a downtrend, the evidence is against the timeliness of the change. Such charts should carry a price line for the new issue purchased.

Velocity Studies

Included as part of a comprehensive program of technical studies, tabulations showing the relative movements of various individual stocks as compared with the market, such as are shown in Appendix I of Chapter XVII, although they are not charts, form an important adjunct to a chart portfolio. Comparisons of this type should be kept on every stock in which there is an important interest. In the minimum program, time does not permit much effort in this direction, although, if the market student is willing to spend one hour every now and then, one tabulation for each stock for which he keeps a chart, can easily be maintained with a small amount of clerical work, providing the refined data are available (see Appendix I, Chapter II, entitled "Comparative Velocity"). The subject of velocity studies is discussed in detail in Chapter XVII.

Ratio Charts

In laying out a portfolio of charts for stock market study, the first important decision which must be made concerns the type of chart which will be used. So many persons who are beginning technical studies, ignorant of the great advantage of the ratio, or logarithmic, chart in stock market studies, choose arithmetic charts because they seem less complicated. Later, by the time their market studies have advanced, and they become conscious of the need for ratio charts, the labor entailed in shifting a portfolio from arithmetic to ratio sheets proves so great a barrier as to prevent the change. And so on and on, continually losing the advantages of a ratio chart, which could have easily been gained if ratio charts had been chosen instead, and the time had been taken to learn how to use them in the beginning.

After one learns of the simplicity of the ratio chart and is aware of its great advantages, it is hard to have patience with a full-grown adult in good mental health, who claims that "logarithmic charts are too complicated for him." In any event, the problem must be settled as to which type of chart is to be used. The author, with all the force at his command, suggests the logarithmic chart in preference to the arithmetic

chart, because a portfolio of logarithmic charts, all plotted on the same size ratio scale, such as Charts 40 and 42 enable universal comparison of averages, groups and individual stocks, which is an advantage that out-ranks all of the minor short-comings of the ratio scale.

In making this plea for the logarithmic or ratio chart, in fairness to the subject, it must be said that there are some very well informed technical students who after using both ratio and arithmetic charts have chosen arithmetic for the majority of their studies their chief claim is that the arithmetic chart enables them to study reversal patterns with greater facility, because regardless of price level the price patterns can be drafted as to appear very similar to the eye.

Sources of Data

As was noted in the previous Chapter, a vast majority of the raw and refined figures necessary in the preparation of the chart portfolios which have been discussed in this Chapter, may be obtained with the least effort, at a small cost, through a subscription to "The Gartley Stock Market Data Service". This service was the outgrowth of a demand which arose in New York City, from a group of more than 300 persons who attended lecture courses given by the author during 1933 and 1934. The service (which has never been operated as a profit making venture) is calculated to present briefly comprehensive and reliable figures, including all those necessary for a broad technical study of the stock market. One of the chief ideas was to furnish refined data, from which the user could extract the final figures to be plotted on the charts, without any of the intermediate effort of collection, computation and arrangement of raw data. Issued daily, weekly and monthly, covering market statistics for those three periods, this Data Service is mailed every evening in New York, and with air mail, reaches 1000 miles out of New York early the following morning. Sample copies appear as Appendix I, of Chapter II.

Chart Paper

Chart paper necessary for the chart portfolios discussed above, can be obtained from the sources listed in the previous Chapter.¹²

Begin In a Small Way

Readers to whom technical studies are new would do well to begin their charts in a small way, and expand their chart portfolios gradually, as their learning of the subject increases. No matter how much the new market student may study the contents of these volumes, he will not be on the road to the practical use of the theories outlined, until he has a chart portfolio in operation, with charts at hand.

Thus, the first step in technical study is taken. Then it is a matter of persistent study and practical experience. The longer the delay in getting a chart portfolio started, the longer practical results are postponed.

However, large and comprehensive chart portfolios should be started only after very careful study of the objectives which a chart portfolio is designed to accomplish. Careful consideration of every detail, before the chart portfolio is begun, should save time, effort and expense later.

NOW LET US PROCEED TO THE POINT AT WHICH WE BEGIN THE STUDY OF STOCK PRICE TRENDS. IN THE NEXT FOUR CHAPTERS, WE WILL LOOK INTO THE BACKGROUND OF THE TECHNICAL APPROACH.

¹²THE AUTHOR'S ORGANIZATION STANDS READY TO ADVISE WITH INDIVIDUALS AND CORPORATIONS INTERESTED IN INSTALLING CHART PORTFOLIOS. UNLESS A LARGE AMOUNT OF ATTENTION IS REQUIRED, THERE IS NO CHARGE FOR THIS SERVICE.

CHAPTER IV

THE LONG TERM AND MAJOR TRENDS

"For a better understanding of the present, we study the past." Anonymous

REFERENCES

"The Stock Market Barometer"
 "Investment"
 "Investment for Appreciation"
 "The Dow Theory"
 "Story of the Averages"
 "Common Stocks as Long Term Investments"
 "Forecasting Stock Market Trends" "Interest Rates and Stock Speculation"

In Chapters I, II and III, we have attempted to outline the objectives and materials of technical study to provide the reader with a general introduction to technical studies, and a working knowledge of the use of graphs and charts in carrying on a such a study.

Now let us turn to a detailed study of the technical approach to stock price trends. Let us first remember that in Chapter I, the broad conception of technical studies was divided into two general categories: first, the question of "When" to buy or sell; and second, the question of "What" to buy or sell.

Chapters IV to XV, inclusive, will be devoted primarily to the "When" question.

A Knowledge of Long Term and Major Trends Essential

The ability to make consistent stock market profits is deep-rooted in a broad understanding of the background in which stock prices fluctuate. Concrete conclusions concerning the "When" question necessarily arise from an understanding of this background.

A study of the "When" question is essentially a study of trends.

THE PRIMARY OBJECTIVE OF THE TRAINED TECHNICAL STUDENT IS THE DETERMINATION OF REVERSALS IN TRENDS. TO BUY AT A BOTTOM AND SELL AT A TOP IS THE IDEAL OBJECTIVE WHICH EVERY WELL-INFORMED STOCK MARKET STUDENT SEEKS TO ACCOMPLISH. TO ANTICIPATE SUCH REVERSALS, OBVIOUSLY WE MUST STUDY PRICE TRENDS.

Simultaneously, stock prices appear to move in four definitely and well-marked trends, namely:

1. Long Term (growth of the nation)
2. Major, or primary (bull and bear markets)
3. Intermediate, or secondary
4. Minor (day-to-day fluctuations)

Let us, in this Chapter, examine and study briefly the Long Term and Major Trends. The Intermediate Trend is exhaustively treated in Chapter V, while the

William Peter Hamilton
 L.L.B. Angas L.L.B. Angas
 Robert Rhea Robert Rhea

E.L. Smith
 K.S. Van Strum
 R.N. Owens and CO. Hardy

Minor Trend is likewise presented in Chapter VI.

Long Term Trend

Brief study of Chart 1, showing the course of stock market prices during the past 80 years, shows that the many bull and bear markets therein were really part of a steady upward movement, which held within parallel lines until 1931. This is generally known as the long term trend. Its consistent upward tendency caused many students to call it the "growth of the nation trend", as they felt it reflected the steady expansion of American Industry and Trade. Many exponents of long term trend "investment" began to appear between 1924 and 1926. They pointed to the fact that since the 1870s, at least, each bear market had ended at a higher low point. In 1931, of course, this theory was shattered.

As a matter of fact, long term indexes, in many cases, of necessity have been compiled from data so obsolete as to be of questionable statistical accuracy. Furthermore, in this mechanical age, many industries become obsolete in a few short years, as new inventions create new fashions and markets. What is a necessity in one generation becomes a quaint antique in the next, as witness the bicycle and the horse and carriage as modes of transportation. Chart 3, showing the Dow Jones Rail average, indicates that the carrier shares appear to have made their peak as desirable investment and speculative mediums, in the bull market which ended in 1906. Note the divergence of the Rails and Industrials from 1907 until 1924, indicated by the shaded areas on Chart 3. Now we are seeing trucks and planes, and fast freight boats take an important slice of their business permanently from them.

"Common Stocks as Long Term Investments"

In 1925, an ably written book¹ appeared, plausibly

¹ "COMMON STOCKS AS LONG TERM INVESTMENTS", BY EDGAR LAWRENCE SMITH.

expounding the theory that the "growth of the nation trend" made common stocks the best investment medium for holding over a period of years. Naturally, many figures were available at the date to support the theory. In 1928, when prices rose above the long term trend line projected across the tops of previous bull markets, the idea was hailed with increasing enthusiasm and in 1929, large "investment trusts" were formed to purchase "investment" common stocks (at prices which were 30 to 50 times annual earnings per share). Despite the devastating decline in prices in 1929 and 1930, many optimists still held that this was merely a correction which would hold within the lower limits of the upward channel of so many years' duration. (See Chart 1) Continued decline in 1931 and 1932, however, soon brought prices through the lower parallel trend line down to the level of the 1890s, and seriously impaired the value of the long term investment theory.

Reviewing the Long Term Trend

Chart 1 depicts the movements of the well-known Axe-Houghton average for 80 years. Note that with only three important exceptions, the swings of this average are definitely within parallel trend lines during this long period. Interestingly enough, the violations of these lines were at the beginning and end of the period. The first violation was doubtless caused by the "hard times of the 50s". The next was on the upward side, due to the speculative fever of 1928 and 1929 (the "great error of optimism of 1929"). The following deep slide below the lower trend line may reasonably be called the technical correction for the previous excesses. Furthermore, such a decline would not appear unreasonable after more than 72 years of consistent uptrend.

The center trend line (marked "A" on Chart 1) may be called the "growth of the nation" line, representing the industrial development of a previously unexploited country, and the transforming of natural resources into "capital", in the form of production facilities, goods and money. Some pessimistic observers hold that this "growth" line is a thing of the past, because we have quite thoroughly exploited our resources, and will now have to live on our "fat". They hold that the slackening of our population growth, due to restricted immigration and falling birth rate which scientists predict will give us a stable population by 1950 (like France), has changed the fundamentals behind this line, and it will flatten out or possibly take a declining trend. Many observers feel that we must develop foreign trade to maintain our economic status, as England and Holland have done. Our vast area compared with those countries, make this questionable.

What of the Future?

Leaving those theoretical points to the economists, we will examine the question as to when stock prices, having penetrated the lower trend line upside, may be expected to advance to the upper trend line. Let us

again review Chart 1. The last similar occasion, in the 1850s, showed a break down through the lower trend line and a rebound up through it in one year's time (B to C). But six years were required for the average to touch the upper trend line at D. Considering the increased velocity of the modern market, it seems likely that four or five years will pass before the upper trend line is touched, if then. An imponderable factor is thrown into the picture by the efforts of Franklin Delano Roosevelt beginning in 1933, to develop a "planned" and "controlled" economy, which, if and when it is carried to its logical conclusion, means socialization of money making activities. Stock traders naturally hope it will never be concluded.

Long Term Cycles

Countless efforts have been made to correlate the longer stock price movements with natural phenomena, such as sun spots² and other astronomical matter, and with human activities and the results therefrom, such as business cycles. The steps presented to connect sun spots and stock prices are about as follows—sun spots affect the seasonal influence on the land; these influences affect crops and animal life; volume of crops affects world commodity prices; these affect commerce; commerce influences finance and corporate profits; and these in the last analysis are the fundamental causes of stock price fluctuations. Suffice it to say that proof of such correlations having practical value is meager, and the reasoning frequently faulty.

Study of the long term price trend, however, shows definite cycles from one top to the next, or one bottom to the next, of 3, 5, 7 and 10 years.

Ten Year Cycle Theory

A very interesting case has been made for the theory that stock prices move in constant ten year cycles. "Constant" is defined by the dictionary as, "steady in purpose, invariable, continually recurring, remaining always the same under the same conditions". For the most part, this term should never be applied to stock market phenomena.

Various stock price averages over the past fifty years show a remarkable similarity of movement over certain chosen ten year periods of time. These recurring movements are visible on Chart 1. It should be remembered that these cycles are not held to start in any restricted group of years. On the contrary, they are continually beginning and ending. It is possible to start at practically any year, go back ten years, twenty, thirty or forty years, and find an almost identical situation at each point. The assumption is, with a few exceptions, such situations will project and continue into the future.

For instance, numerous bull market tops have oc-

² FOR A COMPLETE DISCUSSION OF THE SUN SPOT THEORY, SEE "BUSINESS CYCLES, THE PROBLEM AND ITS SETTING", BEGINNING PAGE 12, BY DR. WESLEY C. MITCHELL.

curred in the years ending with 0, 3, 6 and 9; while numerous bear market bottoms have appeared in the years ending in 4 and 7. In the years ending in 5 and 8, bull markets were under way, while in the years ending in 1 and 2, no pronounced tendency appears.

Thus, it would have been profitable to have sold stocks in the first or second quarter of 1863, 1873, 1883, 1893, 1903, 1913, 1923, 1933.

Important buying points were available in midyear of 1884, 1894, 1904, 1914 (after the re-opening of the Stock Exchange), 1924 and 1934.

Notable selling opportunities were again available early in the years 1876, 1886, 1896, 1906, 1916 and 1926, with buying opportunities for re-purchases at about mid-year in each of these years.

Buying points late in 1857, 1867, 1877, 1887, 1897, 1907, 1917 and 1927.

Very important selling points in second and third quarters of 1869, 1899, (late in) 1909, 1919 and 1929.

Good selling points were also available in middle 1860, 1890, 1900, 1910, 1920 and 1930.

According to this ten-year cycle, the bear market low of 1932 was a few months late, in that it might have been expected in 1931. The selling period in 1933 theoretically should have been in the first, instead of second quarter. The buying point in 1934 was about in line with schedule. The same is true of the upward trend in 1935, because the years ending in 5 have usually been periods when a bull market has been in progress. The expectancy at this writing (August 1935) is that a good selling opportunity will develop in the first quarter of 1936. (Yet this is opposed to the usual experience of rising markets in pre-election years if a bull market is in progress. See page 100.)

This ten-year cycle theory is presented as interesting, and of some practical value, with the suggestion that readers analyze the long-term picture on Chart 1, and develop their own conclusions.

Those interested in a detailed research of the longer term movements in stock prices, will find the pamphlet entitled *Stock Market Cycle* published by the Twentieth Century Fund, Inc., Boston, and written by Professor Arthur F. Burns of Rutgers University, of considerable interest.

Long Term Trend Academic

In summary, it seems safe to say that: THE PRACTICAL POSSIBILITIES IN THE LONG TERM TREND APPEAR QUITE LIMITED, BECAUSE ON THE ONE HAND IT ENTAILS LONG PERIODS OF TIME INVOLVING INDUSTRIAL AND COMMERCIAL OBSOLESCENCE AND ON THE OTHER THE COMPARATIVELY SHORT SPAN OF MAN'S LIFE UPON THIS PLANET.

Even major trend operations often require years to complete, and ample capital to start with, if sizable returns are to be obtained. *For the person of moderate capital, there are many more opportunities for profit in the intermediate trend.*

The Major Trend

Now let us proceed to the study of the major trend. Early in Chapter V, we will find that the intermediate trend presents the most attractive trading opportunities. But stock market traders who ignore the major trend, in the course of time will find that their activities are definitely handicapped. One principal reason for this is explained by the fact that intermediate cycles in bull markets are quite different from those in bear markets. Also, it is important that practical traders constantly remember that, even though their chief interest is in the intermediate swings, their predominant position in a bull market should be long, and that in bear markets their predominant positions should be short. A knowledge of the major trend is by no means academic. It is the very important foundation upon which shrewd traders base their operations.

Major Trend "Cannot Be Manipulated"

When, later on in Chapter VII, we study the tenets of the Dow Theory, we will find that William Peter Hamilton, the famous interpreter of Dow's theories, while he admitted that some intermediate swings could be influenced for short periods of time by manipulation, consistently maintained that the primary or major movements (major trend) could not be manipulated. He contended that, *if the fundamental conditions of industry and trade do not justify an advance, stocks will not rise for very long; or conversely, if industry and trade are trending upward, the trend of stock prices will be in the same direction.*

There seems to be no question whatsoever about the fact that major trends (bull and bear markets) in stock prices are caused by, and at the same time reflect the trends in industry and trade.

Business Cycle a Familiar Phenomenon

The intensive study of economic and business conditions which has developed since the War has made us all familiar with the "Business Cycle"³ and its sequence of depression, recovery, boom, panic and depression again. That this Cycle is no mere theory discussed academically by professors and students has been vividly shown by events since the War, which led from the boom in 1919 to the depression in 1921, up to the record profits of 1928 and 1929, down again to the prostration and creeping paralysis of 1932, and then slowly up again, frequently interrupted by the New Deal Experimentalism. Even casual study of the subject will show that the sequence of the cycle is vastly more definite than the time periods involved. The records show that a cycle may be compressed into a brief period, or may extend over many years, as did the sequence from the low of 1923 to the desolation of 1932. Sometimes with a lead, others with a lag, stock

³ ABLY EXPOUNDED BY DR. WESLEY C. MITCHELL IN "THE BUSINESS CYCLES: THE PROBLEM AND ITS SETTING".

prices fluctuate with the major trends in industry and trade.

Major Trends Reflect Business Cycles

Bull and bear markets in stock prices, or major trends, mirror reflections of the business cycle. Major trends in stock prices vary in duration as do business cycles. Undoubtedly, the major trends in stock prices are stimulated more directly by economic conditions than are intermediate or minor trends, which are governed more directly by the immediate demand for and supply of shares in the market itself, generally described as "technical conditions".

Stock Prices and Business Trends

In recent years, there has been an interesting controversy between various economic statisticians, as to whether stock prices or business trends are generally first in turning upward in a new bull market, or turning downward in a new bear market. The importance of the question to stock traders is obvious: for if business trends habitually turn upward or downward first, let us say two or three months in advance of stock prices, it would be a relatively simple matter to make long, or short stock commitments on the sound foundation of reversals of the trend of business as reflected by any one of several of the accepted indexes. On the other hand, if stock prices anticipate business trends, and are thus a barometer of them, as was consistently claimed by both Charles Dow and William Peter Hamilton, then a study of the business curve would not be particularly useful in anticipating major reversals in stock prices.

Which Turns First?

With the aid of Chart 2, let us examine the relation (in point of time) of the important turning points in the stock market and business activity, from 1857 to date. The upper curve on this chart is a center line plotting⁴ of business activity, showing the per cent of a normal, which is based upon twelve separate business series coordinated by the Editors of *The Annalist*. It will be noted that the peaks of this curve range from 110 to 120 per cent, while the valleys until 1931 were in the neighborhood of 80 per cent. In the years 1932 and 1933, a new low level of 60 per cent was established.

For convenience, in checking the major turning points in stock prices, as related to similar reversals in the business trend, a series of small arrows has been placed upon the curve of business activity, to show the major reversals in stock prices.

First, let us look at the beginnings of bear markets. In the 17 bear markets from 1864 to 1932, we find the following:

1. In cases 1, 2, 4, 7, 9, 10, 13 and 15 (a total of 8 cases out of 17), stock prices and the business trend turned down simultaneously.

2. In cases 3, 5, 8, 11, 12 and 14 (a total of 6 cases out of 17), the stock market turned down in advance of the business trend.
3. In the remaining cases, 6, 16, and 17 (a total of 3 cases out of 17), the stock market turned down after the business trend.

Now let us look at the beginnings of bull markets. In the 16 bull markets from 1857 to date, we find that:

1. In cases 9, 10 and 14 (a total of 3 cases out of 16), stock prices and the business trend turned up simultaneously.
2. In cases 1, 2, 3, 4, 5, 6, 7, 8, 11 and 16 (a total of 10 cases out of 16), stock prices anticipated the business curve in turning upward. In cases 4, 5, 7 and 16, the business trend had a moderate rise, but then fell to a new low, while stock prices maintained an upward trend, by establishing higher lows, similar to the case in 1932-1933.
3. In cases 12, 13 and 15 (a total of 3 cases out of 16), stock prices lagged the business trend in turning upward.

Summarizing both bull and bear markets, we may say that:

In the 33 cases of major turning points, in the past 74 years, stock prices turned simultaneously in the same month with business trends in 11, or 33.3 per cent, of the cases; anticipated the business trend in 16, or 48.5 per cent, of the cases; and lagged the business trend in the remaining 6, or 18.2 per cent.

In the past 15 years, with the exception of bull market case Number 16, in 1932, four of the five cases show that the business trend anticipated the trend of stock prices by from two to six months. It was because the cases from 1919 to 1929 show that the business trend turned before the stock price trend, that a well-known investment counsel firm issued a brochure in March of 1932, claiming that "as business trends anticipated stock price trends", the problem of making long term investments was relatively simple, considering their elaborate equipment for studying the business trend. When the turn came in 1932, and stock prices anticipated the business trend by at least two months, the calculations of this firm naturally were materially upset. However, they did advise the purchase of common stocks in December 1932, at approximately the 54 level for the Standard 90 stock index, as compared with its low in June 1932, of approximately 33, after stocks had advanced approximately 66 per cent.

From the above figures, we may conclude that:

In the vast majority of cases, stock prices reverse simultaneously, or anticipate major reversals in the business trend.

Major Trend of Great Economic and Social Importance

The major trend affects more people than the intermediate or minor trends. While many operators (consciously or unconsciously) in the minor and inter-

⁴ SEE CHAPTER XIII

mediate trends frankly realize the speculative or trading aspect of their activities, they are few in number compared with the hundreds of thousands who buy to hold and draw income with vague hope of appreciation in value, and are found on stockholders' lists of such companies as American Telephone, Pennsylvania Railroad, U.S. Steel, General Motors and Cities Service. Again, a large portion of the population is indirectly affected by the results of major trends as respects large institutional buyers of stocks, such as fire insurance companies, investment trusts, endowed universities and such philanthropic organizations as the Rockefeller Foundation.

It seems safe to say that if the major trend had been better understood in 1929, the last hysterical uprush (aided and abetted by "investment" trusts which should have known better), and the subsequent crash in the autumn, would have been much less pronounced. Much of the hostility to "Wall Street" and the securities business, arises from those people who had no desire to speculate but unwittingly bought their "investments" close to the 1929 top, and later felt that they had been defrauded.

Major trends, particularly bull markets, are often stimulated abnormally by artificial factors. The bull market which ended in 1929 would have met much greater resistance in its earlier stages, if many large holders had not been deterred from selling by the capital gains tax. Again, when some of the conservative persons in the Federal Reserve System (the late Governor Strong, for example), wished to see the braking function of the central bank applied to curb excesses, they were howled down as unpatriotic, or ignored.

Major Trends Occur in Three Stages

From a broad general viewpoint, we may analyze the economic development of major markets, and classify each major trend into three rather definite stages.

In bull markets, they are:

1. The rebound from depression lows, where the force of liquidation reduced the price levels of many stocks to less than their net current asset values. At this stage in the stock price trend, the prices of goods have usually declined sharply. A substantial part of both consumers' and capital goods are worn out, and interest rates are relatively low.
2. The advance in stock prices in line with expanding earnings, caused by a sharply increased demand for goods, and
3. The speculative climax in which large numbers of persons not usually interested in the stock market, buy stocks largely in hope of a rise, and expecting to sell them at a profit to someone else. Judgment of values is grotesquely exaggerated, with most prices based upon absurd estimates of future earning power. At this point, the stock of goods is large, inventories are

unusually high, and speculation in goods as well as stocks is rampant.

Between stages 2 and 3, there often exist for a period of months price levels which might be considered healthy normals, and which, if they could be maintained, would be the ideal level of prosperity. *In bear markets, they are:*

1. The panic, in which everyone tries to sell at once, as the rosy estimates of a "New Era" are abandoned (hurriedly). At this stage, trade often keeps up for a while, but ultimately most collapses in stock prices have been quickly communicated to the business cycle, because they closely reflect credit, which is the life of trade.
2. The adjustment of prices to declining earnings, which is usually accompanied by a persistent decrease in the demand for and price of goods.
3. The period of forced liquidation, when the stock market is abandoned by one group after another, during which stocks are sold regardless of values. Industry and trade during such periods is prostrate; the price of goods often falls sharply (sometimes below cost) as businessmen substantially contract their operations.

Somewhere between stages 2 and 3, economists who are money cranks claim that the business trend could be stabilized, and the hardships of the panic condition of stage 3 avoided, if national governments would but manipulate a nation's money.⁵

Major Trends Composed of Intermediate Cycles

Upon closer examination, we find that each major trend (bull or bear market) is comprised of a series of smaller movements which are designated as intermediate trends, or more precisely cycles. A complete discussion of these appears in Chapter V. Several of these intermediate cycles develop in the course of a major trend.

Number of Such Cycles

In the nine bull markets from 1897 to 1929, as shown in Figure 1, the number of intermediate cycles ranged from 2 1/2 to 10 1/2.

In the nine bear markets from 1899 to 1932, the intermediate cycles ranged from 1 1/2 to 7 1/2, as shown in Figure 2.

In both Figures 1 and 2, there is shown a rather distinct tendency for the number of intermediate cycles in a major market to increase during the first 30 years of the current century. From this, we may correctly assume that the amplitude of major trends has shown a tendency to increase.

When we rank each of the 18 major markets, according to their number of cycles, we find that in the largest number of cases, major trends had from 2 1/2 to 4 1/2 cycles (see Figures 3 and 4).

⁵ SEE MAJOR L. L. B. ANGAS' INTERESTING PAMPHLET, ENTITLED "THE BOOM BEGINS", SIMON & SCHUSTER, 1935.

Figure 1

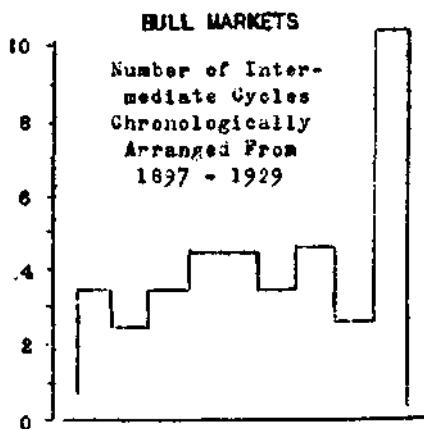
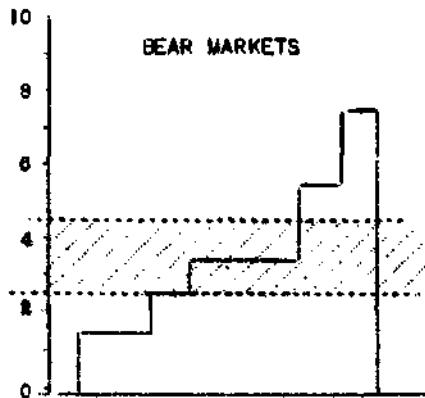


Figure 4



Summarizing the Major Markets from 1854

Let us now turn for a few moments to a more or less detailed examination of the major trends from 1854 to date, using either Chart 1 or 2 as our guide.

The first bear market on the Axe-Houghton Chart (Chart 1) began in January, 1854, and seems to have continued for over five years until June, 1859. There is some question as to its termination, because the '57 lows were under the lows of '59, but the statistics used contain approximations, and possibly, inaccuracies. The picture as a whole suggests the logical conclusion that this bear market ended in '59. Its duration was sixty-six months, and it developed in four cycles of liquidation. From the top in '54 prices declined 56 per cent.

In June, 1859, the trend turned upward, starting a bull market which ran until March, 1864, for a period of fifty-seven months, developing in six cycles, and showing a total advance of 254 per cent.

At this time, the major trend reversed into a bear market of one year's duration, consisting of two cycles, ending in March, 1865, declining 35 per cent.

The post-Civil War bull market then started, lasting until May, 1872. It consisted of six cycles and its eighty-six months' duration made it one of the longest bull markets in history, although the total advance of 102 per cent was relatively moderate.

The panic of '73 and subsequent "hard times" created a bear market running from May, 1872, to April, 1877.

The advance from late '73 to early '75, although it must be classed as a bull market, may be considered merely as a correction in the major downtrend. The depth of the depression was felt from '74 through '77. This bear market developed in four cycles over fifty-nine months, with a total decline of 40 per cent.

Beginning in April, '77, a bull market ran for fifty months to June, '81, in four cycles, and advancing 162 per cent, or half again as much as the '65-72 bull market. This was more comparable to the '59-'64 bull market.

The bear market which began in June, '81, lasted for thirty-five months, and consisted of four cycles of liquidation, ending in May, '84, for a total decline of

Figure 2

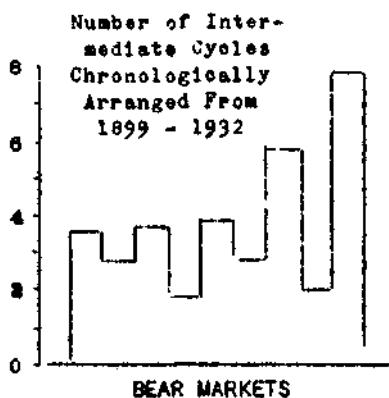
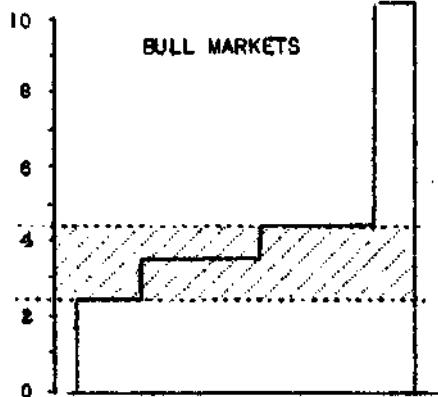


Figure 3



49 per cent, substantially more than in the 72-77 bear market.

The bull market which began in May, '84, has been subject to controversy as to its duration. While some observers hold that it lasted until February, '93, it may be recalled that a substantial panic in many lines of business occurred in '90 and '91, and we will assume that this bull market ended in January, 1890. It developed in five cycles over sixty-eight months, with a total advance of 170 per cent.

The following bear market ran for nineteen months, in three small cycles, and ended in August, '91, with a loss of 20 per cent.

An eighteen-months' bull market followed, from August, '91, to February, '93, in two cycles, and gained 30 per cent.

The subsequent bear market was substantial, beginning in February, '93, and lasting forty-two months to August, '96. In this period, there were four cycles of liquidation and a drop of 48 per cent.

The second longest bull market to date began in August, '96, developing in seven cycles over seventy-three months, for a total gain of 140 per cent by September, 1902.

At that time a two-cycle bear market set in, lasting thirteen months, and declining 34 per cent to October, '03. Some students hold that this decline was merely a correction in a bull market from 1896 to 1906. But this decline appears to be a bear market, in view of economic conditions at the time.

In October, '03, began the famous rail bull market which ran until January, '06. Over twenty-seven months, in three cycles of accumulation, prices rose 109 per cent.

The following bear market was severe, much like those of '73 and '93, and in the three cycles of liquidation, during its twenty-one months' extent, prices fell 45 per cent until October, '07. A two-year bull market then began, developing in four cycles over twenty-five months to November, '09, with prices gaining 89 per cent.

From the tops of November, 1909, prices were in a downtrend to August, 1914. While some authorities hold that there were several small bull and bear markets in this period, it seems safe to say that when the Stock Exchange was closed in 1914 actual prices were lower than in 1911 or 1913. Hence, we consider the period From November, 1909, to the opening of the Exchange, after several months' suspension, in 1914, as a single bear market. It consisted of four cycles, running for fifty-seven months and declined 28 per cent.

When the Exchange re-opened in December, 1914, the bull market of 1914-1919 began, chiefly under the stimulus of the famous "War Brides" issues which made fabulous profits out of war orders. In three cycles, over fifty-nine months, prices advanced 123 per cent.

Reflecting the post-war depression, a bear market occurred for twenty-two months From October, 1919,

to August, 1921, wherein prices dropped 45 per cent, in four cycles.

In August, 1921, a short bull market began, which lasted until September, 1922, wherein prices advanced 57.3 per cent in three cycles.

This was followed by a one year bear market until August, 1923, which accounted for a drop of 14.8 per cent in four very small cycles.

In September, 1923, the famous and lamented bull market of 1923-1929 began. Over seventy-three months, in ten cycles of accumulation, prices advanced 339 per cent (Dow Jones averages). Some authorities, when studying the Axe-Houghton index, prefer to consider the advance from the 1921 lows to the 1929 highs as a single long bull market of eight cycles, lasting ninety-seven months and accounting for a rise of 370 per cent. However, the amplitude of the decline of 1922-1923 was sufficient to compare with other bear markets, although the duration was unusually short. When other indexes of stock prices are studied this bear market appears more pronounced. We will consider that the uptrend from 1921 to 1929 was interrupted by the small bear market of 1922-1923.

In September, 1929, began the most spectacular bear market yet seen. In thirty-three months of tremendous decline, until June, 1932, prices declined 88 per cent, in seven cycles of liquidation.

From the extremely depressed low in July, 1932, which in the case of the Axe-Houghton index compared with the level in middle 1885, a bull market of substantial proportions set in, which at this writing (August 1935) appears to be still under way. Already, at the highs of this month, it has accounted for an advance of 213 per cent in approximately 2 1/2 intermediate cycles (the major phase of the third cycle is under way as this is written).

Amplitude of Major Trends

Having made a general examination of the major trends from 1854 to date, now let us examine, in a little more detailed way, the amplitude (per cent of advance or decline) of each of the nine bull and bear markets tabulated in Tables I and II, in the Appendix to this Chapter. Here we find that:

THE BULL MARKETS FROM 1897, AS MEASURED BY THE DOW JONES INDUSTRIAL AVERAGE, HAVE ACCOUNTED FOR ADVANCES RANGING FROM 26 TO 339 PER CENT.

THE MEDIAN (SEE NOTE ON PAGE 119, CHAPTER V) OR CENTRAL CASE, WAS AN 87 PER CENT ADVANCE.

THE MINIMUM CASE WAS THE BULL MARKET FROM JUNE 23, 1900, TO SEPTEMBER 17, 1902; WHILE THE MAXIMUM CASE WAS THE BULL MARKET FROM JULY 31, 1923 TO SEPTEMBER 7, 1929. (SEE CHART 3)

In further studying Table I, it is noted that in the more recent cases, the advances have been 81 per cent (1917-1919), 57 per cent (1921-1923), and 339 per cent (1923-1929). At this writing (August 1935), to the high of August 1935, the bull market which began in 1932 has now accounted for an advance of approximately

213 per cent, and current evidence seems to indicate that an even greater advance will be seen.

The wide variation in the amplitude of the bull markets since 1897 clearly indicates that no sound conclusion can be drawn as to a normal expectancy of the total per cent advance in a bull market. However, it seems safe to say that:

WHEN A BULL MARKET HAS BEEN ESTABLISHED, A RISE OF 80 PER CENT OR MORE IS LIKELY TO DEVELOP.

Is the Amplitude of Successive Major Markets Related?

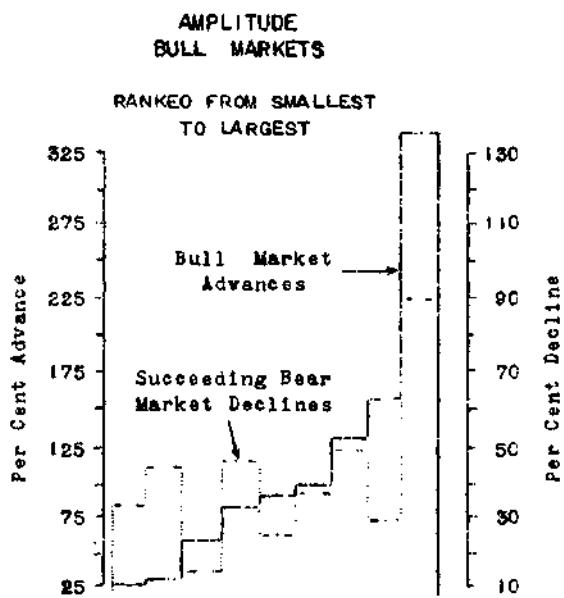
The question often arises as to whether the amplitude of a particular bear market is necessarily related to the amplitude of the previous bull market.

In Figure 5, the solid line is a graph of the per cent advances in the nine bull markets from 1897 to date, ranked (Column 1, Table I). The dotted line shows the amplitude (per cent decline) of the succeeding bear markets.

From Figure 5, we see that:

WHEN BULL MARKETS DO NOT EXCEED 80 PER CENT IN AMPLITUDE, THE SUCCEEDING BEAR MARKETS HAVE NO IMPORTANT CORRELATION. BUT, WHEN BULL MARKETS EXCEED 80 PER CENT, THE AMPLITUDE OF THE ENSUING BEAR MARKET IS LIKELY TO BE IN PROPORTION TO THE PREVIOUS BULL MARKET.

Figure 5



Bear Market Amplitude

Now let us review bear markets (Table II). Here we find that:

THE BEAR MARKETS FROM 1899 HAVE ACCOUNTED FOR DECLINES RANGING FROM 15 TO 88 PER CENT.

THE MEDIAN, OR CENTRAL CASE WAS 36.7 PER CENT.

THE MINIMUM CASE WAS THE BEAR MARKET FROM SEPTEMBER 11, 1932, TO JULY 31, 1923; WHILE THE MAXIMUM CASE WAS THE BEAR MARKET FROM SEPTEMBER 3, 1929, TO JULY 8, 1932.

In further study of Table II, it is noted that in the more recent cases, the total declines have been 46 per cent (1919-1921), 15 per cent (1922-1923), and 89 per cent (1929-1932).

In bear markets, the amplitude appears to be more consistent than in bull markets. Note that five of the nine cases ranged from 32 to 49 per cent. Thus, we may conclude that:

IN BEAR MARKETS A DECLINE OF 32 PER CENT OR MORE

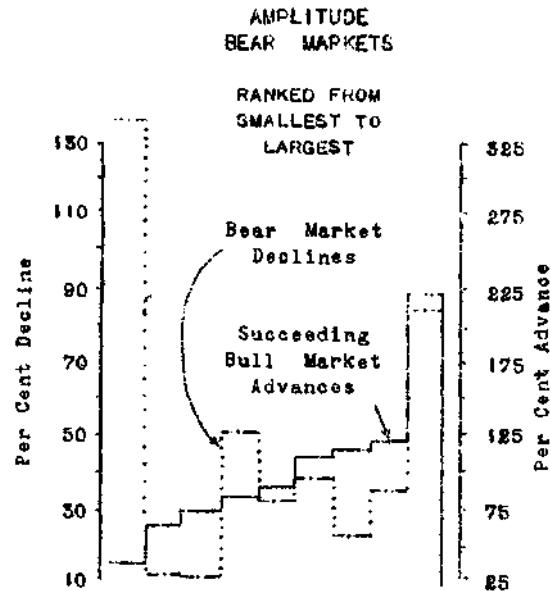
MAY BE EXPECTED. IT IS AN EXCEPTIONAL CASE WHERE THE DECLINE IS LESS THAN THIS.

Now let us consider, as we did in the case of bull markets, whether there is any relation between the amplitude of a bear market and the succeeding bull market.

In Figure 6, the solid line is a graph of the per cent declines in the nine bear markets from 1899 to 1932, ranked (Column I, Table II). The dotted line shows the amplitude (per cent advance) of the succeeding bull markets.

Immediately, we see that there is no correlation upon which a conclusion may be based. *However, there is a slight tendency for a more substantial bear market to be followed by a more substantial bull market,* but this seems merely to reflect the wider swings in stock prices, in current years.

Figure 6



Duration of Major Trends

Now let us consider the question of Duration of Major Trends. In Tables III and IV of the Appendix to this Chapter, we find the duration figures of each of the 18 major trends from 1897 to 1932.

Let us first consider bull markets. Here we find -that:

THE BULL MARKETS FROM 1897 HAVE VARIED IN DURATION FROM APPROXIMATELY 15 TO APPROXIMATELY 73 MONTHS.

THE MEDIAN, OR CENTRAL CASE, WAS 26 MONTHS.

THE MINIMUM CASE WAS THE BULL MARKET FROM JUNE 20, 1921 TO SEPTEMBER 11, 1922. THE MAXIMUM CASE WAS THE BULL MARKET FROM JULY 31, 1923 TO SEPTEMBER 7, 1929.

In further study of Table III, it will be noted that in six of the nine bull markets the duration ranged from 21 to 28 months, with four cases between 22 and 28 months. Thus, we may conclude that:

Once a bull market has been established, it may be expected to run for about two years. The statistics clearly show that the 1923-1929 bull market was an outstanding exception in stock market history.

But let no reader assume from this that, because a bull market has run for two years, a major reversal to the bear side is about to occur. William Peter Hamilton, the outstanding interpreter of Dow's theory, made what was perhaps his greatest mistake in 1926, when he predicted a bear market just prior to one of the greatest advances in stock market history. If we can assume that his written word at the time reflects the reasoning of his erroneous opinion, in the 1926 case, it is evident that he was relying heavily upon the fact that stock prices had been rising consistently from the lows in 1923 for about two years.

Is the Duration of One Major Trend Related to the Next?

Now let us consider the relation, if any, between the duration of a bull market, and the duration of the succeeding bear market, in the same way we compared amplitude a few paragraphs back.

In Figure 7, we have graphed the duration of bull markets (tabulation in Column 1, of Table III) with a solid line. The dotted line shows the duration of the bear markets which followed these bull markets.

Immediately, we see that there is a tendency for the duration of bear markets to be shorter as the duration of bull markets is longer; that is, a short bull market will be followed by a relatively long bear market. The exceptional case, of course, was the bear market of 1929-1932, which was relatively longer than the other cases. From this, we may conclude that:

ALTHOUGH THERE IS NO CLOSE RELATION BETWEEN THE LENGTH OF A BULL MARKET AND THE SUCCEEDING BEAR MARKET, A SHORT BULL MARKET IS LIKELY TO BE FOLLOWED BY A RELATIVELY LONG BEAR MARKET. BULL MARKETS RANGING FROM 20 TO 30 MONTHS ARE LIKELY TO BE FOLLOWED BY BEAR MARKETS OF A DURATION OF 20 MONTHS OR MORE. A LONG BULL MARKET, LIKE THAT OF 1923-1929, IS LIKELY TO BE FOLLOWED BY A BEAR MARKET EXCEEDING THE MEDIAN OF THE LAST NINE CASES (23 MONTHS).

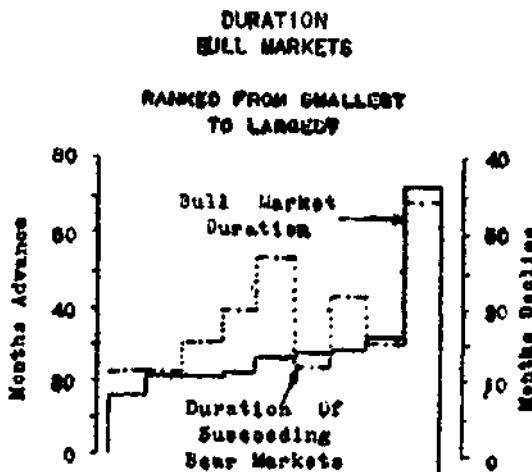
Duration of Bear Markets

Now let us look at the duration of bear markets using Table IV. Here we find that:

THE BEAR MARKETS FROM 1899 to 1932 VARIED IN DURATION FROM APPROXIMATELY 11 TO 34 MONTHS.

THE MEDIAN, OR CENTRAL CASE, WAS 15 MONTHS.

Figure 7



THE MINIMUM WAS THE CASE OF THE BEAR MARKET BETWEEN SEPTEMBER 11, 1923 AND JULY 31, 1922; WHILE THE MAXIMUM CASE WAS THAT FROM SEPTEMBER 1, 1929 TO JULY 8, 1932.

It will be noted that in five of the nine cases, the duration of bear markets ranged from 12 to 22 months.

Thus, we may conclude that:

Once a bear market has been established, it may be expected to run somewhat more than fifteen months. The statistics clearly show that the bear market of 1929-1932 was an outstanding exception. It can perhaps be explained by the fact that it followed the outstandingly exceptional bull market of 1923-1929.

Will a Long Bear Market Be Followed By a Long Bull Market?

Now let us look at the relation, if any, between the duration of a bear market, and the duration of the succeeding bull market, in the same way we compared amplitude a few paragraphs back.

In Figure 8, we have graphed the tabulation in Column 1 of Table IV, with a solid line. The dotted line shows the duration of the bull markets which followed these bear markets.

Immediately, we see that, with the exception of the first case, which compares the very short bear market of 1923 with the exceptionally long bull market of 1923-1929, there seems to be a tendency for relatively longer bear markets to be succeeded by relatively shorter bull markets.

When Do Major Trends Begin?

Before leaving the subject of duration of major markets, and proceeding to a discussion of their general volume characteristics, let us pause for a moment and consider whether there is any particular time in the year when major turning points are more likely to occur. In Table V of the Appendix, we have listed the day and month when each of the 19 major markets from 1897 to date began, including the bull

market which started in 1932.

In Figure 9, we have graphed, by months, these 19 cases. The upper line shows the bull markets, while the lower one portrays the bear markets.

A casual examination of these graphs quickly shows that:

1. BULL MARKETS IN THE PAST 40 YEARS HAVE BEGUN BETWEEN JULY AND DECEMBER, WITH THE LARGEST NUMBER OF CASES BETWEEN JULY AND SEPTEMBER; AND
2. WITH THE EXCEPTION OF THE CASES OF 1899 AND 1906, BEAR MARKETS DURING THE SAME PERIOD HAVE BEGUN BETWEEN AUGUST AND NOVEMBER, WITH THE LARGEST NUMBER OF CASES IN THE MONTH OF SEPTEMBER.

This pronounced tendency for major turning points in stock prices to occur in the third quarter of the year appears to be reliable evidence of a tendency of anticipating the major turning points in the business trend, the majority of which have occurred between November and March.

As we will learn in the summary of this Chapter, this seasonal tendency of the major turning points in stock prices has a definite and practical value to market students.

Before leaving the subject of duration, let us briefly consider an allied idea.

Figure 8

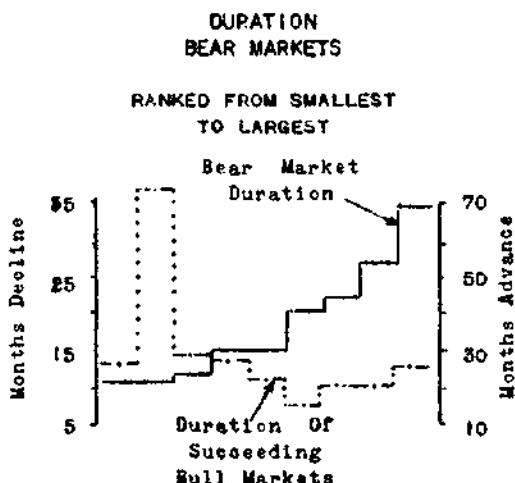
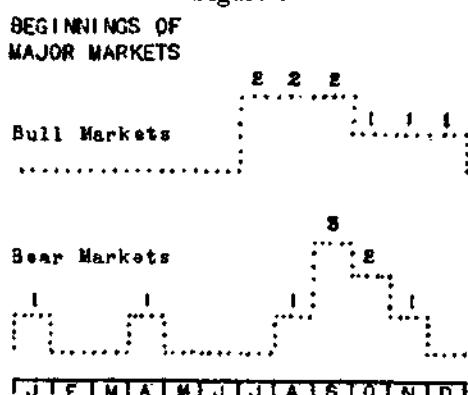


Figure 9



Pre-election Years

From time to time, vague general statements have been made in the press, indicating that political campaigns in pre-election years have a bearish tendency on stock prices, because they are disturbing to business. Also, we have heard, again vaguely, that during Democratic Administrations bear markets in stock prices are the rule.

Let us turn to Chart 1, and make a brief study of the subject. Across the top of this chart, the 21 Presidential administrations from 1854 to 1935 have been designated with the names of the Presidents. The shaded areas, from the top of the chart down to the price trend, indicate the Democratic Administrations. The shaded areas from the bottom of the chart up to the price trend, indicate the ten months prior to Election Day, in Election years.

Continuation of the Major Trend in Progress the Rule

Taking up first the question of Pre-election years, we find by studying the shaded sections in the lower part of Chart 1, with the exception of the years 1864, 1884 and 1932, wherein a major trend reversal developed, that in the other 17 cases the trend of the market in the ten months prior to Election was in the direction of the major trend then in progress.

In six cases, in the years 1856', 1860, 1872, 1892', 1912* and 1916*, election time marked the turning point of the top of a bull market. Bear markets followed. In the four cases starred, Democratic Presidents were elected.

In two cases, 1896 and 1900, Election marked the beginning of new bull markets. The case of 1896 was the one where McKinley, a Republican, succeeded Cleveland, a Democrat.

In seven cases, 1868, 1880, 1888, 1904, 1908, 1924 and 1928, a major upward trend was in progress, and did not change either in, or nearby, the Election year. Likewise, in two cases, 1876 and 1920, a major downtrend was in progress, and there was no change.

In Figure 10, we see the detail of stock price movements as measured by the Dow Jones Industrial index, during the first nine months of pre-election years, from 1900 to 1932. The dotted lines in 1900, 1920 and the first half of 1932, indicate that major downturns were in force; while the solid lines in the remaining cases and from June to November in 1932, indicate that bull markets were in force. The two small arrows in each case indicate the time of the Presidential conventions. Curiously enough, it will be noted that the market usually had a fairly substantial move immediately after, or at least within one month following the Conventions, as soon as the platform and candidates were settled.

Thus, it seems that we may conclude that:

1. THE TREND IN PRE-ELECTION YEARS, OR AT LEAST THE TEN MONTHS PRIOR TO ELECTION DAY, IS LIKELY TO PARALLEL THE MAJOR TREND IN PROGRESS AS THE YEAR BEGINS.

2. IF A MAJOR TREND HAS BEEN IN PROGRESS FOR TWO YEARS OR MORE, A MAJOR TURNING POINT MUST BE LOOKED FOR AS A POSSIBILITY, BETWEEN ELECTION DAY AND INAUGURATION ON MARCH 4.

The Democratic Donkey and the Stock Market Bear

Now as to the question whether the stock market bear is a bedfellow of the Democratic Donkey. Sadly enough, the evidence seems to tend slightly in this direction. It will be noted from the above, that four out of the six cases wherein Election Day approximated the beginning of a bear market, the Presidents elected came into office on the Democratic platform. Also, in the case of 1896, the end of Cleveland's second term, and the election of President McKinley, a Republican, marked the beginning of a substantial bull market.

Studying the shaded sections at the top of Chart 1, we find that in the second year of Democratic President Pierce's administration (1854) prices had a drastic drop, then for two years a gradual rally. Democratic President Buchanan, who succeeded him, apparently had a jolly time, with one of the most precipitate drops in stock market history (it of course reflected a similar decline in the business trend, as may be seen on Chart 2).

After a snap-back, stock prices again declined for nearly two years, during which the business trend was decidedly better. In the first quarter of his last year, stock prices showed a substantial turn for the better, apparently anticipating the possibility that President Buchanan was to be succeeded by another man (the Lincoln boom got under way in June of 1860).

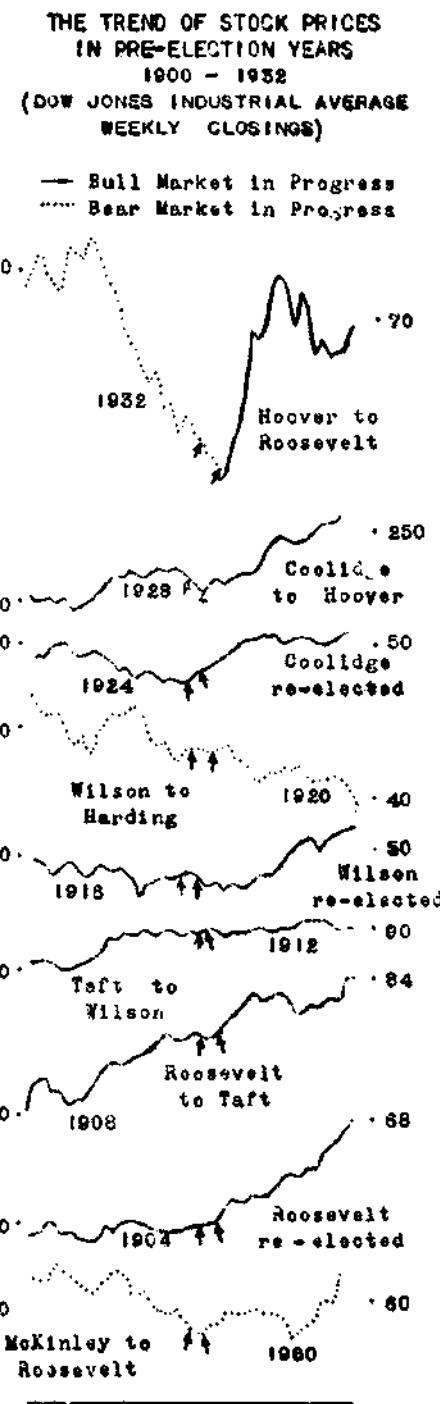
In Cleveland's first administration, a real bull market was under way, following the depression of 1884 during which Vice-President Arthur, who succeeded President Garfield when he was assassinated, was in the chair.

Stock-marketwise, Cleveland's second administration about retraced all of the bull market of his first administration. When Cleveland came in for his second term, stock prices had been consistently rising for nearly nine years, not unlike the advance from 1921 to 1929. Right up to the day that McKinley was elected, Cleveland's second term was decidedly a bear market, although there was a moderate recovery in 1894 and 1895.

A right-about face took place as soon as it became certain that McKinley was to be the next President; and oddly enough, although McKinley was assassinated seven months after he was inaugurated, another long bull market got under way, helped by the Spanish-American War and the vigorous personality of Theodore Roosevelt (long before the days he decided to "bust the trusts"), quite different from the case where Vice-President Arthur succeeded President Garfield when he was assassinated.

When Woodrow Wilson was elected in November, 1912, a one-year bull market was quickly terminated, and stock prices drifted downward steadily, until after the Exchange re-opened in December, 1914, following

Figure 10



the beginning of the World War in August of that year. Throughout Democratic President Wilson's eight years in office, the predominant trend was upward, with the exception of a short one-year bear market from 1916 to 1917. The fear that America would be drawn into the War and Wilson's reform measures seem to explain this short bear market. The unhealthy fever of war prosperity in turn explains the bull market of 1918-1919, while the bear market of 1919-1921 can be attributed to the readjustment from the conditions of war. Although for the most part prices moved upward during Wilson's two adminis-

trations, the 1919-1921 bear market left stock price levels not much above where they were when Wilson took office. Certainly the uptrend during his regime can be honestly attributed to the greatest war in history.

Franklin Delano Roosevelt, it appears, fell heir to an equally favorable situation to that of Cleveland in his first administration. From the stock market viewpoint, we had just been through the most drastic crash in history; and although the business trend declined to a new low coincident with the Bank Holiday in 1933, it is apparent that so far none of the social schemes which President Roosevelt's advisors have been able to think up have been successful, up to this writing (August 1935), in destroying stock price values.

In analyzing the markets during the administrations of Republican Presidents in the last eighty years, we find no important differences than in the case of Democratic Presidents.

However, in summarizing, we can conclude that:

There have been more bear markets during the 7 Democratic administrations than in the 15 Republican administrations, in the past 80 years.

Major Trend Volume Characteristics

A discussion of major trends would be incomplete without some mention of Volume. This subject is more exhaustively treated in Chapter XIV.

Using Table VI, which appears in the Appendix to this Chapter, and Figure 11, we find that there is a general tendency for total volume at bull market tops to increase; while at bear market bottoms, with the exception of the case of the 1910-1911 bear market, activity dwindled to figures within a relatively narrow range.

Most interesting, probably, is the fact that there seems to be a fairly consistent ratio between volume at the bottom of a bear market, and at the top of the successive bull market.

In Figure 11, we have graphed the ratio of these two figures, after ranking the data which appears in Column C, of Table VI.

The cross-hatched area in Figure 11 quickly shows us that, in the majority of cases, the activity at the top of a bull market, on an average daily basis, is between 2.8 and 4 times that at the end of the previous bear market. We may therefore safely conclude that:

1. *In the majority of cases, the average daily volume of trading in a bull market will expand to a level equivalent to from 3 to 4 times that at the beginning of a bull market; and*
2. *In a bear market volume declines to a point where the average daily activity is between 400,000 and 600,000 shares a day.*

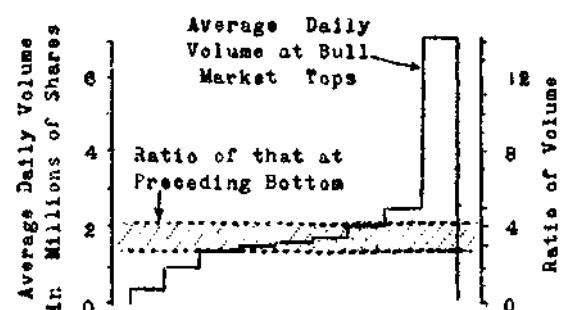
Let us now proceed to a discussion of the use of the various technical working tools as related to the Major Trend.

Novices Detour

The reader who has not been previously initiated

Figure 11

RATIO OF VOLUME AT BULL MARKET TOPS TO BEAR MARKET BOTTOMS



into the by-ways of technical studies, and who is not familiar with the jargon of the art, would do well to skip the following pages, up to and including page 24, until there has been opportunity to digest Chapters VII and XV, inclusive, which contain detailed discussions of these working tools. We have already discussed Volume, which is the subject of Chapter XIV.

Major Reversal Patterns

First then, let us take up, very briefly, the major trend aspects of Supply and Demand areas, and the patterns of Tops and Bottoms.

For illustrations, let us turn to Charts 4 and 16. From Chart 4, we can gain a brief insight into the appearance of major trend turning points, as expressed on a monthly high and low chart. In this case, it is the 50-stock average of the New York Times. Frequently, a major demand area on a monthly chart will appear in the form of a double bottom; that is, prices will hit the same level twice, with an intervening rally. In his excellent book, *The Dow Theory* (page 42), Robert Rhea points out that six out of nine of the bear markets from 1897 to 1923 ended in this pattern (Dow Jones Industrial and Rail averages). The turning point in 1932, however, was from a single low point, which was reached in July of that year. However, the major turning point in the Standard 90 stock composite, even in this case, was a double bottom in June and July (see Chart 8).

At the tops of bull markets, the major turning points are quite frequently in the pattern of triple tops, lasting for several months, of what is called by market technicians the "head-and-shoulder" type (see Chapter VIII). Examples of these are shown on Chart 4, in 1919-1920, and in 1929-1930.

Charts 4 and 16 show another major trend supply and demand phenomenon which has been recorded only twice in the past eighty years (in 1893-1898, see Chart 1, and during the period 1916-1924), when there were a successive series of several relatively small bull and bear markets. Several economic students,

who are fearful of the consequences of Franklin Delano Roosevelt's New Deal, are forecasting the possibility that we are about to go through another such period which, when history is written, may be found to have lasted from 1933 to 1940.

In considering major tops and bottoms, readers should review the paragraphs in Chapter V which relate to the final half-cycles in bull and bear markets.

Major Trend Lines

Now let us proceed to a brief examination of Trend Lines in relation to major trends, using Charts 7, 8, 20 and 21.

As has been previously pointed out, each major trend develops in a series of intermediate cycles. In an uptrend, these produce a series of successively higher highs and lows; while in a downtrend, they produce a series of successively lower lows and highs. When these movements are charted on a graph, in most cases it is possible in an uptrend to apply a diagonal upward line across the first two successively higher lows, or in a downtrend across the first two successively lower highs, and thus project a line which, in general, designates the angle of incidence of the major trend. (In some instances adjustments must be made.)

Let us look first at Chart 20. Line A was the uptrend line of the 1923-1929 bull market. Line B was the trend line of the 1929-1932 bear market, while Line C appears to be the trend line which may be applied to the bull market beginning in 1932. Similar lines appear on Charts 7, 8 and 21. The utility of such trend lines is, of course, based upon the idea that a change of trend is indicated when a movement decisively penetrates them (see Chart 20). No reader should attempt to rely upon Trend Line phenomena until the more exhaustive discussion in Chapter X has been digested.

Major Trend Moving Averages

Next, let us discuss briefly the subject of Moving Averages in relation to major trends, using for reference Charts 8 and 24. One of the most useful technical phenomena in the determination of major reversals is the major trend moving average. For this purpose, the author prefers to use a 200-day moving average, although equally satisfactory results can also be obtained with the use of a 20-30 week moving average applied to weekly charts, or a 4-6 month moving average applied to monthly charts. In Chart 8, the solid line is a 200-day moving average, while in Chart 24, the heavy dotted line is a 200-day moving average.

At this point it seems sufficient to emphasize only that, used in connection with the Dow Theory (see Chapter VII), a decisive penetration of the 200-day moving average affords very important buying and selling signals. Again it is necessary, however, to remind the reader that moving average phenomena should not be employed until and unless they are fully understood. The subject is outlined in detail in Chapter XI.

In Chapter XII, it will be found that there are no significant Gap phenomena of any practical value in major trend consideration.

Major Trend Oscillators

Therefore, let us consider next the phenomena of Net Change Oscillators, as related to the major trend. An excellent study of this phenomenon written by C. W. Floss, of Detroit, Michigan, was presented by William Dunnigan in 1933.⁶ Floss laid down certain criteria which appeared to apply admirably well to stock price trends, and which, in a theoretical test from 1899 to 1932, showed a consistent and substantial profit. Briefly, Mr. Floss plotted a moving average of monthly closing levels of the Dow Jones Industrial average on a center line chart, such as are described in Chapter XIII, and obtained what he called a "Derived Cycle". With this cycle at hand, he suggested certain specific interpretation, to indicate major trend buying and selling signals, which correspond quite closely with the signals derived from the 200-day moving average mentioned above, and shown on Chart 24.

Another application of the oscillator phenomenon is shown on Chart 5. The middle series on this chart shows the net changes, in points, from the closing of one month to the next month, plotted from a center line; that is, if the change is minus, the plotting is from the center line downward; while if it is plus, it is plotted from the center line upward.

On Chart 5, which shows a study of American Can, it will be noted that following the drop in October and November 1929, this series of monthly oscillations showed a very definite trend, marked by the dotted lines which appeared to converge at the circle and arrow in the last week of July 1932, and accurately marked the bear market turning point in American Can. Note that during the corrective area from September 1932 through March 1933, a similar tendency of shorter duration marked the turning point for the substantial advance which began in March of 1933.

These are unusually good examples of the application of major trend oscillators as will be learned later, in digesting Chapter XIII, oscillators are valuable in this type of interpretation, only when almost perfect examples of converging trends appear separately in the major or corrective phases of intermediate cycles. No attempt should be made to use this phenomenon until it is more exhaustively studied in Chapter XIII.

General Market Characteristics at Major Reversals There

are some valuable deductions which may be made from Breadth-of-the-Market Studies, as related to Major Trends.

Reviewing for the moment Figure 1, Chapter XV, we find that from January to July 1932, there was a very definite tendency from A to B for the number of

new highs and lows established daily to diminish. This tendency marked the bear market reversal of July 1932. Also, we find that the number of issues traded in the months of June and July of 1932 showed a steady decline (C) which, of course, was accompanied by a marked decrease in the number of advances and declines (D and E). Combined, these phenomena were new in the bear market 1929-1932. They provided one of the bases whereby the author forecast, in August 1932, that the bear market had ended. Unfortunately, the data for a comprehensive study of the Breadth-of-the-Market phenomena was not available at the bull market top in 1929. However, it seems probable that most of the data would have shown approximately the opposite characteristics at a bull market top.

Major Trends and the Dow Theory

Before proceeding to a summary of the major trend, proper mention of the Dow Theory, as related to the Major Trend, is in order.

Notwithstanding recent spoutings by biased critics⁷, the Dow Theory appears to be the oldest, and without any question, one of the most reliable methods of interpreting (for profits) the movement of stock prices.

Primarily, the Dow Theory has its greatest application in the major trend. All through his writings during a period of 25 years, ending in 1929, the famous William Peter Hamilton repeated, upon innumerable occasions, that the chief value of the Dow Theory was in judging major, or primary trends. He practically refused to comment on the minor trend, and his statements concerning the intermediate trend were always in the light of its contribution to the major trend.

The first tenet of the Dow Theory is that stock price movements, as reflected by the averages, are a barometer of industry and trade. Dow Theorists point out frequent occasions when the averages "have shown the way" accurately, by rising or falling when other accepted indicators used in judging future trends of industry and trade, show blank readings.

Dow Theorists rely upon the penetration of previous intermediate highs or lows, as important confirmations of the continuation or reversal of major trends. For example (see Chart 15), in May of 1933, when the highs of September 1932 were exceeded, the primary upward trend which began from the low of July 1932, was conceded to have had an important confirmation, because at the time, within a period of 11 days, both the Industrial and Rail averages rose to new high levels. At this writing (August 1935), Dow Theorists have as yet seen no counter signal, and are therefore of the opinion that the primary trend continues, upward. A more complete discussion of the Dow Theory will be found in Chapter VII, which is

devoted solely to the subject.

What Charts are Needed to Study the Major Trend

An adequate study of the major trend can be made with very little working equipment. The best suggestions seem to be monthly charts, such as Charts 1, 2, 3, 4, and if the reader is also interested in the Intermediate Trend (as he should be), a chart such as Chart 15 is invaluable. Weekly charts of the averages are also useful in studying major trends.

Market students who have the time and necessary data available will also find 3 and 5-point figure charts of the averages of really important value. (See Chapter XVI)

Readers will also find charts, showing averages of all stocks, which are published on page 4 of the *New York Stock Exchange Bulletin* (such as Chart 20) of real value in following the Major Trend.

As a general proposition, it is better to use a composite average in studying the Major Trend, such as the Standard 90 stock index, the New York Herald-Tribune 100 stock average, the Dow Jones 70 stock composite, the Times 50 stock average, or the Axe-Houghton weighted average of 33 industrial stocks. Dow Theorists, of course (because of the value they place upon the theory of confirmation; see Chapter VII), prefer to use geometric charts showing daily fluctuations, such as Chart 15, for studying the major trend as well as observing both the minor and intermediate trends.

For a broad general viewpoint of the major trends in stock prices, compared with various economic factors, a chart similar to Chart 2 is suggested.⁸ Figures to keep this up to date may be obtained from *The Annalist*. It will be noted that on Chart 2, the scale for stock prices is of the square root type. (See Chapter II)

End of Detour

In completing the discussion of the major trend presented in this Chapter, let us now attempt to summarize and coordinate the various approaches by which we have tried to learn something about the major trend of stock price movements.

A Guide to Major Trend Thinking

1. A consideration of the major trend is of practical importance, because profitable stock market operations are directly influenced by the major trend. Major reversals in stock prices reflect major trends in business. In turn, major reversals in business are followed by the expansion or contraction of earning power for shares. Earnings and dividends, in the last analysis, are the primary cause of stock price changes.
2. A knowledge of the major trend is essential in

⁷ SEE "THE FALLACIES OF THE DOW THEORY", BY NORMAN WRIGHT (PSEUDONYM) PUBLISHED BY "MARKET TRENDS, INC.", DENVER, COLORADO.

⁸ 9" X 23" COPIES OF THIS CHART MAY BE OBTAINED FROM THE ANNALIST, TIMES SQUARE, NEW YORK (50 CENTS EACH).

- judging the characteristics of intermediate cycles, which differ in bull and bear markets.
3. Basically, a study of the major trend has to do with the "When" question. Its primary objective is to determine the reversal of major trends, as nearly as possible at the time they are occurring. The major trend is best studied by a careful analysis of reliable market averages (see Chapter II).
 4. Each major trend is comprised of 1 1/2 or more intermediate cycles. The majority of major trends in the past 80 years have been composed of from 3 1/2 to 4 1/2 intermediate cycles.
 5. The size of (amplitude) and the time of (duration) major trends has no uniformity. The relation of amplitude and duration of one major market to the next, in general, is only a coincidence. However, a long bull market of great amplitude, such as that of 1923-1929, is likely to be followed by a bear market of relatively substantial proportions.
 6. Bull markets usually account for a rise of 80 per cent or more from their bottom to their top. In bear markets, a decline of 32 per cent or more may be expected from the top to the bottom.
 7. Bull markets may be expected to last for two years or more. There have been several cases in history where they have lasted from 7 to 9 years. Bear markets are usually somewhat shorter, running from 15 months to 3 years.
 8. In a bull market, the average daily trading tends to expand from 300,000 to 500,000 shares at a bottom, to 2,000,000 to 4,000,000 shares at a top. As a general proposition, activity at the top of a bull market may be expected to be at least 2-4 times that at the bottom of a bull market. (In recent years, 6-8 times.) In bear markets, volume tends to show a persistent decline from a peak established during the initial panic (see October-November, 1929, Chart 7). One of the most reliable signs of the end of a bear market is persistent dullness for a period of one or two months, notwithstanding sharp declines in individual issues (see June-July, 1932, Chart 7). It is in this respect that the final half-cycle in a bear market differs from previous major phases in the same bear market. (See "Final Half-Cycles in Bear Markets", page 34, Chapter V.)
 9. Major trends have a distinct tendency to begin in the last six months of the year. In many cases, the turn of the major trend is apparently influenced by the outcome of Fall, and the expectancy for Spring business.
 10. A study of Dow Theory implications is invaluable in the study of the major trend (see Chapter VII).
 11. Politics must be given proper consideration in studying major trends. The evidence of the past 80 years seems to indicate that conservative ad-

ministrations (Republican) are more likely to breed bull markets, while liberal administrations (Democratic) tend to breed bear markets. If a Democratic administration (liberal) is in power, and a bear market has been in progress for some time, the period between the election (early November) and the inauguration (early March of the succeeding year) of a Republican administration (conservative) is likely to be a major turning point to a bull market.

Conversely, if a Republican administration (conservative) has been in power for some time, the election of a Democratic administration (liberal) is likely to be the turning point to a bear market, providing a bull market has been in progress for some time.

Furthermore, if either a Republican (conservative) or Democratic (liberal) administration pursues a policy either through taxation or reformatory legislation, which shakes the confidence of security owners, a bear market is likely to result, unless definite inflationary steps are pursued at the same time. Good examples of this are illustrated in the "Rich Man's Panic" of 1907 when Theodore Roosevelt "busted the trusts"; and in the bear market in Utility stocks from July 1933 to March 1935. It seems obvious that if Franklin D. Roosevelt's administration had not pursued a policy of inflation, from 1933 onward, Industrial and Railroad stock prices would have also been in a major decline.

12. Three working tools seem to be of particular value in judging major trend reversals. More often than not major trends in the past 80 years have reversed in the form of a double top or double bottom. However, this factor cannot be used alone in judging major reversals. The penetration of major trend lines (see Chapter X) and major trend moving averages (see Chapter XI) must be given serious consideration as confirming factors of a major trend reversal.

A Guide for "Practical Use" of the Major Trend

1. Study the past history of major trends. Use charts of the averages, such as Charts 1 to 8, inclusive, and Charts 10 and 20.
2. In judging the direction and reversals of major trends, consider the business trend. Remember that, although stock prices usually foretell business trends, there have been occasions when business trends have anticipated stock prices. Do not expect stock prices to move steadily upward or downward, counter to a well-defined business trend. For the most part they move together.
3. Expect a bull market to run for two years or more. Expect a bear market to run 15 months or more. Assume that a long bull market will be followed by a relatively long bear market.
4. In a bull market, expect prices to rise 80 per

- cent or more from the previous bear market bottom, as measured by a composite average. In a bear market, expect prices to fall 40 per cent or more from the previous bull market top. Expect a bull market of large amplitude to be followed by a bear market of relatively substantial amplitude.
5. Expect the volume of trading at the end of a bear market to reach levels averaging between 300,000 and 600,000 shares a day. Expect the volume at the top of a bull market to be from 3 to 6 times that at the end of the previous bear market.
 6. Remember that many major trends usually reverse between September and February.
 7. Regard any broad political attack on the "vested interests" as the cause of a possible bear market. Remember that conservative administrations are bullish, while liberal administrations are often bearish.
 8. Watch the implications of technical factors (Dow Theory, Trend Lines, Moving Averages, et cetera), as they may be applied to the major trend.

Now let us summarize Major Trend practice.

Bull Market Reversals

RECOGNIZE THE FOLLOWING FACTORS AS EVIDENCE THAT DANGER SIGNALS, INDICATING THE END OF THE RISE, ARE AT HAND:

1. TWO YEARS OR MORE OF AN UPTREND.
2. THREE OR MORE INTERMEDIATE CYCLES.
3. AN ADVANCE OF 80 PER CENT OR MORE IN THE PRICE LEVEL.
4. WIDE PUBLIC INTEREST IN STOCK PRICES (SEE CONDITIONS OF "FINAL-HALF CYCLE ¹BULL MARKET", PAGE 129, CHAPTER V).
5. PRICE-EARNINGS RATIOS COMMONLY IN THE 30-50 TIMES BRACKET, WITH DIVIDEND YIELDS OF LEADING STOCKS NEAR OR UNDER THE YIELDS ON HIGHEST GRADE BONDS.
6. AVERAGE DAILY VOLUME AT A NEW PEAK LEVEL, WITH HEAVY TURNOVER WITHOUT PRICE ADVANCE COMPARABLE TO PREVIOUS RISE.

IF THESE FACTORS ARE PRESENT, THE INFORMED TECHNICAL STUDENT KNOWS THAT THE FIRST DRASIC CRACK IN STOCK PRICES, WHICH PENETRATES A MAJOR TREND MOVING AVERAGE, A MAJOR UPTREND LINE, AND//OR THE PREVIOUS INTERMEDIATE LOW, PROBABLY MARKS THE END OF THE BULL MARKET. HE IS PARTICULARLY CONFIDENT OF THIS IF SUCH A BREAK DEVELOPS IN THE MONTHS FROM SEPTEMBER TO FEBRUARY, REFLECTING EITHER BROAD DISAPPOINTMENT IN FALL BUSINESS OR A GENERALLY PESSIMISTIC OUTLOOK FOR SPRING BUSINESS, OR THE TWO COMBINED. IF A CHANGE IN THE POLITICAL ADMINISTRATION OCCURS WITH THE OTHER CIRCUMSTANCES, IT IS CONSIDERED FURTHER EVIDENCE INDICATING THE PROBABILITY OF A REVERSAL IN THE MAJOR TREND IN STOCK PRICES.

Bear Market Reversals

RECOGNIZE THE FOLLOWING FACTORS AS EVIDENCE OF

FAIR WEATHER AHEAD, INDICATING THAT THE END OF A MAJOR DECLINE IS AT HAND:

1. FIFTEEN MONTHS OR MORE OF DOWNTREND.
2. THREE OR MORE INTERMEDIATE CYCLES.
3. A DECLINE OF 40 PER CENT OR MORE IN THE PRICE LEVEL.
4. PRACTICALLY NO PUBLIC INTEREST IN THE STOCK MARKET (SEE CONDITIONS OF "FINAL-HALF CYCLE BEAR MARKETS", PAGE 129, CHAPTER V).
5. PRICE-EARNINGS RATIOS AND PRICE-CURRENT ASSET RATIOS AT VERY ATTRACTIVE LEVELS, AND FORMER RATIOS BETWEEN 5 AND 10 TIMES THE CURRENT EARNINGS, OR, IN THE CASE OF DEFICITS, PRICE-CURRENT ASSET RATIOS OF FROM .5 TO 2.0. LEADING STOCKS STILL PAYING DIVIDENDS ON A 6-9 PER CENT YIELD BASIS.
6. AVERAGE DAILY VOLUME RANGING FROM 300,000 TO 600,000 SHARES A DAY, WITHOUT ANY APPRECIABLE PICKUP DURING SHARP MINOR SELL-OFFS.

IF THESE FACTORS ARE PRESENT, THE INFORMED TECHNICAL STUDENT KNOWS THAT THE FIRST PERSISTENT RISE IN STOCK PRICES (NOT NECESSARILY OF SHORT DURATION LIKE THAT IN JULY OF 1932, SEE CHART 7), WHICH PENETRATES A MAJOR TREND MOVING AVERAGE, A MAJOR UPTREND LINE AND//OR A PREVIOUS INTERMEDIATE HIGH, PROBABLY MARKS THE END OF THE BEAR MARKET. HE IS PARTICULARLY CONFIDENT OF THIS IF SUCH AN ADVANCE DEVELOPS IN THE MONTHS FROM SEPTEMBER TO FEBRUARY, REFLECTING RISING CONFIDENCE ENGENDERED EITHER BY BETTER FALL BUSINESS OR A GENERALLY OPTIMISTIC OUTLOOK FOR SPRING BUSINESS, OR THE TWO COMBINED. IF A CHANGE IN THE POLITICAL ADMINISTRATION TO THE CONSERVATIVE SIDE OCCURS WITH THE OTHER CIRCUMSTANCES, IT IS CONSIDERED FURTHER EVIDENCE INDICATING THE PROBABILITY OF A REVERSAL IN THE STOCK PRICE TREND.

Review and Reflect

Every now and then, the reader will do well, particularly if he is puzzled as to the major trend, to review the 12 premises which have just been set up as "A Guide to Major Trend Thinking", as well as the paragraphs just preceding, under the heading "A Guide for Practical Use of the Major Trend".⁹

NOW LET US PROCEED TO A STUDY OF THE ALL-IMPORTANT INTERMEDIATE TREND.

¹ WRITE TO BROOKMIRE BULLETINS, INC., 551 FIFTH AVENUE, NEW YORK, FOR MAJOR L. L. BANCAS' BULLETIN, ENTITLED "THE CONJUNCTURE", AUGUST 20, 1935; ALSO, PART II OF THIS BULLETIN, ENTITLED "SITUATION AUGUST, 1935", DATED AUGUST 23, 1935.

**APPENDI
X**
**APPENDIX
I**
**7
CHAPTER
4**

Table 1
Amplitude of Bull Markets

Amplitude	Dates	
% Advance	From	To
26.1	June 23, 1900	September 17, 1902
27.9	July 26, 1910	September 30, 1912
57.3	June 20, 1921	September 11, 1922
81.5	December 19, 1917	November 3, 1919
Median-87.3	November 15, 1907	August 14, 1909
	December 24, 1914	October 5, 1916
	September 28, 1903	January 19, 1906
	August 10, 1896	April 4, 1899
	July 31, 1923	September 3, 1929
Price at End of Bull Market		
Minus Price at Beginning		
<hr/>		
Formula: $\frac{\text{Price at Beginning of Bull Market}}{\text{Price at End of Bull Market}}$		

Table II

Amplitude of Bear Markets

Amplitude	Dates	
% Decline	From	To
14.8	September 11, 1922	July 31, 1923
25.8	August 14, 1909	July 26, 1910
29.2	April 4, 1899	June 23, 1900
33.4	September 17, 1902	September 28, 1903
Median-36.7	October 5, 1916	December 19, 1917
	September 30, 1912	December 24, 1914
	November 3, 1919	June 20, 1921
	January 1, 1906	November 15, 1907
	September 3, 1929	July 8, 1932
Price at Beginning of Bear Market		
Minus Price at End		
<hr/>		
Formula: $\frac{\text{Price at Beginning of Bear Market}}{\text{Price at End of Bear Market}}$		

Table III
Duration of Bull Markets

Number of Months	Dates	
	From	To
Median-26	June 20, 1921	September 11, 1922
	November 15, 1907	August 14, 1909
	December 24, 1914	October 5, 1916
	December 19, 1917	November 3, 1919
	July 26, 1910	September 30, 1912
	June 23, 1900	September 17, 1902
	June 23, 1900	September 17, 1902
	September 28, 1903	January 19, 1906
	August 10, 1896	April 4, 1899
	July 31, 1923	September 3, 1929

Table IV
Duration of Bear Markets

Number of Months	Dates	
	From	To
Median	August 14, 1909	July 26, 1910
	September 11, 1922	July 31, 1923
	September 17, 1902	September 28, 1903
	April 4, 1899	June 23, 1900
	October 5, 1916	December 19, 1917
	November 3, 1919	June 20, 1921
	January 19, 1906	November 15, 1907
	September 30, 1912	December 24, 1914
	September 3, 1929	July 8, 1932

Table V

Seasonal of Major'	Characteristics Irencl Reversals
Year	Year
Month	Month
1896	1899
August 1900	April 1902
June 1903	September 1906
September 1907	January 1909
November 1910	August 1912
July 1914	October 1916
December 1917	October 1919
December 1921	November 1922
June 1923	September 1929
August	September

Recapitulation
Bull Markets
Bear Markets

Month	No. of Cases	Month	No. of Month Cases
June	2	September	3
July	2	October	2
August	2	November	1
December	2	January	1
September	2	April	1
November	1	August	1
	1		1

Table VI

	Average y	Dail r	Volume	
Bea r	A Market Bottoms Av. Volume	Bu i	B C I Market Tops Ratio	
Yea r		Year	Av. Volume	B -s- A
189 7	170,000 300,000	189 9	500,000 1,000,000	2.94
190 0	500,000 500,000	190 1	3.33 1,600,000 3.20 2,000,000	
190 3	1,000,000 130,000	190 6	4.00 700,000	.70
190 7	600,000 600,000	190 9	1,850,000 14.20 1,700,000	
191 1	800,000 600,000	191 2	2.83 1,200,000 2.00 4,000,000	
191		191	5.00	

CHAPTER V

THE INTERMEDIATE TREND

"A knowledge of the Intermediate Trend of stock prices is indispensable to all those interested in investment and speculation. It is the sine qua non of technical studies." H. M. Gartley

REFERENCES

"The Dow Theory", Chapter 10 "Story of the Averages" "Stock Market Theory and Practice" "Stock Market Tactics"

Robert Rhea
Robert Rhea R.W.
Schabacker L. L.
B. Angas

In the previous Chapter, the long term, or secular trend, has been discussed. It was noted that this trend was made up of a series of successive major trends called bull or bear markets. The broad swings in the trend of general business, from depression to prosperity, and back again to depression, were recognized as the causes of bull and bear markets in stock prices. And it was noted that major trends were made up of intermediate cycles.

The Great Importance of the Intermediate Trend

The importance of a sound working knowledge of intermediate trend cycles is conceded by practically every advanced student of stock price trends. Time spent in studying and learning its intricacies will yield handsome profits. When it is well understood by any average reader, he will make fewer purchases at tops and fewer sales at bottoms. The value of a working knowledge of the intermediate trend cannot be over-estimated. Any broker will tell you that the vast majority of his clients who "go broke" trading in stocks do so making an effort to profit by the day-to-day swings which we call the minor trend. On the other hand, the average individual lacks the patience to trade only the long trends which we designate as bull and bear markets. The extended decline from 1929 to 1932 taught most investors that they could not "put stocks away and forget them".

As most men are temperamentally unsuited, and haven't the time to trade the minor trend, and also haven't the patience to trade only in the major trend, it is logical that they turn to the intermediate trend. There are strong arguments in favor of this intermediate trend. They may be summarized as follows:

1. Intermediate trend opportunities occur several times a year, and if properly utilized, return handsome profits on modest capital. The intermediate trend trader can do very well even when the major trend is in doubt, because indications in this movement are often clear when

- major trend signals have not developed.
- 2. Although they often require immediate action when the time to act arises, intermediate trend indications develop comparatively slowly, and the trader familiar with them can form opinions and make commitments relatively in a more leisurely fashion than the hectic manner in which the minor trend trader must operate.
- 3. The special skill and temperament, and the constant application necessary for successful minor trend trading, such as the ability to turn around quickly, and take several losses in a row, are not necessary in trading the intermediate trend.
- 4. One of the greatest advantages is the lower cost of operation. The ratio of commissions, taxes and odd lot charges to the capital employed, and potential profit available, is more within reason. It takes most amateur speculators a long while to learn that the cost of trading the minor trend is sufficient entirely to defeat the possibility of making money.
- 5. Changes in intermediate trend characteristics are helpful in determining a change in the major trend.

It is easy to understand the potential value of the intermediate trend by merely observing the difference in the "travel" during the intermediate swings of a major trend, as compared with the net loss or gain in a bear or bull market. Let us, for the moment, look at Chart 6. As measured by the Standard 90 stock index, stock prices made a high point on September 7, 1929, of 253.5 (20). From this level, the 1929-32 bear market began; thirty-four months later when this index stood at 35.0, the bear market ended on July 8, 1932. In the interim, the index had lost 218.5 points, or approximately 86.4 per cent of the bull market high level. During the same period, if the intermediate swings are added together, it is found that the index traveled 568.9 points, or

approximately 2.6 times the net amount of the decline from September 7, 1929 to July 8, 1932. Statistical studies of the bull and bear markets in the past 20 years show that this ratio of travel to net loss or gain is about average. Usually the intermediate trend travel ranges between two and three times the net loss or gain of a major market. As all stock market profits depend upon the advances or declines in stock prices (remember no one can make any money with stock prices moving sidewise), it is easy to understand why stock market students give such great attention to the intermediate swings.

With this introduction, let us now turn to a detailed study of intermediate trends. In order to define these trends clearly, it is helpful to review the history of their definition briefly.

Intermediate Trends Defined History of Their Definition

As early as about 1890, when Charles H. Dow¹ began writing about the course of stock prices, he recognized that, in the course of every bull or bear market, there were several periods when prices moved counter to the main trend. In a bull market, these movements were declines, while in a bear market they were advances.

Later, his famous successor, William Peter Hamilton, suggested that the stock market moved in three trends simultaneously. Numerous times in his writings, he pointed out that the major movements (bull or bear markets) were made up of a series of intermediate trends, which in turn consisted of a series of day-to-day movements. He aptly suggested the analogy that the stock market trends might be likened to the movements of the ocean, the major trends being the tides, the intermediate trends the waves, and the day-to-day or minor trends, the ripples.

Later, in 1932, Robert Rhea, describing secondary or intermediate trends, said,

A secondary reaction is considered to be an important decline in a bull market, or advance in a bear market, usually lasting from three weeks to as many months, during which interval the price movement generally retraces from 33 % to 66 % of the primary price change since the termination of the last preceding secondary reaction.

In modern years (1925-1935), as students of statistics have given more extended publicity to the fluctuations of business trends, commodity prices, and security prices, it has been more generally recognized that the trends of these economic phenomena customarily develop in a series of cycles.

In discussing the movements of stock prices, neither Dow nor Hamilton, the early exponents of the subject, specifically recognized or exactly described the existence of such cycles in stock prices, although a study of the subject clearly shows they were apparent since the earliest available statistics concerning stock

price movements.

Instead of recognizing secondary reactions as parts of the intermediate cycles which made up the major bull or bear markets, Dow and Hamilton described them separately, preferring to designate the section of each intermediate cycle which occurred in the direction of the primary trend as just a part of the major movement. This they called the "Primary movement".

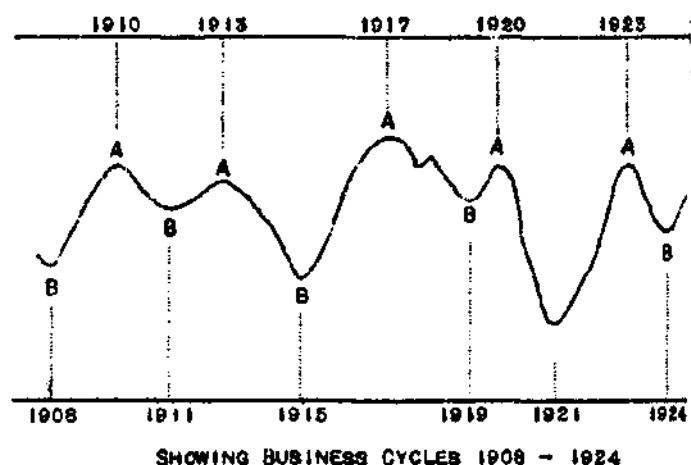
In our definition of an intermediate trend, we will consider both the primary and secondary movements as parts of an intermediate trend cycle.

What Is a Cycle?

In the study of economics, *an economic cycle is considered to be that period from the bottom of one depression through a period of prosperity, to the bottom of the next depression; or conversely, that period from the top of prosperity through the bottom of depression, to the top of the next prosperity.*

Thus, an economic cycle consists of two parts, namely an upward movement followed by a downward movement, or conversely a downward movement followed by an upward movement. More clearly defined, we may say that an economic cycle can be either from a high point through a low point to the next high point (A - A, in Figure 1), or conversely, from one low point through a high point, to the next low point (B - B, in Figure 1).

Figure 1



In defining the intermediate cycles of stock price movements, we use exactly the same basis of definition.

The Intermediate Cycles From 1929 To 1935

Now let us turn to Chart 6. Here we see the intermediate cycles which comprised the bull market of 1923-1929, the bear market of 1929-1932, and the bull market from 1932 to date. In the period from September 7, 1929 (the bull market top) to July 8, 1932 (the bear market bottom), there were six and a half-completed intermediate cycles, each cycle consist-

¹ SEE CHAPTER VII

ing of a downward movement parallel to the downward bear market trend. These are shown by the solid lines. Except the last, each was followed by an upward movement, counter to the major trend. These are shown by the dotted lines. (The last downward movement in a bear market or upward movement in a bull market ends in a major trend reversal thus, it is designated as only a half cycle. The decline from the March 8 high to the July 8 low, 1932, was an example.)

Each Cycle Has Two Parts

If we apply the general economic theory of cycles to these intermediate movements, we then must recognize that *each intermediate cycle consists of two parts, namely a major phase which is in the direction of the major or primary trend, and a corrective phase, counter to that trend. In a bear market, an intermediate cycle is thus the movement from one intermediate top to the next intermediate top. In a bull market, an intermediate cycle is the movement from one intermediate bottom to the next intermediate bottom.*

The secondary reactions mentioned by Dow, Hamilton and Rhea, are the corrective phases of these cycles, and are represented by the dotted lines on Chart 6. Greater detail of these cycles, from August 1929 to September 1935, may be seen by reviewing Charts 7 and 8.

Similar Cycles in Long Term Trend

Returning for the moment to Charts 2, 3 and 4, we see that the same general cyclical pattern has been apparent in the long term or secular trend, in the period 1854 to date, the only difference being that each cycle consisted of a bull and a bear market, rather than two intermediate movements.

Also in the Minor Trend

This cyclical pattern carries out, and it appears also in the minor movements. Let us turn again to Chart 6. In section A, we see the detail presented by a chart of the daily closings of the intermediate cycle from October 5, 1931, to February 10, 1932. In section B, we see even more minute detail of a small part of section A; and in section C, we see a microscopic view of a small part of section B. Note how, in each of these illustrations, with some variations, the saw-toothed pattern of the cyclical movements is quite apparent.

Cycles Characteristic of All Price Trends

These cyclical patterns are not some accidents of chance. They are typical of the price movement of an open market. They represent the interplay of the hopes and fears of all the persons interested in the course of such markets.

What Causes the Cyclical Pattern?

It seems logical to believe that the cyclical pattern which appears in the course of stock prices, may be attributed to mankind's attempts to discount the future prospects, for the purpose of profiting by them. Although the major trends may be said always to reflect properly the course of business and earning power, which of course is the real foundation of stock price fluctuations, the constant efforts of the mass of interested persons to foresee and to discount these changes, tend to develop into numerous situations wherein there is a large error of either optimism or pessimism expressed in the price trend. When free to do as they choose, men habitually go to extremes.

Errors of Pessimism

If we try to explain the cause of the advances, or corrective phases of bear market cycles, we may say that they result from an error of pessimism. Fear of a poor business outlook causes the supply of shares to exceed demand to such extent that, for a period of several weeks at least, prices have been depressed too extensively for the amount that the business outlook has that far declined. The result is a corrective advance. Then the major downward trend is resumed, again reflecting a poorer outlook. This sequence continues until, as a result of a major change in the business outlook as a depression ends, the main downward trend reverses to the upside, and a bear market reverses to a bull market.

Errors of Optimism

Conversely, we may say that the corrective declines in a bull market result from errors of optimism. Hope and confidence in better business prospects cause the demand for shares to exceed supply. For a period of several weeks at least (rarely for several months), prices advance beyond any reasonable amount which properly discounts the improvement up to that time. More hope than progress is reflected in the price trend. The result is a corrective decline.

Each Major Trend Ends in an Incompleted Cycle

Carrying our theory of cycles through the point of a major reversal, we naturally find that at the end of a bear market when the turn to the bull side takes place, the corrective phase of the last bear market intermediate cycle becomes the major upward phase in the first cycle of a new bull market. This was the case in the movement from July 8 to September 7, 1932. Note that on Chart 6 this upward movement was marked by a solid line. Thus each major market ends with an in-completed half intermediate cycle, because the last normal corrective phase becomes the major phase of the first cycle in the next major trend.

General Definition of Intermediate Cycles

Summarizing, we may thus define an intermediate cycle in a bear market as that price movement which carries from one high point through a low point, to the next high point, such as the movement from September 7, 1929 through November 13, to April 11, 1930. Conversely, we may define a bull market cycle as that movement which carries from one low point, through a high point, to the next low point, such as the movement from July 8, 1932 through September 7, to February 27, 1933. (See Chart 6)

Defined in this way, the intermediate movement of stock prices appears to be quite a simple phenomenon.

A Working Hypothesis Not So Simple

However, this is decidedly not the case. Let us now discuss some of the more important vagaries of the problem. Perhaps one of the first and most important characteristics of intermediate cycles is that each such bear market cycle carries prices to a new low, and each such bull market cycle carries prices to a new high. Like all generalities applied to the stock market, this premise has its exceptions. Note, for instance, on Chart 6, that the low of June 24, 1930 was moderately above that of November 13, 1929.

No Two Intermediate Cycles Are Alike

Even after a most careful study of the intermediate movements of stock prices, it is almost impossible to furnish an adequate answer to the question..."What is an Intermediate Trend?". . . The problem which always arises is that, although there is no question about the cyclical movement, no two cycles, except by merest coincidence, are even closely alike.

The time, or, as statisticians say, duration, of complete intermediate cycles (including major and corrective phases) during the past 37 years, has varied from approximately as little as three months to as much as 25 months.

The per cent advance or decline in either major or corrective phases, or the net amount of the advance or decline of the whole cycle, which statisticians refer to as amplitude, has varied widely. The major phases of successive cycles vary greatly. The same is true for the corrective phases, both as to duration and amplitude.

Several Problems Confuse the Study

Then, too, there is the problem, present in all stock market research, wherein different students will classify the same intermediate price trends differently. Another problem which complicates an exact definition of intermediate cycles, arises from the study of the Dow Theory, wherein separate consideration is given the movements of the Industrials and Rails.

However, it is a fact that, if the duration of a cycle is long, its amplitude is likely to be greater than if it is short. There seems to be no exact relation, on the other hand, between the time (duration) or size (amplitude) of a major phase and the subsequent corrective phase of a given cycle.

Another General Definition

As another very general definition, we may say that an intermediate cycle including both its phases, usually covers a period of from three to five months, and accounts for a net advance or decline of ten per cent in the better known stock price averages.

1929-1932 Bear Market Most Regular in History

In the bear market of 1929-32, the intermediate cycles were more pronounced and more similar than in any other major trends during the past 75 years. On the other hand, the intermediate cycles in the current bull market, beginning at the lows in July 1932, were probably more irregular and dissimilar than in any other major trend. Some economists attribute this to the unusually complex World economic conditions of the years 1925-1935, combined with President Roosevelt's New Deal.

Important Variation in Cyclical Pattern

The period from 1932 to 1935 clearly shows that it is essential for stock market students to recognize an important variation in the cyclical pattern of intermediate trends.

As defined previously, we may generally expect an intermediate cycle to encompass several months; and if it is a bull market cycle, a new high point is to be expected. In the period from July 1932, to July 1933, we see on Chart 6 that there was one complete upward cycle, ending with the low of February 1933, and the major phase of a second cycle, ending with the high of July 1933. Then an irregular downward movement, designated as the corrective phase of the second cycle, developed with a low in October of 1933. Normally this low point might have been classified as the end of the corrective phase of the second cycle, and the subsequent advance then termed the major phase of the third upward cycle. This advance, which carried through to February 6, 1934, failed to exceed the July 1933 high point in the composite averages because of the relative weakness in the Rails and Utilities (in the case of Industrial stocks alone, it reached a slightly higher point than the best level of July 1933). Subsequently a substantial decline set in, running to July of 1934, which in the case of the Utility and Rail averages established low points under those of October 1933. This was also true in the case of the composite averages including all three of the major groups (Industrials, Rails and Utilities). Thus, the important and confusing question was raised as to whether the movement from the October 1933 low through the February 1934 high to the July 1934 low was an unusual third intermediate cycle which failed to establish a new top in the composite indexes, although a slightly higher point was established by the Industrial group.

If this were conceded to be true, then the fourth cycle of the current bull market began with the advance from the July 1934 low, and encompassed the movement from that time to date.

But there are two defects in this analysis of the cyclical pattern from October 1933 to date. First, stock prices as a whole failed to exceed the July 1933 highs in the advance from the October 1933 low to the February 1934 high (the so-called major phase of the third cycle), and secondly, in July of 1934, stock prices as measured by a general composite declined to a new low point under that of October 1933.

In addition to these two defects, it is also a fact that, after the advance from the July 1934 lows to the January and February highs of 1935, the Rail and Utility groups again declined to new low ground, and the composite averages dipped slightly below the July 1934 lows in March 1935.

If we are to be guided by the movements of a composite such as the Standard 90 stock index in judging intermediate cycles, in March 1935 there was a great question as to whether the whole movement from the July 1933 highs to that date was not a bear market, with the decline from July to October 1933 as the major phase and the advance from October 1933 to February 1934 as the corrective phase of the first downward cycle; the decline from February to July of 1934, with the advance from July 1934 to February 1935 the second cycle; and the decline from February to March of 1935 the major phase of the third cycle.

But this application of the cyclical theory also had its very important defects. First, if a bear market began from the tops of July 1933, it would have followed one of the shortest bull markets in history, consisting of only one advancing cycle, plus the rise from February to July 1933. This would indeed have been unusual, because most bull markets have had from three and a half to ten and a half advancing cycles. Secondly, Industrial stocks, which have represented 70 per cent of the trading for the past several years, failed to decline under the lows of February 1933 either in July 1934 or March 1935, except in a few rare instances, such as, for example, National Biscuit.

Thirdly, practically none of the conditions of a bear market providing a customary bear market background, were present from July 1933 to March 1935.

For example, money was easy, the nation's credit reservoir was expanding rapidly, security loans were relatively low; the earnings of the principal corporations were either increasing or had stopped their decrease; and funds were definitely flowing into the stock market from other fields of investment. Fourthly, the time of the decline from the February high to the March low in 1935 was unusually short for a bear market major phase. Fifthly, and very important, the advance which followed the March 1935 low canceled all of the February-March decline which would mean that if a bear market began in July 1933, it probably ended in March 1935.

Thus, we have shown that the period from July 1933 to March 1935 presented a situation fraught with difficulties, when attempting to analyze it in terms of intermediate cycles, as earlier defined in this Chapter.

July 1933 - March 1935 a Significant Variation of Customary Cyclical Pattern

Now let us look at three simple diagrams: Figure 2A shows the common pattern of an intermediate cycle in a bull market; Figure 2B shows the first cycle in the bull market which began with the lows of 1932. This cycle ended with the lows of February 1933, just prior to the Bank Holiday. Figure 3 shows the pattern of the second bull market cycle from February 1933 to September 1935.

Note that the chief difference between the patterns shown in Figures 2A and 2B is that the corrective phase was more extended in the period from September 1932 to February 1933, than was common in a typical bull market cycle in previous years. The minor tops and bottoms during this corrective phase in Figure 2B, it will be noted, trended downward, until the February 1933 low was reached. The corrective phase of the advance from February 1933 to July 1933, Figure 3, although it was of much longer duration, was quite similar in pattern to that of the previous cycle shown in Figure 2B.

Figure 2

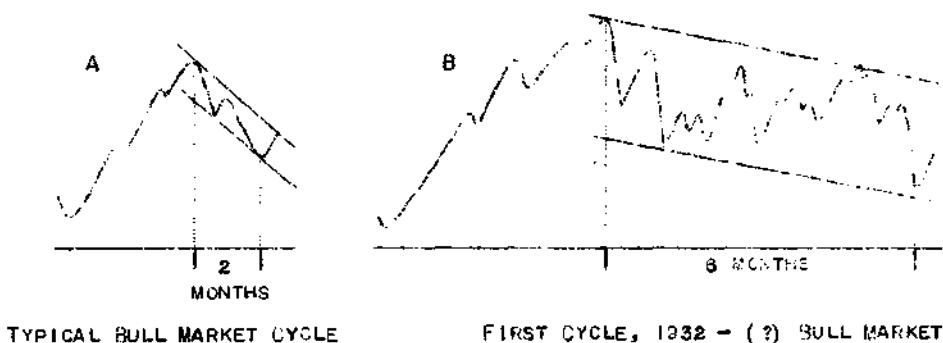
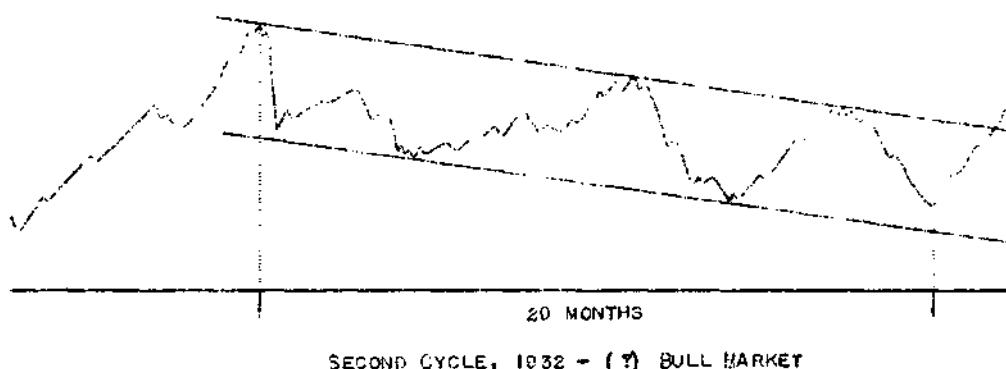


Figure 3



Corrective Phases Customarily of Short Duration

When we go back over the years, we find that the declines representing the corrective phases of bull markets are sharp and occur in a short period of time, after which the major phase of the next advancing cycle begins almost immediately.

Thus, we find that the cyclical patterns from September 1932 to date (as sketched in Figures 2B and 3), are quite different and dissimilar from the typical historical pattern, in that the corrective phases (September 1932-February 1933 and July 1933-March 1935) were of substantially greater duration.

Why These Confusing Exceptions?

In trying to reason the cause of this notable difference, and in trying to determine what factors may have been present during this period, which were not common to the previous cases, we conclude that the chief difference was the *Reform measures of President Franklin Delano Roosevelt's "New Deal"*. During the period we had the reformation of the stock market; the NRA regulation of general business; currency debasement; higher valuation of Silver; and political experimentalism. These disturbing forces seem to be adequate explanation to cause an unusual variation in the common historical pattern. Considering especially that they followed closely upon the heels of the greatest depression our nation has experienced.

Summarizing this notable variation in cyclical pattern, may we add to the definition of intermediate cycles the following:

A Qualification of Our Definition of Intermediate Cycles

When, during a bull market in stock prices, the confidence of businessmen is materially disturbed by the acts of their governing political Administration, the business trend can be so disturbed that the corre-

tive phases of the intermediate cycles of stock prices are widely extended in point of time, as a result of such uncertainties.

The long corrective phases of the intermediate cycles of 1933-35 which have been described above, lead to the conclusion that henceforth technical students may be obliged to classify intermediate trend cycles as two distinct types, namely,

1. Short cycles, and
2. Long cycles.

Figure 4 typifies the first case, while Figure 5 typifies the second case.

In Figure 4, the decline from (2) to (3), from (4) to (5), and from (6) to (7) are typical corrective phases of bull market intermediate cycles, of the short type.

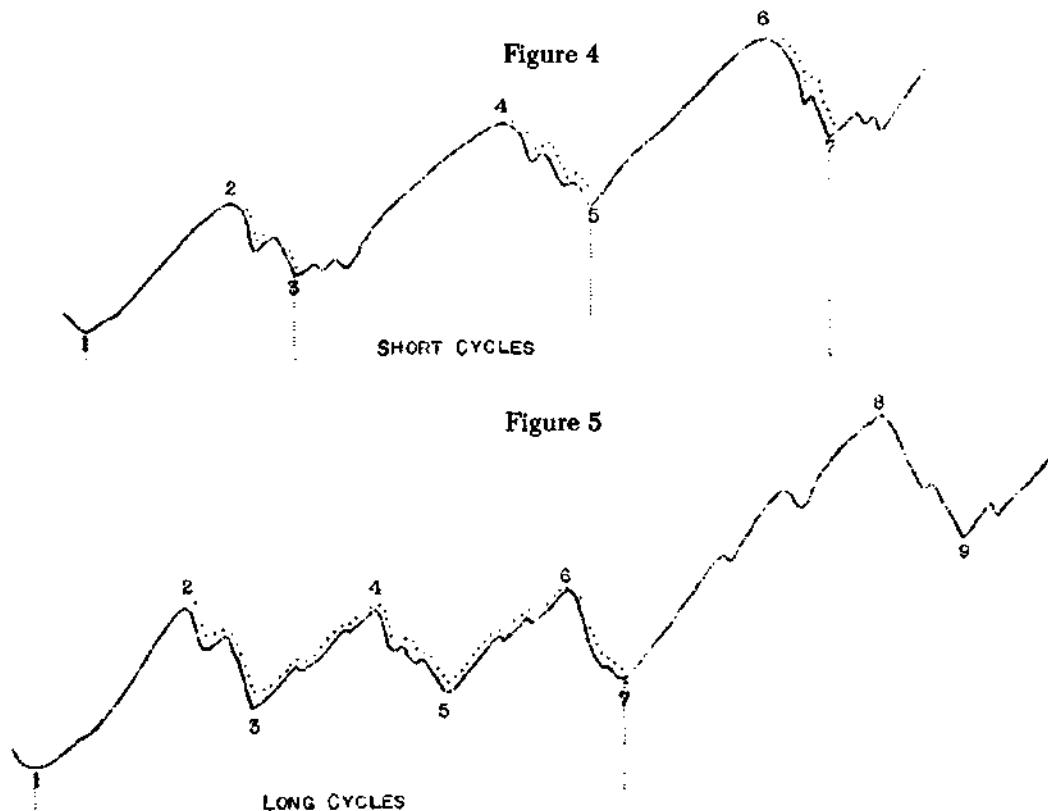
In Figure 5, the fluctuations from (2) through (7) are typical of the trading zone which extends the corrective phase to the long type of cycle.

Hazarding a guess, it is believed that the long type of cycle is more likely to occur in the early stages of a bull market, and less likely to occur in the later stages, in the presence of expanding inflation. For example, patterns resembling the long type of cycle appeared in 1923 and 1924, and again in 1926; but in the years from 1927 to 1929, the short type of cycle was characteristic. In bear markets, the long type of cycle seldom develops.

The fact that there appear to be two types of intermediate cycles, particularly in bull markets, materially complicates the practical trading value of such cycles. But with a knowledge of both types, the trader is at least equipped to cope with the complication.

A specific plan for trading both the short and long type of intermediate trend cycles is described later in this Chapter.²

² SEE PAGE 53



More Detailed Analysis of Intermediate Trends

Having broadly defined the intermediate cycles in stock price trends, now let us proceed to an examination and analysis of their more important characteristics and their relations to the major trend and the more important technical working tools.

Perhaps an outline of this discussion will be helpful in following it. The important angles of attack appear to be twelve in number, as follows:

1. Difference of Typical Patterns of Bull and Bear Market Cycles.
2. Amplitude of Intermediate Cycles.
3. Duration of Intermediate Cycles.
4. Bear Market Cycles.
 - A) Major Phases.
 - B) Corrective Phases.
5. Bull Market Cycles.
 - A) Major Phases.
 - B) Corrective Phases.
6. Relation of Major and Corrective Phases.
7. Final Half-Cycle in a Bull Market.
8. Final Half-Cycle in a Bear Market.
9. Volume Characteristics of Intermediate Cycles.
10. Seasonal Influence on Intermediate Trends.
11. Sequence of Working Tools in an Intermediate Trend.
12. Go-ordination of Technical Factors as the Background for a Trading Plan.

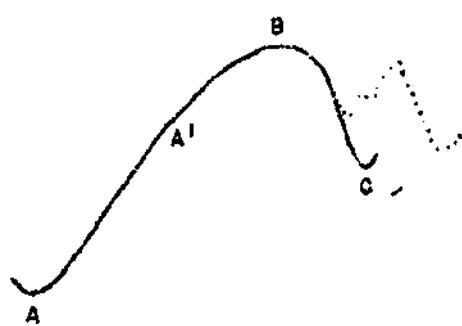
Patterns Differ

When the patterns of intermediate cycles are separated into those which occur in bull markets, and

those which occur in bear markets (considering only the short cycles, which of course are the majority of cases), it is found that they are quite different.

In Figure 6, we see a typical example of the chart pattern of a bull market intermediate cycle; while Figure 7 shows the pattern we may expect a bear market intermediate cycle to take.

Figure 6



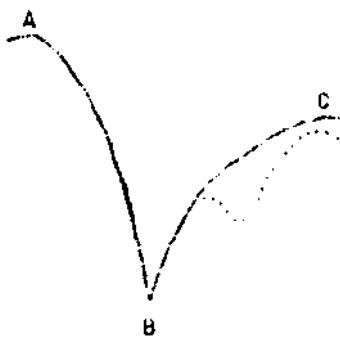
First, it should be noted that the bear market pattern is not, by any means, the exact reverse of the bull market pattern. That is, you could not turn one or the other upside down to get the opposite pattern. There are specific reasons why the patterns are different.

Bull Market Pattern

In a bull market (Figure 6), the primary force is the hope for higher prices. Prices at first rise steadily, from A to A', discounting a definitely better business out-

look. Then, from A¹ to the top at B, the rise is slower, and punctuated by minor trading areas. *This is the zone where the error of optimism develops, which is later cancelled by the corrective phase.* Usually, the top at B is a sidewise movement which slowly curves downward. Although a substantial rise has taken place, the public (small margin traders), who by this time have entered the market (usually between A¹ and B), are confident of a further rise, and in even small reactions are willing to buy more stocks. But then the error of optimism is great enough so that even in the presence of this "too late" buying, the trend slowly turns back. Then suddenly, without much warning, in the presence of generally bullish news, prices drop rapidly. Sharp declines of this kind are typical of the corrective phases in bull market intermediate cycles. About two-thirds of the bull market corrective phases in the past 40 years have developed in two waves of liquidation spaced by a minor technical rebound which retraces from one-half to two-thirds of the first wave of selling. Study, for example, the correction of September-October 1932, before the sidewise movement to the Bank Holiday ensued and also the case of July-October 1933 (Charts 7 and 8). In the one-third remaining cases the corrective phase proceeded to a termination in a single wave of selling which is followed by a persistent upward zigzag which is the resumption of the upward major trend. In Figure 6 the dotted line illustrates the pattern of the majority of cases while the solid line to C illustrates the single decline type of the minority of cases.

Figure 7



Bear Market Pattern

In a bear market (Figure 7), the primary force is fear of lower prices, which is augmented by the "force of liquidation". It is to be remembered that as a bear market progresses, there is a persistent liquidation of security loans. Although governmental regulation may limit the total volume of security loans in a bull market, it is hard to see how regulation will prevent the liquidation of existing loans when fear of declining prices rules the market. Offerings from this source must be absorbed. This tends to exaggerate a decline as compared with an advance, and probably is the chief explanation of the difference in the two typical patterns. As a bear market proceeds, more and more

men must sell stocks to liquidate collateral loans. On the other hand, in a bull market, there is no comparable "force of accumulation". Although short covering, and the pressure of idle investment funds in a bull market may properly be compared with the force of liquidation in a bear market, it is hard to believe that they are of anywhere near equal importance.

The typical bear market cycle, subsequent to initial cycles, begins with a sidewise movement, from a level where the "error of pessimism" of the previous major downward phase has been corrected. As prices resume their downward spiral, in line with the bear market major trend, hope that the bear market was over at the previous bottom is abandoned. Then fear quickly increases, and offerings of shares multiply rapidly. The margin accounts of hopeful bulls who bought in the previous corrective phase get into difficulties and must be liquidated. Bankers who have held collateral loans through the previous low begin to insist that they be liquidated as soon as it becomes evident that prices are again declining. As the demand for shares dries up under this circumstance, prices decline through the previous low, and more collateral loans are jeopardized, resulting in more liquidation. Then the Wall Street "jitters curve" rises sharply, offerings substantially exceed bids, and a selling climax develops, as the bottom B is reached (Figure 7). From this bottom there is the sharp rebound from a condition of panic, shorts begin to cover, hope is renewed, and prices rise rapidly for a week or two. Stock traders begin to wonder whether the bear market is over. In the next several weeks, one-third to one-half of the previous decline is retraced, and then, as offerings again begin to exceed demand, the cycle ends. Frequently, the advance from B to C is interrupted by a minor decline as shown by the dotted line. Study carefully the pattern of the market from September 1930 through February 1931 (see Charts 7 and 8).

Amplitude of Intermediate Cycles

In studying the amplitude of intermediate cycles, it must be definitely understood that it is decidedly a coincidence if any two movements or cycles in stock price trends are closely alike. Although we are certain that prices move in cycles, as defined above, we are equally certain that there is no exact similarity of such cycles. Some cycles account for substantial advances or declines, while in others, the gain or loss is relatively small.

In presenting conclusions concerning the amplitude of intermediate cycles, two distinct problems arise. First, lack of comparable historical data, and secondly, the difference in appraisal by various market students. The first problem presents the greatest difficulty. If we are to have confidence in our conclusions, we should have a large number of cases which are closely comparable. Pursuing this reasoning, several questions immediately arise. What average shall we

use in appraising the amplitude of intermediate cycles? Is a composite average, including all groups, better? If we use major group averages, such as the Industrials, Rails, or Utilities, how shall we reconcile cycles of different amplitude which occur simultaneously? Considering the fact that the stock market of the past few years (since 1926) has been quite different from that of previous years, how far back shall we go in making our observations?

In meeting these questions, we run into a number of difficulties. On the question of which average to use, authorities differ. Robert Rhea, who has done the outstanding published work on the subject, has employed the Dow Jones Industrial and Railroad averages, probably because they furnish the only consistent daily figures for a long period of time (1897 to date). This writer feels that a composite average, such as the Standard Statistics 90 stock index, would be preferable, because it eliminates the difficulties of the differences in the movements of the Industrials and Rails in simultaneous intermediate cycles. But exact data for the Standard Statistics 90 stock average is available only from 1926 to date.³ It would, of course, be possible to combine the Dow Jones Industrials and Rails into a composite from 1897 to date, and thus establish the basis for a long term study of intermediate cycles of a composite average. In the absence of necessary statistics for a composite average over a long period of time, the logical substitute appears to be the use of the Industrial average alone, because the Industrials have been outstandingly predominant in the past few years.

In his "Story of the Averages",⁴ Robert Rhea lists and tabulates the figures for both primary (major phases) and secondary movements (corrective phases) for both the Industrials and Rails.

Although there are a number of other stock market averages⁵ which might be used in appraising the amplitude of intermediate cycles, the available data is not sufficient to include enough cases for even general conclusions.

The study of the amplitude of intermediate cycles naturally classifies into the following categories:

Outline of Amplitude Study

General

Bull Market Cycles
Bear Market Cycles

Specific

Major Phases
Corrective Phases
Retracement in Bull Markets
Retracement in Bear Markets

³ THE INTERMEDIATE SWINGS ON CHART 8, FROM 1923-1926 ARE APPROXIMATIONS.

⁴ EVERY MARKET STUDENT SHOULD READ THIS REMARKABLE STUDY.

⁵ SEE CHAPTER II FOR BRIEF DESCRIPTIONS OF THE VARIOUS AVERAGES.

Relation of Phases in Bull Markets
Relation of Phases in Bear Markets
Net Gain in Bull Market Cycles
Net Loss in Bear Market Cycles
Per Cent Gain from one Bull Market
Intermediate top to the next
Per Cent Loss from one Bear Market
Intermediate bottom to the next

Each of these classifications contributes something of practical value in the study of amplitude.

In Tables I to IV, inclusive, in the Appendix of this Chapter, the reader will find ranked tabulations of the amplitude of both major and corrective phases in both bull and bear markets. These tabulations were taken from Robert Rhea's book, *The Dow Theory*, (pages 65-66). The period covered in these tabulations is from January 1897 to July 1933. The closing levels of the Dow Jones Industrial average is the basis of the computations.

In summarizing the data presented in these tabulations, we find that:

Amplitude of Bull Market Cycle Phases

In bull market major phases, advances have ranged from seven to one hundred seventeen per cent of the price levels from which they started (see Table I)-

1/4 OF THE CASES RAN FROM APPROXIMATELY 7 TO 14 PER CENT BEFORE CORRECTIVE PHASES OCCURRED.
L/2 OF THE CASES RAN FROM 15 TO 28 PER CENT.
1/4 OF THE CASES RAN FROM 20. TO 117 PER CENT.
THE MEDIAN⁸ AMPLITUDE WAS 20 PER CENT.

In studying Table I, it will be noted that of the 53 cases from 1897 to 1933, the two largest advances were the two latest cases (1932, 1933) which still stand as the record. In these, the Industrial average advanced 93.9 and 116.6 per cent respectively.

Also, it will be noted that 14 of the 16 cases from 1923 to 1933 (which should be given greatest importance because they are in modern times) accounted for advances of 15 per cent or more; 12 of these cases ranged from 15 to 40 per cent. Of the total of 53 cases, also, 32 were in the range of approximately 15 to 40 per cent.

Thus, we may conclude that, once a major phase of a bull market cycle has been established, a rise of 15 per cent or more is likely, with a good possibility that such an advance will carry to between 30 and 40 per cent.

In bull market corrective phases, the reactions retraced from as little as twelve per cent of the preceding major phase, to as much as one hundred

THE MEDIAN IS THE MIDDLE CASE IN A SERIES OF STATISTICS. AS APPLIED ABOVE, THERE ARE AN EQUAL NUMBER OF CASES WHEREIN THE PER CENT ADVANCE OF MAJOR PHASES WAS GREATER OR LESS THAN THIS CASE. IN TABLE I, 53 CASES WERE RANKED FROM THE LOWEST TO THE HIGHEST. THUS, THE MEDIAN WAS THE 27TH CASE, WITH 26 PRECEDING AND 26 FOLLOWING. (SEE PAGE 112, "STATISTICAL METHODS", BY F.C. MILLS, HENRY HOLT & COMPANY.)

seventy-nine per cent (see Table II).

1/4 OF THE CASES RETRACED FROM 12 TO 32 PER CENT.

1/2 OF THE CASES RETRACED FROM 33 TO 74 PER CENT.

1/4 OF THE CASES RETRACED FROM 75 TO 179 PER CENT.

THE MEDIAN RETRACEMENT WAS 56 PER CENT.

In studying Table II, it will be noted that in the last four of the 43 cases shown, the entire major phase of an intermediate cycle was retraced without a major reversal being signalled. Two of these cases occurred in the broad trading area from 1916 to 1926 (see Charts 1 and 2). One case (May 4-27, 1929) preceded the bull market top by four months, and was believed by many technical students to be the major reversal indicating the end of the 1923-29 bull market. On Chart 6,¹ the comparable decline, 18-19, it will be noted, did not cancel anywhere near the whole previous advance in the Standard 90 stock index. The last case listed, which was in 1898, appears to be more of a statistical freak than anything else. As 39 of the 43 cases retraced 93 per cent or less of the previous major phase, technical students have accepted the idea that a corrective phase does not retrace all of the previous phase. A further careful study of the tabulation shows that 23 of the 43 cases retraced between 30 and 66 per cent of the previous major phases; 32 cases retraced from approximately 30 to 93 per cent.

Thus, we may conclude that once a corrective phase of a bull market cycle has started, we may expect it to cancel from 30 to 90 per cent of the previous major phase without signaling any reversal in the major trend. A trading plan based on this promise is described at the conclusion of this Chapter (see page 145).

In bear market major phases, declines have ranged from three to fifty-four per cent of the price levels from which they started (see Table III).

Amplitude of Bear Market Cycle Phases

1/4 OF THE CASES RAN FROM

APPROXIMATELY 3 TO 12 PER CENT.

1/2 OF THE CASES RAN FROM 13 TO ABOUT 27 PER CENT.

1/4 OF THE CASES RAN FROM 28 TO 54 PER CENT.

THE MEDIAN AMPLITUDE WAS 18 PER CENT.

In studying Table III, it will be noted that of the 39 cases from 1900 to 1932, the five latest cases, all during the bear market of 1929-1932, accounted for the largest declines, which were substantially in excess of the vast majority of the previous cases. Note also that 5 of the 11 cases included in the 1919-20 and 1922-23 bear markets were relatively small declines. Thus, the more modern cases (1919-1932) of bear market major phases were rather widely scattered in point of amplitude.

However, we do find that 26 of the 39 cases ranged from approximately 12 to 30 per cent, with the majority of modern cases ranging from approximately 17 to as much as 53 per cent.

In the 1929-1932 bear market, the greatest declines occurred in the first major phase (20 to 21, Chart 6), and in the last half-cycle (equivalent to a major phase), (32 to 33, Chart 6). This should not be

accepted as characteristic of all bear markets. However, in five of the nine bear markets from 1900 to date, it is true that the last half-cycle has been of as great, or larger amplitude than the other major phases.

Thus, we may conclude that, once a major phase of a bear market cycle has been established, a decline of 17 per cent or more may be expected, with a good possibility that such a decline will carry to between 20 and 50 per cent.

In bear market corrective phases, the rallies retraced from twenty-nine per cent of the preceding major phase, to as much as one hundred sixteen per cent (see Table IV).

1/4 OF THE CASES RETRACED FROM 29 TO 38 PER CENT.

1/2 OF THE CASES RETRACED FROM 39 TO 63 PER CENT.

1/4 OF THE CASES RETRACED FROM 64 TO 116 PER CENT.

THE MEDIAN RETRACEMENT WAS 52 PER CENT.

In studying Table IV, it will be noted that of the 30 cases shown for the period from 1899 to 1932, in once case in excess of the entire amount of the previous major phase was retraced, without a bull market ensuing. In two other cases, approximately all of the previous major phases were retraced without signaling a change in the major trend. The data for the retracement of corrective phases appear somewhat more consistent than the previous studies. It will be noted that all of the modern cases (1919-1932) show retracements of from 33 to 63 per cent; and the majority of these from 33 to 48 per cent. Thus, conclusions made from these figures seem as if they should be a little more reliable.

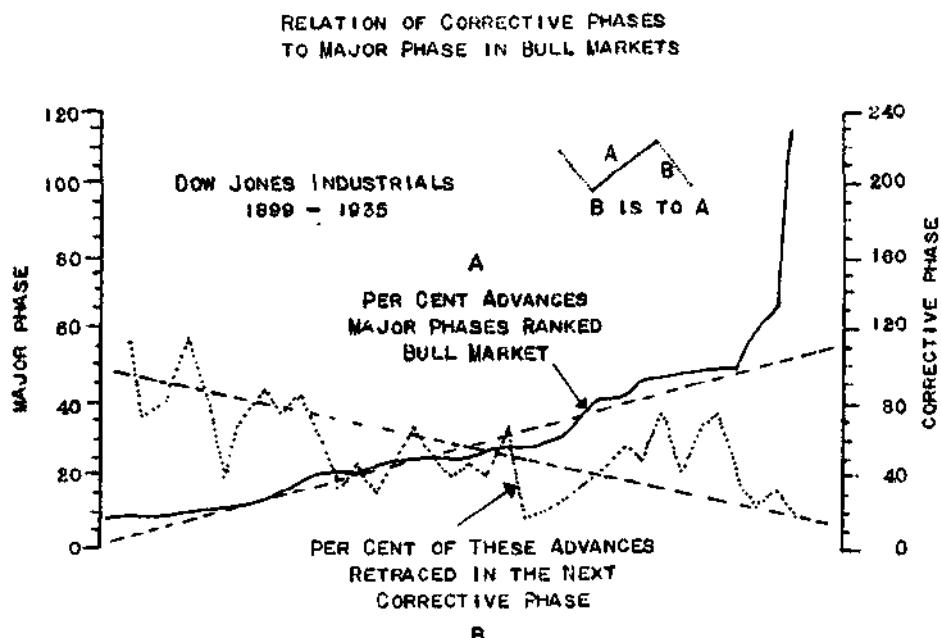
Technical students use the retracement of a previous major phase in a bear market as one of the important keys to indicate the major reversal from a bear to a bull market. This same is true in reverse as applied to bull markets. When a corrective phase of a bear market cycle, particularly if it is from the third to the fifth or sixth cycle in a respective bear market, retraces more than 66 per cent of the previous major phase, such excess retracement is considered to be valid evidence that the major trend has probably reversed. Note, in Table IV, that there were only 5 of the 30 cases which exceeded 66 per cent in retracement; and only one of these occurred in the past 20 years (Case 26).

Thus, we may conclude that once a corrective phase of a bear market cycle has started, we may expect it to cancel from 30 to 66 per cent of the previous major phase, without signaling any reversal in the major trend.

Relation of the Amplitude of Intermediate Cycle Phases

Having discussed the amplitude of major and corrective phases in both bull and bear markets, now let us consider the relation of the amplitude of these parts of intermediate cycles. From time to time, various market commentators have made vague generalizations.

Figure 8



Let Us First Consider Bull Markets

One of the principal questions which arises is: "If a primary swing (major phase) is of substantial amplitude, will the succeeding secondary reaction (corrective phase) be in proportion?"

In Figure 8, the solid line is a graph of a ranked tabulation (Table I) of the major phase of bull market cycles from 1897 to 1935. The dotted line is a graph of the per cent retracement of each of these major phases. It shows a very interesting relation, which has not previously been published.

Note that as the per cent advance in major phases rises, the per cent retraced shows a tendency to decline. From this, it seems reasonable to conclude that:

1. When the amplitude of intermediate cycle major phases is small, the retracement in subsequent corrective phases is likely to be large.
2. When the amplitude of intermediate cycle major phases is large, the retracement in subsequent corrective phases is likely to be small.

So, the statistics of the past 35 years do not seem to bear out the generally accepted idea that a substantial advance will be followed by a proportionately large correction. We may further conclude that:

1. When major phases of bull market cycles are less than 20 per cent in amplitude, the subsequent corrective phase is likely to be relatively large.
2. When the major phases are between 20 and 50 per cent in amplitude, the following corrective phases may normally be expected to be within a range of from 30 to 65 per cent in retracement. As the largest number of major phases are in this range, the common theory that a retrace ment would be 50 per cent finds its origin. If

the amplitude of the major phase exceeds 50 per cent, the retracement will probably be between 20 and 40 per cent.

Thus, we have established a general relation between the major and corrective phases of bull market cycles, which appears to have some reliability.

Another important question which arises is: "If a secondary reaction (corrective phase) retraces a substantial part of the previous primary swing (major phase), will the next primary swing be of lesser amplitude?"

In Figure 9, the solid line is a graph of a ranked tabulation (Table II) of the retracement of the corrective phases of bull market cycles from 1897 to 1935. The dotted line is a graph of the per cent advance in the ensuing major phases. It also shows an interesting relation, not previously published.

Note that, for the most part, both curves move upward together, showing that there is a general tendency for the amplitude of major phases to increase in line with larger retracements of previous major phases. This relation, however, is very irregular, and appears to afford no conclusion of consequence.

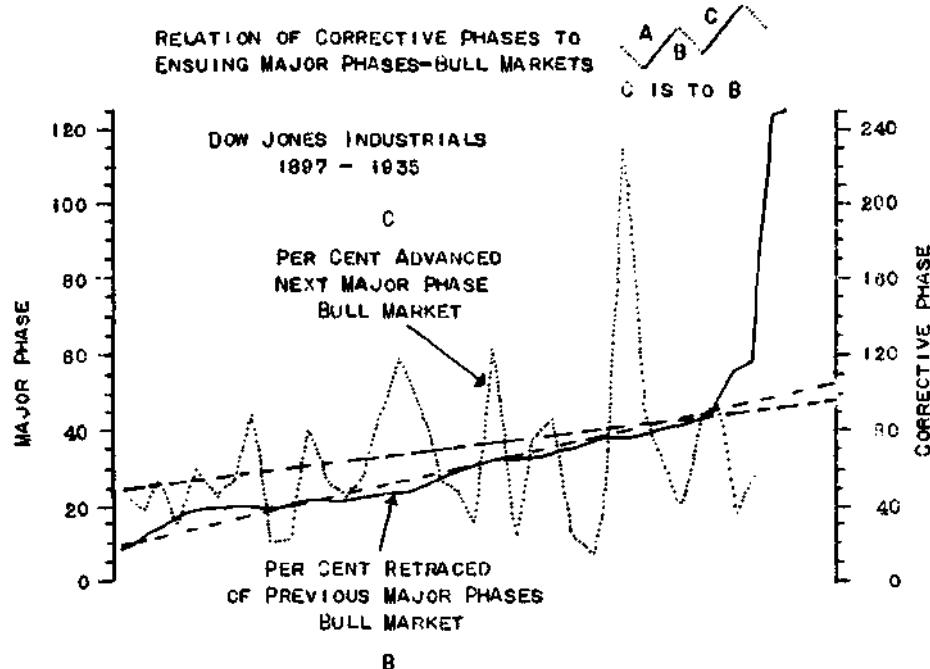
Thus, we may say that in general the amount of retracement of the major phase of one cycle does not forecast the amplitude of the major phase of the next cycle.

Now let us consider bear markets.

The same principal question arises, namely: "If a primary swing (major phase) is of substantial amplitude, will the secondary reaction (corrective phase) be in proportion?"

In Figure 10, the solid line is a graph of a ranked tabulation (Table III) of the major phases of bear market cycles from 1900-1932. The dotted line is a graph of the per cent of these declines which were

Figure 9



retraced in the ensuing corrective phase.

From this comparison, it seems reasonable to conclude that:

1. When the amplitude of intermediate cycle major phases is small, the retracement in subsequent corrective phases is likely to be large.
2. When the amplitude of intermediate cycle major phases is large, the retracement in subsequent corrective phases is likely to be small.

Thus, the same general premise seems to hold in both bull and bear markets. But in bear markets the retracements are far more irregular than in bull markets. There are no well-defined zones such as appear in Figure 8; and so equally detailed conclusions are not possible.

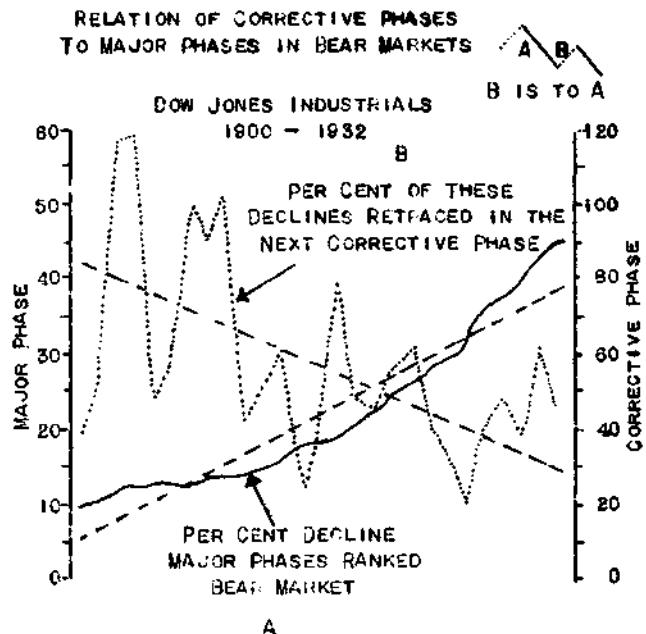
In studying the corrective phases in bear markets, we examine the same question propounded above for bull markets, namely: "If the secondary reaction (corrective phase) retraces a substantial part of the previous primary swing (major phase), will the next primary swing be of greater amplitude?"

In Figure 11, the solid line is a graph of a ranked tabulation (Table IV) of the corrective phases of bear market cycles from 1900 to 1932. The dotted line is a graph of the per cent decline in the ensuing major phases.

Note that, in general, the per cent advance of subsequent major phases appears to have no relation to the per cent retraced in the corrective phases of the previous cycles. Thus, only very general conclusions can be drawn which may be summarized as:

// retracements are less than 50 per cent, there is about an equal chance that the next major phase will be substantial; while if the previous retrace exceeds 50 per cent, the subsequent major phase is likely to be of lesser amplitude.

Figure 10



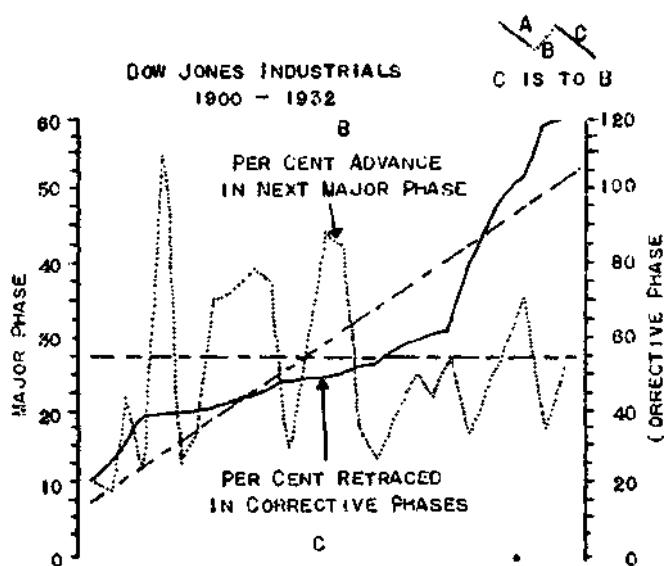
Amplitude of Complete Cycles

In following the outline of the amplitude study presented on page 117, now let us review the net gain in bull market cycles, and the net loss in bear market cycles.

This examination is made by comparing the gain at successive intermediate lows in a bull market (the end of corrective phases) and the losses between successive intermediate highs in a bear market (also the ends of corrective phases). These levels may be considered the points where the errors of optimism and pessimism

Figure 11

**RELATION OF CORRECTIVE PHASES TO
ENDING MAJOR PHASES IN BEAR MARKETS**



have been erased, and the major trends are resumed. We will also examine the gains and losses between successive tops in a bull market and successive bottoms in a bear market. In doing this, however, we will be splitting successive cycles in our observations.

Bull Market Cycles

Now let us examine Table V, with Chart 6 as a guide.

In complete bull market cycles from 1923 to 1935, the net gain ranged from .1 to 45.6 per cent.

1/4 OF THE CASES RAN FROM .1 TO 6.3 PER CENT.

1/2 OF THE CASES RAN FROM 6.6 TO 19.5 PER CENT.

1/4 OF THE CASES RAN FROM 25.4 TO 45.6 PER CENT.

THE MEDIAN WAS 11.6 PER CENT.

Thus, we may conclude that it is normal to expect a composite average, such as the Standard 90 Stock Index, to gain between 10 and 20 per cent in a complete intermediate cycle. Note how the median of 11.6 per cent is about one-half of the median in Table I, which shows the amplitude of bull market major phases. This relation of 1 to 2 bears out the idea that bull market corrections are often 50 per cent of the previous primary swing (major phase).

Bear Market Cycles

In Table VI, similar comparisons have been made for the complete bear market cycles of 1929-1932.

In complete bear market cycles from 1929 to 1932, the net loss ranged from 14.7 to 34.5 per cent.

1/2 OF THE CASES RAN FROM 14.7 TO 19.8 PER CENT.

1/2 OF THE CASES RAN FROM 18.8 TO 34.5 PER CENT.

THE MEDIAN WAS 18.8 PER CENT.

Thus, we may conclude that it is normal to expect a composite average, such as the Standard 90 Stock Index, to register a loss of from 15 to 30 per cent in a complete bear market intermediate cycle.

Note how the median of 18.8 per cent is about equal to the median in Table HI, which shows the amplitude of bear market major phases. This relation of about 1 to 1 at first glance would seem to indicate that bear market corrective phases do not, in general, bear out the 50 per cent retracement idea. This is not a fact. Table VI includes only the cycles of large amplitude, which developed in the 1929-1932 bear market; while Table III includes many cycles of lesser amplitude in previous bull markets. If the net loss for all these bear market cycles was considered, it is likely that the medians of the two tabulations would have the same general relation as indicated above for bull markets. However, as stock prices have been swinging in cycles of much wider amplitude in the last ten years, as compared with the previous twenty-five years, it is believed that the above conclusions, based upon the more recent period, are in general a sound guide.

During 1935, some market students argued that Securities Exchange Commission control would tend to diminish the amplitude of stock price fluctuations, because certain types of speculative manipulation had been outlawed. Although there seems to be some logic to this contention, it will be necessary to observe a complete bull and bear market, under regulation, before it will be possible to judge its exact effects. So far, stock market control has been mixed with so many other important economic uncertainties, all of which have had a bearing on stock prices, that to define its exact effects previous to substantial experience would unquestionably lead to great inaccuracies, and premature conclusions.

Per Cent Advances at Successive Bull Market Highs

Continuing our observation of the amplitude of complete intermediate cycles, let us now look at the per cent gains made at successive intermediate tops in bull markets, and per cent losses made at successive intermediate bottoms in bear markets. Later, we will find this is useful as a factor in judging the end of an intermediate major phase. (For this study we will take the Dow Jones Industrials, for which we have available figures for more than one bull and one bear market.)

In complete bull market cycles from 1921-1935, the per cent gain from one intermediate top to the next ranged from 4.0 to 36.2 per cent (see Table VII).

1/4 OF THE CASES SHOWED ADVANCES FROM 4.0 TO 7.3

PER CENT. 1/2 OF THE CASES SHOWED ADVANCES FROM 8.1 TO 18.5

PER CENT. 1/4 OF THE CASES SHOWED ADVANCES FROM 19.0 TO 36.2 PER CENT.

THE MEDIAN WAS 12.9 PER CENT.

The earlier cases, from 1897 to 1919, showed a very similar distribution in the same ranges. Thus, we may conclude that:

It is normal to expect a stock price average to gain between 8 and 18 per cent from one intermediate cycle top to the next intermediate cycle top.

The gain of 36.2 per cent made in the major phase of the second cycle of the current bull market (which is assumed to be still in progress) from February 27 to July 18, 1933 exceeded all modern cases. This unusual advance many market students attribute to "New Deal Inflation psychology".

As a general premise, it seems reasonable that we may assume that:

The successive intermediate highs in a bull market usually exceed previous intermediate highs by from 8 to 18 per cent.

Per Cent Declines at Successive Bear Market Lows

In complete bear market cycles from 1919 to 1932, the per cent loss from one intermediate bottom to the next ranged from 2.9 to 42.2 per cent (see Table VIII).

1/4 OF THE CASES SHOWED LOSSES FROM 2.9 TO 4.8 PER

CENT. 1/2 OF THE CASES SHOWED LOSSES FROM 5.6 TO 25.7

PER CENT. 1/4 OF THE CASES SHOWED LOSSES FROM 29.0 TO 42.2 PER CENT.

THE MEDIAN WAS 18.7 PER CENT.

The cases which showed the least loss over the previous intermediate lows were cases in the 1919-1921 bear market. On the other hand, the two most extreme cases, which were more than double the median, were the second and last declines (major phases) in the bear market of 1929-1932. Thus, we may conclude that:

Successive intermediate lows in a bear market usually exceed previous intermediate lows by from 13 to 25 per cent. Thus, if a typical selling climax appears within the range of these figures, there is good reason to believe that the corrective phase of the cycle in progress is about to begin.

Duration of Intermediate Cycles

Leaving the discussion of the amplitude of intermediate cycles, let us proceed at this point, in line with the outline on page 117, to the subject of Duration of Intermediate Cycles.

In Chapter I, it was pointed out that the three primary elements of stock price studies are:

1. Price (Amplitude)
2. Volume (Activity)
3. Time (Duration)

Duration is a statistical term for the *Time element* in our studies.

Here we will consider Duration only as related to bull and bear market intermediate cycles.

The study of duration of intermediate cycles naturally divides into similar categories to that of amplitude; namely,

General

Bull Market Cycles

Bear Market Cycles

Specific

Major Phases

Corrective Phases

Relation of Phases in Bull Markets

Relation of Phases in Bear Markets

Duration of Complete Cycles

Using Table IX, with Chart 6 as a guide, let us examine first the duration of complete bull market cycles.

Bull Market Cycles

In complete bull market cycles, from 1923 to 1935, the duration in calendar days ranged from 84 to 745. 1/4 OF THE CASES RAN FROM 84 TO 167 DAYS. 1/2 OF THE CASES RAN FROM 170 TO 241 DAYS. 1/4 OF THE CASES RAN FROM 367 TO 745 DAYS. THE MEDIAN WAS APPROXIMATELY 202 DAYS, OR 6.6 MONTHS.

Further study of this Table shows that if we leave out the cases in the 1932-1936? bull market, only the bull market cycle from March 30, 1925 to April 1, 1926, exceeded 241 days; and, making another exception for the short cycle between August 1 and October 24, 1923, the duration of the remaining eight of the twelve cases considered ranged from 146 to 241 days, or from 4.8 to 5.5 calendar months. The outstanding exceptions have been the two latest cycles (of the long type) in the bull market which began from the lows of 1932. Adequate explanation of this unusually long duration was discussed earlier in the Chapter (see page 116).

Thus, we may conclude that intermediate bull cycles (of the short type) run normally from five to six months, or at the rate of approximately two in the span of a year.

Bear Market Cycles

Using Table X, also with Chart 6 as guide, let us next review the duration of complete bear market cycles.

In complete bear market cycles, from 1929 to 1932, the duration in calendar days ranged from 121 to 216.

1/2 OF THE CASES RAN FROM 121 TO 135 DAYS. 1/2 OF THE CASES RAN FROM 152 TO 216 DAYS.

THE MEDIAN WAS 143 DAYS, OR APPROXIMATELY 4.7 MONTHS.

With the exception of the long first cycle from September 7, 1929 to April 11, 1930, which lasted 216 days, the remaining five cases were closely alike in ranging from 121 to 169 days, or from approximately 4 to 5.5 months. During the period covered by these cases, the rhythm of intermediate cycles was more pronounced than in any other similar period in history. As we look at it now, the liquidation of stocks from 1929-1932 appears as if it were quite systematic. Perhaps the force of liquidation of collateral loans may have had something to do with this unusual timing. But taking the cases at their face value as samples of modern stock market phenomena, we may conclude:

That intermediate bear cycles run normally from four to five months, or at the rate of from approximately 2.5 to 3 in the span of twelve calendar months.

A study of all the bear market cycles, from 1900 to 1932, does not alter this conclusion based upon only the 1929-1932 cycles. The majority of the cycles in late years (1919-1932) ranged from 1.9 to 6 months in duration, with the largest number of cases ranging from 4 to 6 months.

Following the brief outline of the study of duration, suggested on pages 124 and 125, now let us proceed to examine separately the duration of major and corrective phases, in both bull and bear markets. In Tables XI to XIV inclusive, of the Appendix to this Chapter, the basic data for this study has been tabulated.⁷

In summarizing the data contained in these tabulations, we find that:

Duration of Major Phases Bull Markets

In bull market major phases, the number of calendar days varied widely from 14 to 320 days (see Table XI).

1/4 RAN FROM 14 TO 59 DAYS.

1/4 RAN FROM 60 TO 138 DAYS.

1/4 RAN FROM 139 TO 320 DAYS.

THE MEDIAN WAS 92 DAYS.

In studying Table XI, we find that the large majority of the modern cases were in the central bracket, ranging from 59 to 137 days. Although, as the figures clearly show, duration, or time, is a most uncertain technical factor, we may conclude that:

Intermediate trend major phases in bull markets may be expected to run from about 1.9 months to 4.5 months.

The advance from the March 14, 1935 low was a very exceptional affair from the viewpoint of duration. Natural business recovery, Supreme Court decisions, fear of pronounced credit inflation and heavy governmental expenditures all contributed to this record case.

Duration of Corrective Phases Bull Markets

IN BULL MARKET CORRECTIVE PHASES, THE DECLINES HAVE LASTED FROM 7 TO 608 DAYS (see Note 7).

1/4 WERE COMPLETED IN 7 TO 19 DAYS. 1/2 WERE COMPLETED IN 20 TO 54 DAYS. 1/4 WERE COMPLETED IN 55 TO 608 DAYS.

The median was 37 days.

In studying Table XII, we again find an extremely wide variation. The more recent cases appear in two brackets, from 10 to 27 days, and from 45 to 608 days. About the only conclusion which we can make is that:

IN TABUS XI TO XIV INCLUSIVE, THE DURATION OF THE MAJOR AND CORRECTIVE PHASES OF THE DOW JONES INDUSTRIAL AVERAGE ARE USED AS BASE DATA. IN TABLE X, WE HAVE CHOSEN TO USE THE PERIOD FROM JULY 18, 1933 TO MARCH 18, 1935 AS THE CORRECTIVE PHASE OF THE SECOND CYCLE IN THE BULL MARKET WHICH BEGAN IN JULY OF 1932. SOME AUTHORITIES MAY DISAGREE WITH THIS CHOICE: BUT AFTER VERY CAREFUL CONSIDERATION WE BELIEVE THAT IT IS LOGICAL.

The corrective phases of bull market intermediate trends, in the majority of cases, run for more than one month. In the so-called short cycles, they run for 2 1/2 months, and in the long cycles from 3.3 months to 20 months.

Duration of Major Phases Bear Markets

IN BEAR MARKET PHASES, THE NUMBER OF CALENDAR DAYS RAN FROM 22 TO 324 DAYS (see Table XIII).

1/4 LASTED FROM 22 TO 53 DAYS. 1/2 LASTED FROM 54 TO 121 DAYS. 1/4 LASTED FROM 122 TO 324 DAYS.

The median duration was 77 days.

In studying Table XIII, we find that in more recent years the primary swings (major phases) in bear markets tended to be substantially shorter than those in the first fifteen years of the century. With only one exception, the more recent cases, from 1919 to 1932, ranged from 22 to 100 days, or from .7 to 3.3 months. Thus, we may conclude that:

Intermediate trend major phases in bear markets may be expected to last from a little less than one, to a little more than 3 months.

Duration of Corrective Phases Bear Markets

IN BEAR MARKET CORRECTIVE PHASES, THE DECLINES HAVE LASTED FROM 8 TO 37 DAYS (see Table XIV).

1/4 RAN FROM 8 TO 28 DAYS. 1/2 RAN FROM 29 TO 86 DAYS. 1/4 RAN FROM 87 TO 237 DAYS.

The median was 46 days.

In studying Table XIV, although we find a wide variation in the duration of corrective phases in bear markets, it is to be noted that the more recent cases were closely within the range of from 29 to 84 days, the general conclusion being:

The corrective phases of bear market intermediate trends, run from approximately 1 to 2.7 months.

The only important exceptional case in recent history was the first correction in the 1929-1932 bear market, which lasted from November 13, 1929 to March 17, 1930, a total of 155 days.

Relation of the Duration of Phases

Having discussed the duration of major and corrective phases, in both bull and bear markets, let us now examine the cases, to see if there is any relation between the timing of the successive parts of various cycles. Just as in the case of amplitude studies, we find some interesting information heretofore unpublished.

For example, an opinion widely held is that, if a primary swing (major phase) is of great duration, the ensuing corrective phase is proportionately long. Or if the corrective phase of one cycle, such as the long cycles from 1932 to 1935 is of great duration, it is likely that the ensuing major phase will also encompass a long period of time.

Let us examine the validity of these propositions.

Bull Market Major Phases

In Figure 12, the solid line is a graph of the data in Column 1, of Table XI, showing the duration of the primary swings (major phases) in the bull markets from 1897 to date. The dotted line is a graph of the duration of the corrective phases which followed each of these major phases. It will be noted that Figure 12 is the counterpart of Figure 8.

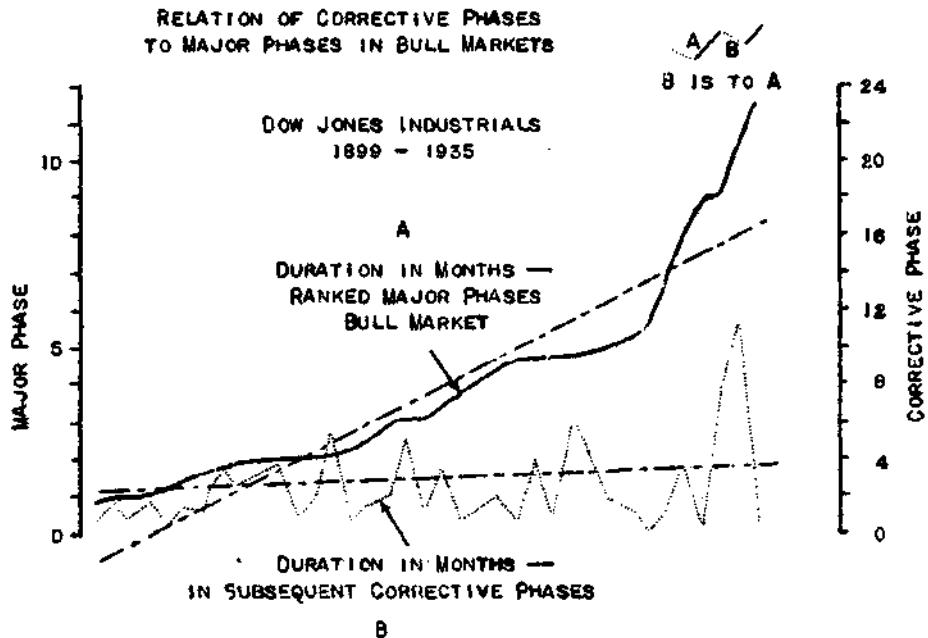
1. There is no useful relation between duration of a corrective phase, and the subsequent major phase.

2. Unusually long corrective phases are likely to be followed by relatively shorter major phases.

Bear Market Major Phases

In Figure 14, the solid line is a graph of the data in Column 1 of Table XIII, showing the duration of the

Figure 12



Note that in general the duration of the corrective phases tended to be less than the duration of major phases as the time of the latter increased. Thus, the proposition that a long major phase will be followed by a relatively long corrective phase appears to be adequately disproved.

The duration of the corrective phases of bull market cycles tends to be shorter as the previous major phases are longer.

Bull Market Corrective Phases

In Figure 13, the solid line is a graph of the data in the first Column of Table XII, showing the duration of the secondary corrections (corrective phases) in the bull markets from 1897 to date. The dotted line is a graph of the major phases which followed each of these corrective phases. It will be noted that Figure 13 is a counterpart of Figure 9.

Note that there appears to be a very general likeness between the duration of a corrective phase and the succeeding major phase. That is, longer corrective phases are followed by relatively longer major phases. But this general relation is of no practical value because of the wide differences in the succeeding major phases, as shown by the rapidly oscillating curve of the dotted line. We may conclude, however, the following:

primary swings (major phases) in the bear markets from 1900 to 1932. The dotted line is a graph of the duration of the corrective phases which followed each of these major phases. It will be noted that Figure 14 is a counterpart of Figure 10.

Note that here we find that there is a tendency for the duration of bear market corrective phases to diminish as the previous major phases increase in duration. When the major phases are short, the corrective phases are relatively long. When the major phases are long, the corrective phases are relatively short. Thus, we may come to the general conclusion that:

The corrective phases which follow bear market phases are likely to be relatively long, if the major phases are of short duration; and relatively short if the major phases are of long duration.

Bear Market Corrective Phases

In Figure 15, the solid line is a graph of the data in the first column of Table XIV, showing the duration of the secondary corrections (corrective phases) in the bear markets from 1900 to 1932. The dotted line is a graph of the major phases which followed each of these corrective phases. It will be noted that Figure 15 is a counterpart of Figure 11.

In studying Figure 15, it will be noted that the

Figure 13

RELATION OF CORRECTIVE PHASES TO
ENSUING MAJOR PHASES IN BULL MARKETS

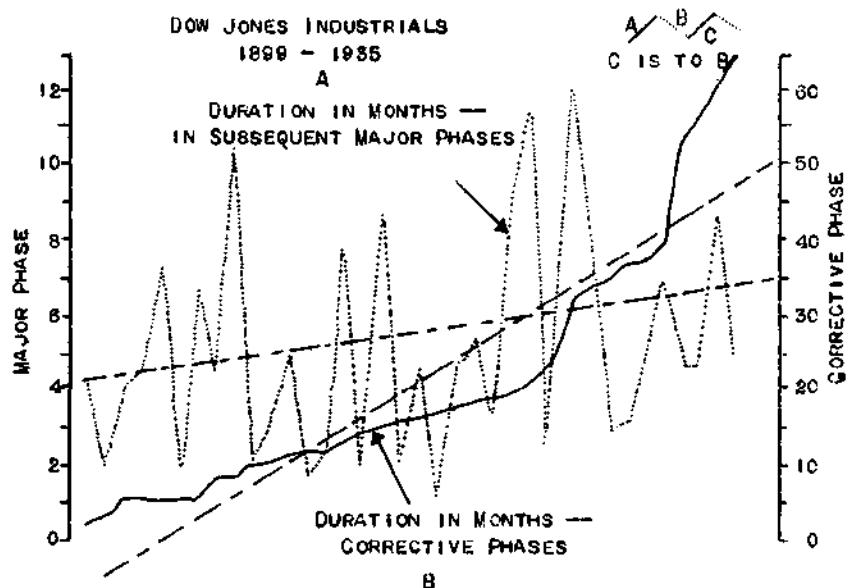
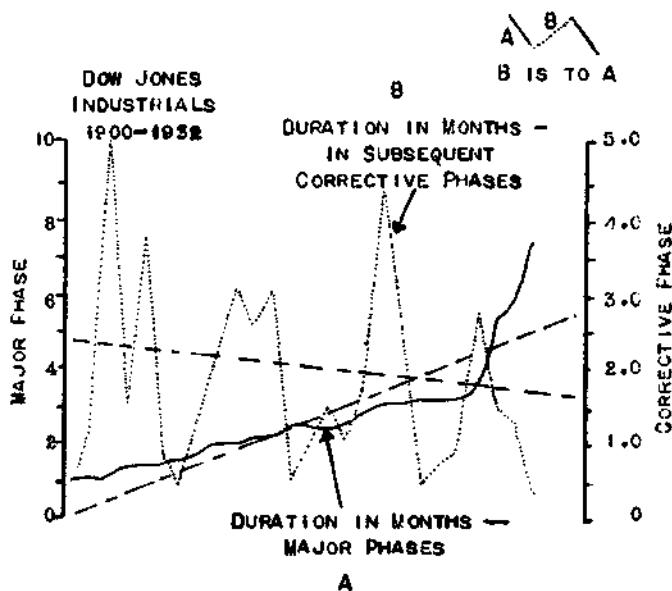


Figure 14

RELATION OF CORRECTIVE PHASES
TO MAJOR PHASES IN BEAR MARKETS



picture is somewhat similar to Figure 13. It is apparent that as successive corrective phases are of greater duration, there is a tendency for the following major phases to be of longer duration. Here again, however, the curve of major phases oscillates widely and shows little that may be considered dependable. Nevertheless, we may conclude in general, that:

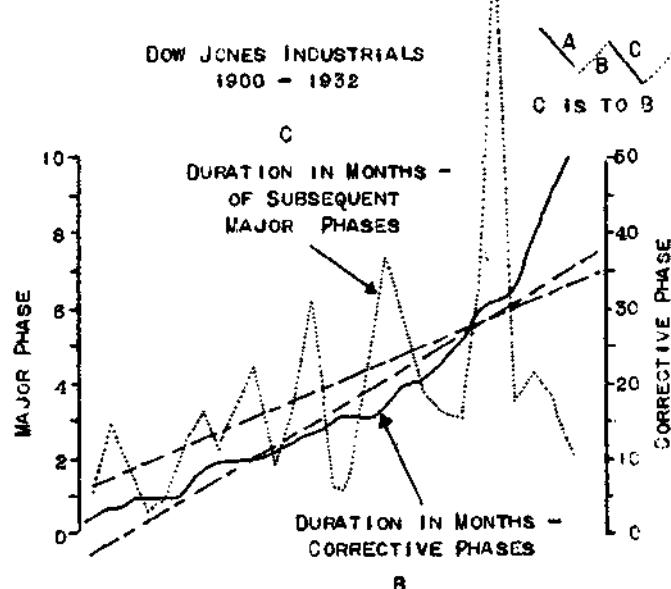
In bear markets, long corrective phases are followed by relatively long major phases. But when a corrective phase exceeds three months' duration, the following major phase is likely to

be relatively shorter.

Before proceeding to the seventh angle of attack in the study of intermediate cycles, as outlined on page 12, one more series of observations, concerning the amplitude and duration of intermediate cycles may add some useful knowledge. Let us combine our study of amplitude and duration, and observe the velocity of just the major phases of intermediate cycles.

Figure 15

RELATION OF CORRECTIVE PHASES TO
ENSUING MAJOR PHASES IN BEAR MARKETS



Velocity - Bull Market 1923-1929

In Figure 16, the lower line is a geometric graph of the *duration* of the successive major phases in the bull market 1923-1929, as shown by the swings on Chart 6. The middle line is a similar graph of the *amplitude* in percentage of these major phases. The upper line is a graph of the *velocity* of these major phases. The data for this upper line is obtained by the following formula:

$$\frac{\text{Amplitude in Per Cent}}{\text{Duration in Days}}$$

Thus, the upper line represents the middle line divided by the lower line. Factually, it shows the speed (velocity) of the bull market during the periods when advances were under way. The major phases pictured in Figure 16 are the same as those shown between points 1 and 20 on Chart 6.

In Studying Figure 16, we find that in the advance from points 1 to 9 on Chart 6 (October 24, 1923 - April 1, 1926), the velocity of the bull market was fairly constant; while from April 1, 1926, to the end of the bull market, on September 7, 1929 (point 20), the velocity of the rise steadily increased.

Now let us look at a bear market.

Velocity - Bear Market 1929-1932

In Figure 17, the lower line is a geometric graph of the duration of the successive major phases in the bear market 1929-1932; as shown by the swings (20 to 33) on Chart 6. The middle line is a graph of the amplitude in percentage of these major phases. The upper line is a graph of the velocity of these major phases. The data for this upper line is obtained by the same formula as for Figure 16.

We find some interesting differences shown in Figures 16 and 17. In the 1929-1932 bear market, after the first collapse from September 7, 1929 (20, Chart 6), to November 13, 1929 (21), the velocity of the liquidation during the remaining part of the bear market was constant. Duration of the major phase successive cycles showed a steady increase, while the amplitude showed a moderate increase. This explains the constancy of the velocity.

It is not contended that these velocity observations necessarily apply to all major markets. It would be interesting to research through history to see whether in general the sequences shown are typical.

If these cases are found to be general, we might then conclude, contrary to a large part of accepted theory, that:

1. *The velocity of bull markets tends to increase as the error of optimism mounts higher and higher during "new eras"; and*
2. *The velocity in bear markets tends to remain constant while the "vicious cycle of liquidation" proceeds.*

Let us now proceed to the seventh angle of attack in the study of intermediate cycles as outlined on page 117.

Figure 16

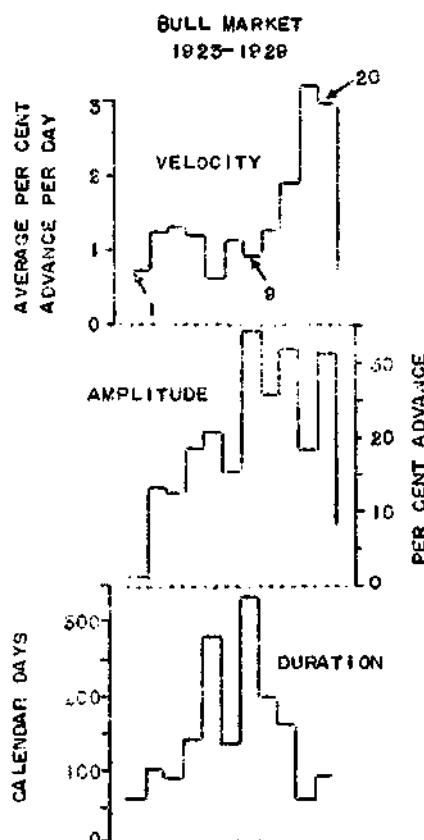
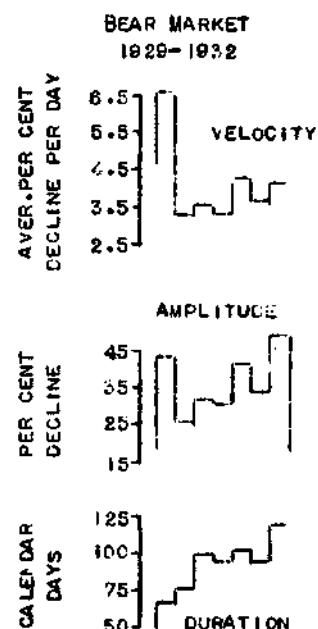


Figure 17



time later, will turn downward. (See page 6, Chapter IV and notations on Chart 2). At least some of the Production, Railroad Car Loadings, Automobile Production, Textile Production, Building, Machine Tool Orders, etc; especially on a seasonally corrected basis), have been showing very definite tendencies to reverse upward trends. In a final primary swing (major phase), the bull market ends, and an ensuing bear market begins. In the case of the bull market of 1923-1929, this was the period between approximately May 27 and September 7, 1929 (19-20, Chart 6). As the secondary reaction (corrective phase) of this last upward swing becomes the first primary downward swing in a new bear market, we choose to designate the last primary upward swing as the final *half-cycle*. Thus, every major primary trend ends in a half-cycle. *The conditions which attend the final swing of the bull market are fairly definite, bullishy misleading, but nevertheless evident to the informed student of stock price movements. The most important of these conditions are:*

1. The daily volume of trading has risen usually to an all-time high. (In the first six months of 1929 it averaged 4 million shares a day.)
2. The shares of the leading companies are selling from 10 to 20 times their low prices of the previous bear market.
3. Wide daily fluctuations are a regular occurrence.
4. Brokers' loans are at very high levels (usually in new high ground).
5. The facilities of the Exchange are taxed to take care of the business.
6. Nearly everyone you meet appears to be in some way interested in the market.
7. Earnings are discounted to the point where prices of the majority of active stocks are from 30 to 50 times current reported earnings.
8. The dividend yields on the shares of the strongest corporations have receded to, or are below, the yield of high-grade bonds.
9. Most financial news-writers and financial commentators can see no reasons (at least so they write) for any important decline in stocks. The thought that a bear market "is just around the corner" is not seriously considered. A bear who presents what appear to be sound and logical reasons why a collapse is imminent, is considered to be either an out-and-out dyspeptic, or at least a very unpatriotic citizen. He can count upon being very unpopular.

It is curious commentary on human nature that each bull market breeds a crop of traders who fail to recognize the unmistakable signs of storm.

The climax to these conditions, which, to the smart trader is one of the final signals of the end, is the first drastic crack in stock prices, which shows a substantial decline in brokers' loans, and breaks the previous intermediate bottom, where the corrective phase of the previous cycle ended. A typical example of this was the decline from September 7, 1929 to the low of

November 13, 1929 (3-9, Chart 7).

THE CHIEF TECHNICAL SIGNALS WHICH, IN THE ENSUING DECLINE CONFIRM THE LIKELIHOOD THAT THE FINAL MAJOR PHASE IN A BULL MARKET HAS TAKEN PLACE, ARE:

1. *A substantial increase in the volume of trading during the price recessions,⁶ and*
2. *The cancellation, or retracement, of 75 per cent or more of the previous major upward phase. If all of this phase is retraced, there is strong evidence that the bull market is over. (See Chart 7)*

When this happens, the alert technical student lays his plans to dispose of all of his long commitments, and take the short side, as near as possible at the top of the ensuing correction. (See April 1930, Chart 7)

Naturally, the last major phase of a bull market is followed by the first major phase of a new bear market. As long as an intermediate decline from what appears to be the top of a major phase, fails to penetrate the previous intermediate bottom, it is assumed that the major upward trend is still in force.⁹ Therefore, when what at first appears to be the corrective phase of a bull market cycle is extended beyond the previous intermediate low, the technical student assumes that the major trend has reversed, and then considers the previous major phase as the final half-cycle in a bull market.

Final Half-Cycle Bear Markets

As in the case of bull markets, the final bottom of a bear market is usually not far from the turning point of a major trend in business. In 1932, for example, it became evident between September and December that the long downward trend in business had probably reversed, although the actual low in the business trend occurred at the time of the Bank Holiday in 1933 (see Chart 2). In this case, stock prices had turned up from a low in early July.

In the final primary swing (major phase), a bear market ends and the ensuing bull market begins. In the case of the bear market of 1929-1932, this was the period between approximately March 8 and July 8, 1932 (32-33, Chart 6).

The conditions which attend the final swing of the bear market, like those in the final swing of a bull market, are fairly definite, bearishly misleading, but nonetheless quite plain to the informed student of stock price movements. Most important of these conditions are:

1. The daily volume of trading has fallen to a very low level. In the past 20 years, the figure has ranged from 200,000 to 606,000 daily on the average.
2. The shares of the leading companies (the earnings of which have sometimes declined to

⁸ SEE OCTOBER-NOVEMBER 1929, CHART 7.

⁹ SEE CHAPTER VII, FOR DOW THEORY INTERPRETATION.

deficits) are selling near, or less than, the net current asset value per share. Some of the lower priced issues are selling at a fraction of the cash on hand per share.

3. The majority of stocks are fluctuating within a narrow range, while a few stocks are persistently declining upon very small volume.
4. Brokers' loans are at a very low level. Brokers report that margin accounts have dwindled to the vanishing point. Odd lot houses report that "the public is out of the market".
5. The facilities of the Exchange are relatively idle. Stock Exchange seats are going begging.
6. The financial pages are of little or no interest to the vast majority of people. The boardrooms are empty. The chief interest of most people is their livelihood. The stock market is forgotten.
7. The stocks of those companies still running in the black are selling from six to twelve times earnings and in relatively good demand.
8. The dividend yields on the shares still paying dividends (frequently the consumer goods companies) range from 6 to 12 per cent, and are well above the yields on high-grade bonds.
9. Most financial newswriters and financial commentators can see no reasons for any important advances in stocks. The thought that a bull market "is just around the corner" is not given serious consideration. A bull who presents what appear to be sound and logical reasons why a major upward turn is imminent, is considered a leftover optimist from the previous bull market days. It is pointed out that his arguments aptly applied to previous markets in the bear trend which were subsequently followed by more drastic declines.

It is an equally curious commentary on human nature that each major down-trend breeds a crop of bears who fail to recognize fair-weather signals.

The climax to these conditions, which to the smart trader is one of the signals of the end, is the persistent and steady increase in the volume of activity in the so-called "investment" stocks, as is shown in Figure 18, presented by courtesy of Trendographs, Inc. The lower series in this diagram show the large relative volume of the trading in investment stocks compared with total trading. The upper series show the relatively small volume of trading in speculative stocks during the period when the bear market reversed to the bull side. (Well informed wealthy individual and corporate investors have the capital and the courage to buy the best stocks early.)

THE CHIEF TECHNICAL SIGNALS WHICH, IN THE ENSUING ADVANCE, CONFIRM THE LIKELIHOOD THAT THE FINAL MAJOR PHASE IN A BEAR MARKET HAS TAKEN PLACE ARE:

1. *A substantial increase in the volume of trading during price advances¹⁰, and*

2. *The cancellation, or retracement, of 80 per cent or more of the precious major downward phase. If all of this phase is retraced, there is strong evidence that the bear market is over.¹¹*

When this happens, the alert technical student covers all of his short positions, and lays his plans to take the long side, as near as possible at the bottom of the ensuing correction.

Obviously, the last major phase in a bear market is followed by the first major phase of a new bull market. As long as an intermediate advance from what appears to be the bottom of a major phase, fails to penetrate the previous intermediate high, it is assumed that the major downward trend is still in force. Therefore, when what at first appears to be the corrective phase of a bear market cycle is extended beyond the previous intermediate high, the technical student assumes that the major trend has reversed, and then considers the previous major phase as the final half-cycle in a bear market.

The next subject of discussion of Intermediate Trends, in following our outline on page 117, is the Volume Characteristics of Intermediate Cycles. In approaching this discussion, it is extremely important to point out in the very beginning that (as we will learn in Chapter XIV) the whole subject of Volume studies is one of generalities. At this point, we will comment upon only a simple observation of the total daily Volume of trading during the course of typical intermediate cycles.

Let us look first at bull market cycles.

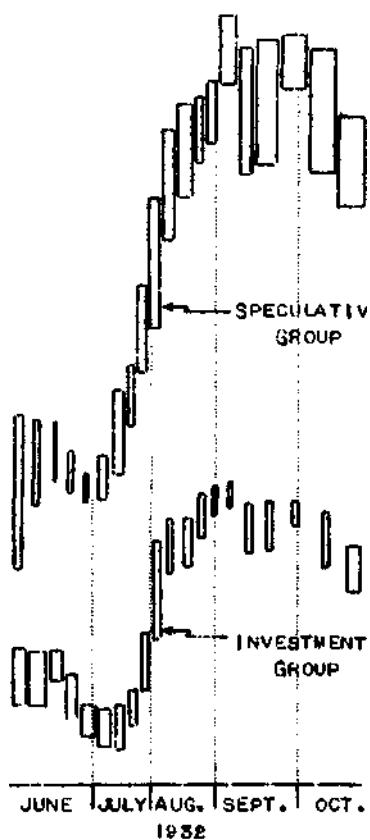
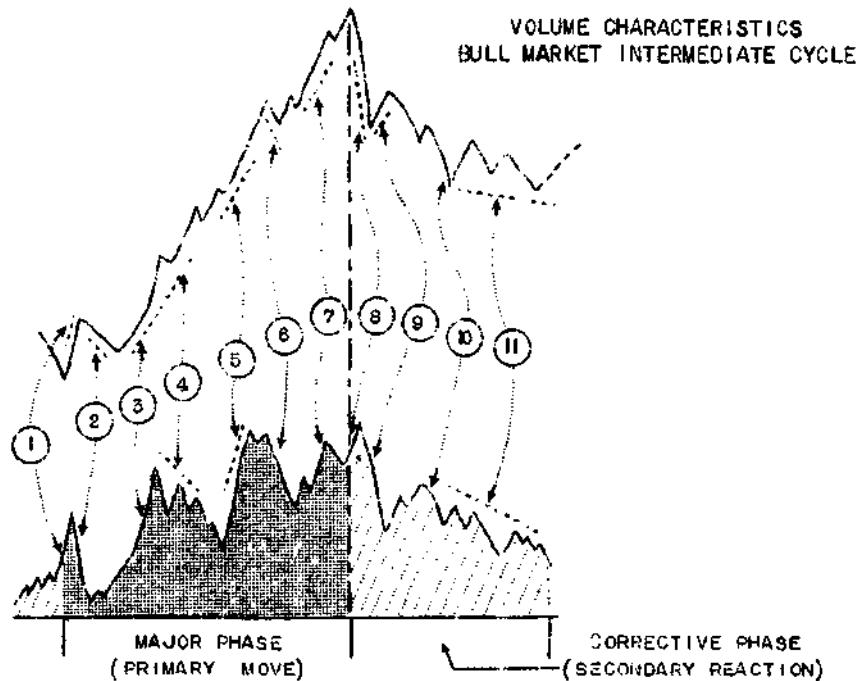
Volume Characteristics Bull Market Cycles

Figure 19 illustrates a bull market cycle (both major and corrective phases). The upper line shows the price trend of the composite average. The lower cross-hatched area portrays the daily volume of trading during the period.

Usually, when the corrective phase of the previous upward cycle has terminated, activity has dwindled to 400-600 thousand shares a day. Many margin accounts have been closed out. For several weeks, the market has "been dull". Then prices rise sharply for two or three days (1), during which activity is double the average of the previous dull period. In the ensuing minor reaction, volume quickly dwindles again (2),

¹¹ SEE ADVANCES 1-2, AND 33-34, CHART 6; SEE ALSO, JULY 1932, CHART 8. IN THE BEAR MARKET REVERSAL OF 1932, IT WAS NOT UNTIL PRACTICALLY THE SEPTEMBER 1932 HIGH, THAT THE PREVIOUS INTERMEDIATE HIGH POINT OF MARCH 8, 1932 WAS EXCEEDED. HOWEVER, IN THIS ADVANCE (CHART 8), IT WILL BE NOTED THAT IN EARLY AUGUST, RAPID PRICE RISES, ACCOMPANIED BY SUBSTANTIALLY EXPANDING VOLUME, EASILY EXCEEDED THE JUNE 1932 HIGHS, THUS PROVIDING AN EARLY SIGNAL OF A POSSIBLE CHANGE IN THE MAJOR TREND. THE FACT THAT THIS ADVANCE WAS MORE DYNAMIC THAN ANY OF THE CORRECTIVE PHASES IN THE PREVIOUS BEAR MARKET CYCLES, LED A HANDFUL OF THE KEENER TECHNICAL STUDENTS TO THE CORRECT CONCLUSION THAT THE MAJOR DOWNTREND HAD REVERSED TO THE UPSIDE. A FURTHER DISCUSSION OF THIS APPEARS IN SUBSEQUENT CHAPTERS.

¹⁰ SEE JULY-AUGUST 1932, CHART 7.

Figure 18**Figure 19**

which, to the alert trader is bullish. Volume has increased on the minor rally, and decreased on the subsequent minor correction. Then there is a steady rise in prices, accompanied by very evident expansion in activity (3). Frequently (not always), volume

dwindles as prices continue upward (4). This may be because that in the first part of an early rise, short covering is responsible for the acceleration in activity.

By this time, the major phase is well under way, and activity creeps steadily upward (5). Bullishness is again confirmed if, during a sharp reaction, volume again shows a notable tendency to dry up (6). Then as the final upward move approaches the culmination of the major phase, activity is likely to be sustained at a fairly high level (7), but not necessarily above the previously established peak during the mark-up stage. More often than not, the highest activity develops in the early part of the latter third of the major phase advance. At the actual top, although the turnover is still large, it is often somewhat less than the area where the most substantial price mark-up occurs (5-6).

One of the chief and most reliable technical factors indicating that a major phase is culminating, is sustained activity without prices moving comparably forward. For example, if the velocity of a given major phase has been, let us say, two million shares for each point of rise in a composite average, and then, for a period of several weeks, from 20 to 50 million shares are traded with only a two or three-point gain in prices, it is usually very sound evidence that the major phase is ending.

Just after the actual high of a major phase has been established, as prices decline in what appears to be only a minor reaction, volume frequently shows a

tendency to drop off. This phenomenon is often bullishly misleading. Then, in the first real crack in prices, which is sharp and usually lasts two or three days, activity expands rapidly (8), and in many cases reaches a peak level exceeding the highest volume at

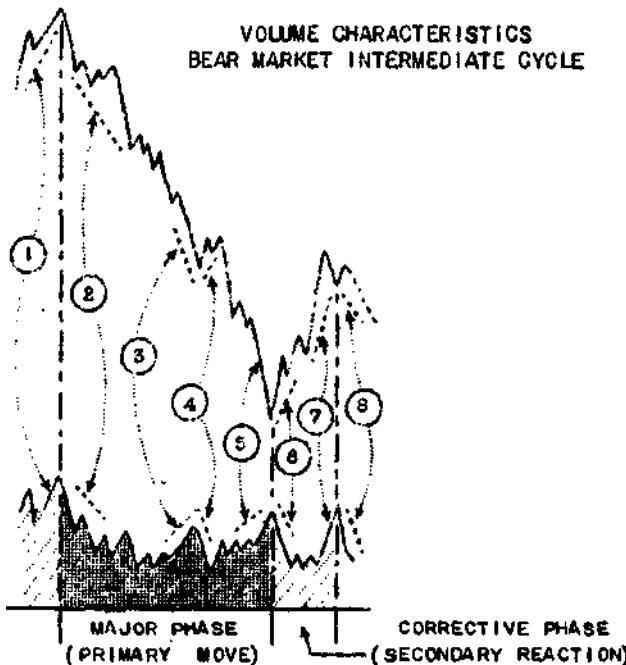
any time during the major phase. In a small way, the period resembles a selling climax (see Chapter XV) at the end of a major phase in a bear market cycle. As prices rebound for several days, or even two or three weeks, volume declines (9). This gives technical students a real indication confirming the fact that the major phase has culminated and a corrective phase is under way. They then plan their trading operations for a normal corrective phase. As the first minor rally terminates, and prices again begin to decline, volume, instead of increasing, frequently shows a tendency to dwindle (10), characteristic of a bull market. In the short cycles, as pictured in Figure 18, volume then shows a rather steady decrease for from two to six weeks, as the corrective phase runs its course (11).

Volume Characteristics of Bear Market Cycles

Figure 20 illustrates a bear market cycle (both major and corrective phases). The upper line shows the price trend of the composite average. The lower cross-hatched area portrays the daily volume of trading during the period.

Usually, when the corrective phase of the previous downward cycle has culminated, activity has increased (1), as compared with the beginning of the corrective phase. However, there are many cases where, after the first sharp rise in activity resulting from short covering, volume shows a tendency to decline as an intermediate top is made in a bear market.

Figure 20



As prices resume their major downward trend, activity usually shows no notable expansion (2). Frequently, it is not until the previous intermediate bottom is broken that there is any marked increase in activity as prices decline (3).

Almost always, the minor rallies in the major

phases of bear markets are accompanied by dwindling volume (4). As prices go into the final decline, which marks the termination of the major phase, volume usually shows a steady increase (5). Substantial activity appears in first one and then another individual stock, as each is liquidated in line with the major downward trend.

In the majority of cases, bear market major phases end in selling climaxes (see the cross-hatched sections from November 1929 to October 1931, on Chart 7). Selling climaxes, which are described more fully in Chapter XV, usually last from three to five days. On the final day, total activity usually exceeds the previous daily average by from 50 to 100 per cent; that is, if the average day has been from 500,000-700,000, a bear market major phase will end in a selling climax with the daily volume aggregating 1,200,000 or more.

After the short covering which accompanies the first sharp rebound during and subsequent to a selling climax, as prices continue to rise, volume dwindles (6). Then frequently there is a notable pick-up in activity, characteristic of bull trends (frequently misleading), as prices continue to rise to the culmination of the corrective phase. At the actual high of the correction, it is not unusual to find several days of dwindling activity, indicating that practically all demand has been supplied (8).

Passing along now to the tenth point in the outline on page 117, let us look into the seasonal characteristics of intermediate cycles, if any.

Seasonal Influence on Intermediate Trends

Most of the researchers of prominence, who have worked upon the problem of seasonal trends in stock price studies, have reported that there are no importantly useful conclusions.

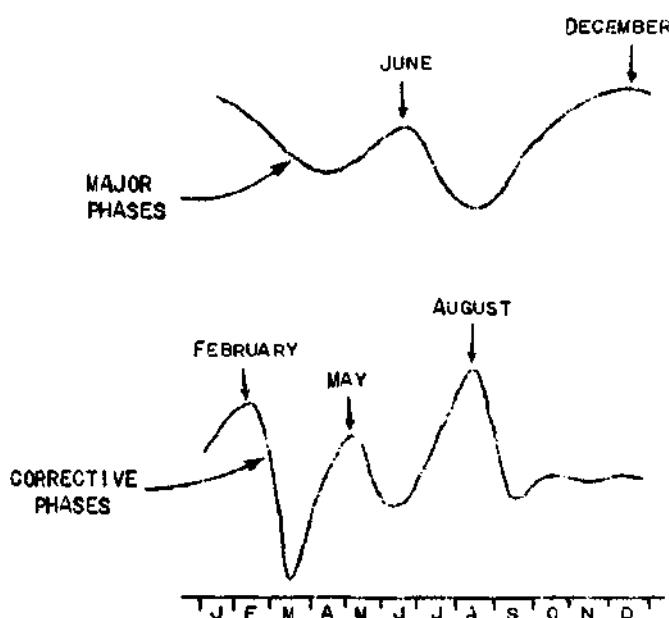
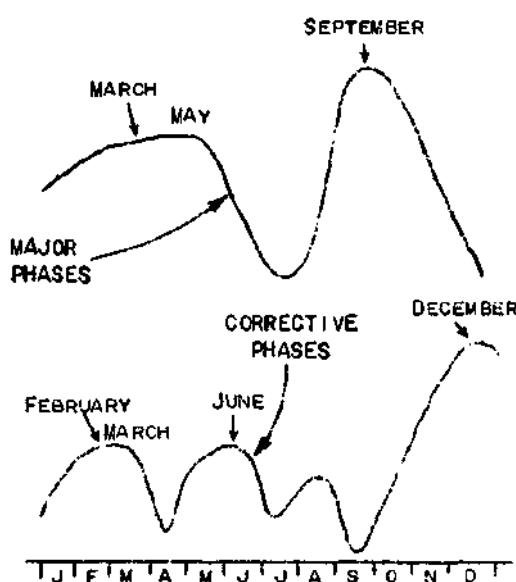
For the purpose of examining the seasonal influence upon intermediate trends, we have analyzed Column 2 in Tables XI to XIV, inclusive, showing the dates upon which the major and corrective phases of the intermediate cycles from 1897 to 1935 had their beginning. The number of cases which began in each of the twelve months, was then tabulated. Figures 20 and 21 show graphs of these tabulations, arranged according to months.

Our object is to determine whether the beginnings and endings of intermediate cycles and their phases occur with any useful frequency at particular times in the calendar year. As in other seasonal studies we find that no very definite conclusions may be drawn.

In Figure 21, the upper line represents the seasonal distribution (by months) of the beginnings of bull market major phases, or conversely the endings of corrective phases; while the lower line represents the beginning of bull market corrective phases, or conversely the endings of the major phases.

From these graphs, we may conclude that:

1. There appears to be a definite tendency for bull market major phases to begin either in June, or November and December. Conversely, there is the same tendency for cor-

Figure 21**Figure 22**

rective phases in bull markets to end at these periods.

2. There seems to be a definite tendency for bull market major phases to end in February, May or August, notably August. Conversely, there is the same tendency for corrective phases in bull markets to begin at these periods.
3. Combining these conclusions, we may therefore make the further very general conclusion that *bull market major phases* show a tendency either to begin in June and end between February and May, or *begin in November-December and end between May and August*. Conversely, we may expect *bull market corrective phases* to begin in February or May, and end in June, or to *begin in August and end in November-December*.

In Figure 22, the upper line represents the seasonal distribution (by months) of the beginnings of bear market major phases, or conversely the endings of corrective phases; while the lower line represents the beginnings of bear market corrective phases, or conversely the endings of the major phases.

From these graphs, we may conclude that:

1. There appears to be a definite tendency for bear market major phases to begin in March-May, and particularly in September. Conversely, there is the same tendency for corrective phases in bear markets to end at these periods.
2. There seems to be a definite tendency for bear market major phases to end in February-March, June and particularly in December. Conversely, there is the same tendency for corrective phases in bear markets to end at these periods.
3. Thus, we may therefore make the further very

general conclusion that *bear market major phases* show a tendency to begin in March-May, and end in June, or *begin in September and end in December*.

Conversely, we may expect *bear market corrective phases* to begin in March and end in May, begin in June and end in September, or *begin in December and end in March*. Without question, the above conclusion for both bull and bear markets are closely related to the Spring and Fall trade seasons.

Remember that stock prices habitually discount business.

In concluding the discussion, let us review the underlined portions of both conclusions Number 3, above.

In bull markets stock traders buy stocks in November and December, and early January, anticipating a good Spring season in business, which they hope will mean greater earnings for the corporations whose shares they purchase. They do the same thing from June to August, anticipating the Fall season. Thus, major phases in bull markets are more often than not initiated in these periods.

Similarly, in a bear market, hope arises that perhaps prices will turn to the bull side, if Spring or Fall business gets better. Thus, we find more often than not that corrective phases in bear markets begin in the periods when bull market major phases begin (June and November-December).

On the other hand, in bear markets stock traders try to discount declining business as soon as they can judge that a substantial seasonal rise in Spring or Fall business is not materializing. Thus, we find a large number of bear market major phases beginning in March and April, and particularly September, just as we find corrective phases in bull markets beginning with some regularity in February and August.

In the plan of discussion as outlined on page 117,

we now come to a general resume of the sequence of technical working tools in a typical intermediate trend (both bull and bear market cycles).

Novices Detour

The reader who has not previously studied the technical side of the stock market will find this part of the discussion perhaps somewhat confusing, because technical phenomena covered in Chapters VII to XIV, inclusive, which follow, will be employed without detailed explanations. Readers to whom technical studies are new would do well in skipping this part of the discussion, and resuming at page 139, until after they have had the opportunity of digesting Chapters VII to XIV, inclusive, at which time they should return to this point, and review the ensuing pages with greater benefit.

Sequence of Working Tools in Intermediate Cycles

In presenting a brief summary of the technical phenomena which the market student may expect to

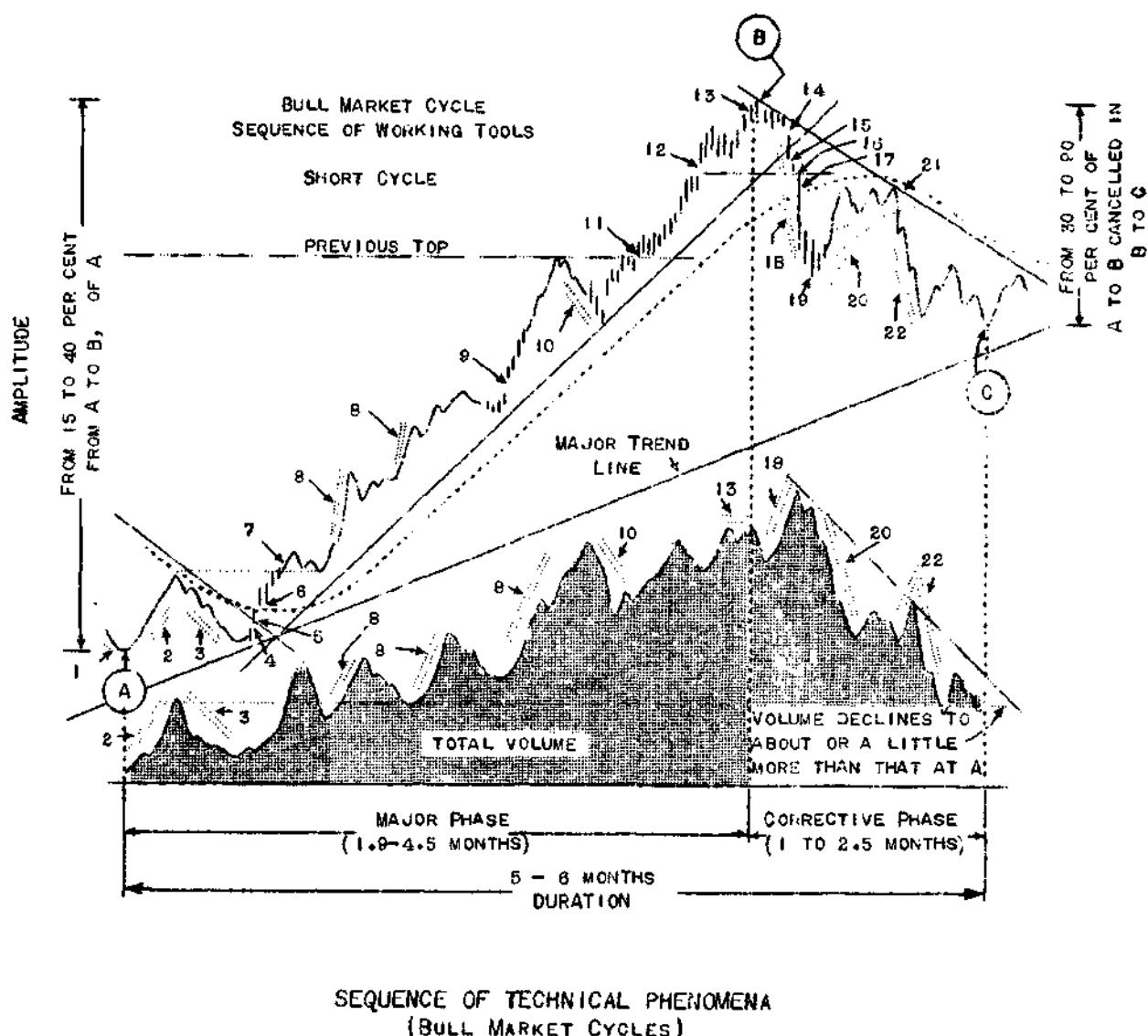
find in the course of intermediate cycles, it must be clearly understood that no particular cycle ever includes all the technical factors discussed.

If, in the course of the major or corrective phase of a given cycle, the majority of these factors develop, there is usually ample technical evidence upon which to base a reliable conclusion as to a probable intermediate turning point. Each of the factors discussed are outlined in detail in subsequent Chapters. (See Index, for quick reference to the individual terms used.)

Bull Market Cycles

Figure 23 diagrams the numerous technical phenomena in the short type of bull market intermediate cycle. (See page 134. The longer type cycles may be studied by a detailed examination of the periods from July 1932 to February 1933, and February 1933 to March 1935. See Charts 7, 8 and 15.)

Figure 23



Sequence of Technical Phenomena

(Bull Market Cycles)

Major Phase (See Numbers 1-13, Figure 23)

1. At "A", the major phase of the cycle begins from a minor bottom, usually lasting from 3 to 12 trading days. The pattern of this minor bottom most frequently is of three types, namely:
 - Head-and-shoulders
 - Double
 - Rounding
2. Volume frequently shows a sharp increase in the first minor rally.
3. Conversely, almost always volume shows a definite decrease in the ensuing minor reaction, which terminates moderately above the previous minor low which established the intermediate bottom.
The slightly higher bottom provides Dow Theorists with their first implication that the trend has probably changed.
4. The second minor rally which ensues frequently provides several bullish technical factors, confirming a new major phase. Unexpectedly, from dullness, prices are bid up overnight forming upside gaps, sometimes two or three days in a row. The first of these is designated as a breakaway gap, indicating that a new major phase has been initiated.
5. In the second minor rally, the intermediate downtrend line across the minor highs of the previous decline is penetrated.
6. During the same minor rally, the intermediate trend (28-day) moving average is frequently penetrated.
7. Often, this second rally carries through the previous minor high, thus providing Dow Theorists with a concrete bullish implication, in that a series of successive higher tops and bottoms have developed.
8. Following a minor reaction or sidewise movement of several days, prices again move upward sharply, as volume continues to show the tendency of contracting in declines and expanding in advances.
9. After prices have moved upward for from three weeks to two months, a consolidation or sidewise movement is followed by bidding up of prices overnight (frequently over a weekend or holiday), thus establishing another upside gap which is designated as a measuring gap, and provides one means of indicating that the trend is to carry substantially further.
10. In the ensuing rally, the high of the previous intermediate cycle is often reached. Sometimes this presents a barrier for several days, and occasionally a sharp and very misleading correction ensues prior to penetration. If volume dries up in this reaction, it is a definite signal to increase long commitments.
11. The next rally penetrates the previous inter-

mediate top and provides the Dow Theorist with an indication that the upward trend is to carry on substantially further. Dow Theorists also see in this phenomenon a confirmation of the major or primary upward trend (providing both Industrials and Rails exceed the previous intermediate high. See Chart 15, May 1933.) The fact that most bull market major phases carry from 10 to 20 per cent above the high established at the culmination of the previous major phase, provides another reason for believing that the rise will be extended substantially further. (See Table VII)

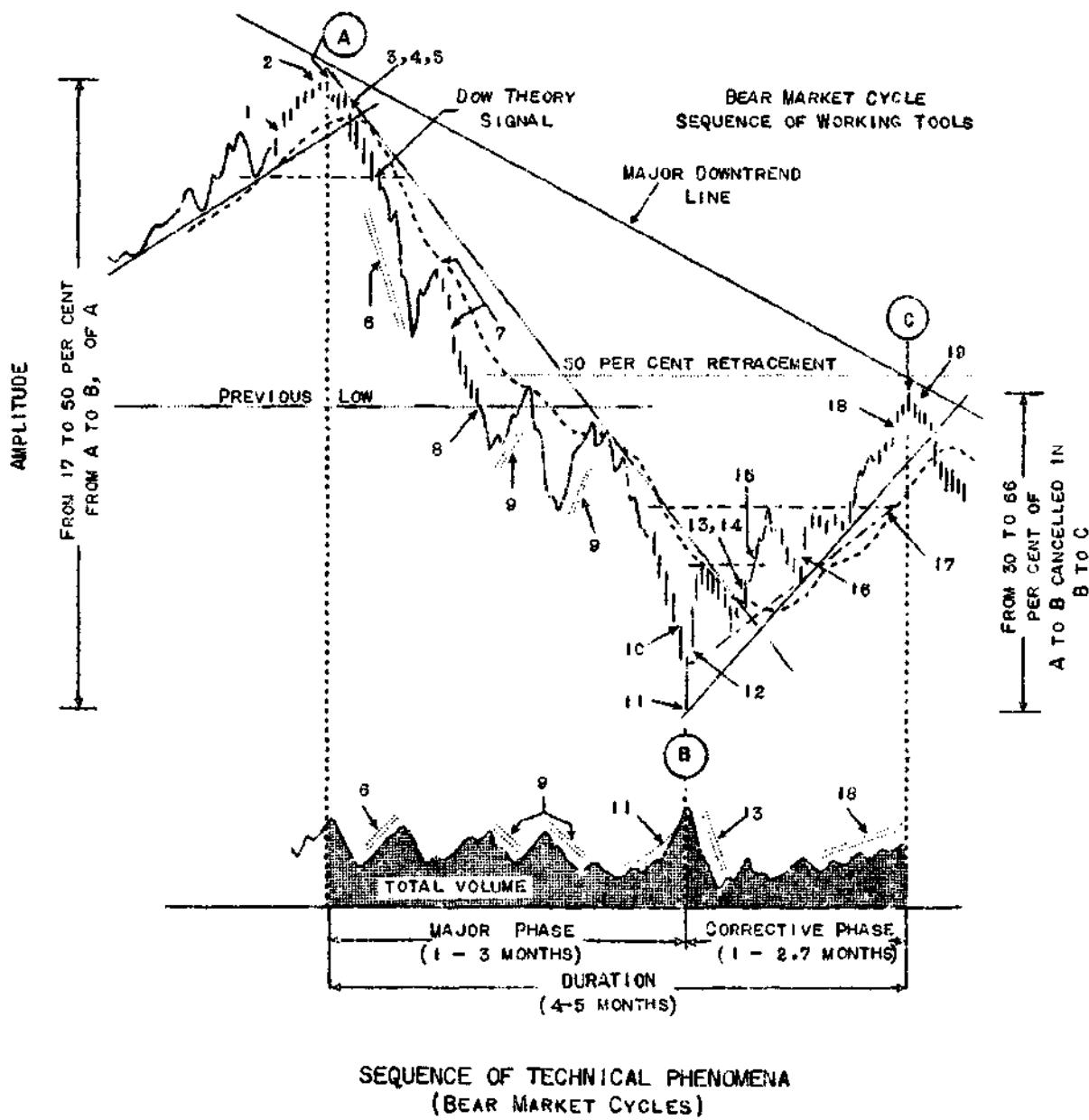
12. After from two to four weeks more of rising prices, another upside gap develops, usually accompanied by substantial volume. Although great bullishness usually abounds at this period, keen technical students cautiously look at this gap as possibly of the exhaustion type, and consider it a warning of a possible impending top from 3 to 18 days later.
13. If, in the course of the next two or three weeks, volume continues relatively high, without prices rising proportionately to the previous gains, the slowing down of velocity is regarded as another bearish factor indicating the culmination of the major phase at "B". Frequently, before the market as a whole, as reflected by the composite averages, shows any marked tendency to decline, one or more individual stocks have a precipitate drop. (Frequently curb issues develop this phenomenon.) Technical students regard such declines as bell wethers.
At this point, they scrutinize the minor trend patterns of the averages and individual stocks, looking for typical minor tops, such as head-and-shoulders, double and rounding.

Corrective Phase (See Numbers 14-22, Figure 23)

14. The first signal confirming the probability that the major phase is over, and the corrective phase is under way, usually is a precipitate decline of several days, in the absence of very bearish news. This decline usually penetrates the adjusted uptrend line across the lows of the previous major phase.
15. Frequently, though not always, a downside gap develops, which is the breakaway gap of the corrective phase.
16. In the same decline, the previous minor low is decisively broken, providing Dow Theorists with a bearish signal.
17. Close by, the intermediate trend (28-day) moving average is penetrated.
All four of these factors (14-17) frequently develop in the course of two or three, or even one day.
18. In the course of this first sharp decline, volume often rises to a new high peak. This strongly confirms an intermediate reversal.

19. After from four to six days of rapid decline, a selling climax, of bull market type, frequently develops, probably caused by belated bulls, all trying to sell at once. Some margin accounts get into trouble, and unwise short sellers, not familiar with bull market intermediate corrections, add to the supply of shares. The result is a sharp, or if not sharp, a steady rebound, which cancels from 40 to 60 per cent of the previous minor decline. Purchases which are well-timed in bull market selling climaxes are almost certain to yield a minor trend profit to the alert trader who is willing to sell out when 40 per cent of the previous minor reaction has been retraced. The famous Hamilton used to say that a normal retracement of the first sharp selling in a secondary (corrective phase) was one of the most certain of all market movements.
20. The ensuing rally is likely to be accompanied by declining volume, as public interest in stocks temporarily wanes because of the severe drop in prices just preceding.
21. Frequently, what appears to be a consolidation of a new advance develops after the rebound of the first sharp crack of the corrective phase. For a time, traders look for higher prices. Occasionally, these consolidation areas develop in a small triangle pattern, as uncertainty about the future course of prices increases. Then another minor downtrend gets under way, and the decline (corrective phase) is resumed.
22. In the second part of the corrective phase (most corrective phases have two parts, that is, the decline occurs in two stages), volume frequently shows a moderate increase, followed by a notable decrease as the selling ends. This is often

Figure 24



the signal which gives technical students their first clue to the possibility that the corrective phase is terminating. In a few cases, there have been downside exhaustion gaps from one to five days before the termination, at "C". These are infrequent.

In the long type of bull market cycle, where the corrective phase runs from 6 to 20 months, as was the case in 1932-1933, and again in 1933-1935, the technical student naturally has no way of knowing that a major new phase is not under way (following a normal corrective phase), until a rise from what appears to be the termination of the corrective phase (C) culminates at or under the previous intermediate high (B), and what appears to be a second corrective phase sets in.

Bear Market Cycles

Now let us examine the sequence of technical phenomena in bear market intermediate cycles. Figure 24 is a diagrammatic sketch of these phenomena.

Sequence of Technical Phenomena (Bear Market Cycles)

Major Phase (See Numbers 1-11, Figure 24)

1. At "A", the major phase begins as the primary downward trend is resumed. The actual top is frequently preceded by an upside gap, of the exhaustion variety.
2. For a period of several days, a minor top is in progress of development. It often takes the form of a double top; less occasionally a rounding top, the outstanding example of this latter type being the March-April period, 1930 (see Chart 7). Good examples of the head-and-shoulder minor tops seldom appear at the beginning of major phases in bear markets. Occasionally, the corrective phase of a bear market cycle will end in an island reversal.
3. Quite frequently, the major downward trend is initiated with a downside gap, which breaks through the minor lows of the preceding few days.
4. The first sharp minor decline usually breaks through the uptrend line across the lows of the corrective phase of the preceding cycle.
5. Simultaneously, or just following, the intermediate trend (28-day) moving average is sharply penetrated.
6. The first minor decline in the downward major phase is usually sharp, and is accompanied by rapidly expanding activity, as traders who have been caught in previous cycles become conscious that another discouraging decline is probably under way. In this first minor decline, the previous minor low is broken, providing Dow Theorists with an early bear signal.
7. After two or three weeks of decline, a minor rally of relatively small amplitude ensues, which usually retraces only a third or less of the previous minor decline. Sometimes this first

minor correction appears only as a sidewise consolidation of the decline. Prices then again resume their downward trend, and overnight, or particularly over a weekend, offerings increase substantially enough to cause a downside gap, which the technical student realizes may well be of the measuring type. This gap frequently provides an early means of estimating the general area wherein a termination of the major phase may be expected.

8. The decline which follows the gap usually carries through the previous intermediate low, giving Dow Theorists a confirmation that the major downward trend is still in force. Some times, but not always, the area of the previous intermediate low forms a temporary barrier from which a minor rally, or a minor sidewise consolidation, develops.

The fact that most bear market major phases carry from 13 to 25 per cent under the low established at the termination of the previous major phase (see Table VIII), provides another reason for believing that the decline will be extended substantially further.

9. Frequently, the minor corrections in the neighborhood of the previous intermediate low show a decline in volume and provide the technical student with evidence indicating that the technical position is still weak.
10. After one or two minor rallies, somewhere under the previous intermediate low, the final minor decline gets under way. By this time "the vicious cycle" of liquidation is approaching one of its peaks. Offerings increase, and prices slide rapidly. A downside gap appears which the technical student immediately assumes is probably of the exhaustion variety.

11. The termination of the major phase at point "B", in all but the last half-cycle in a bear market, is a "selling climax". (A complete description of this phenomenon appears in Chapter XV.)

The selling climax provides the alert technical student with an opportunity to reverse his short commitments to a long-side position, in anticipation of the rally of the corrective phase, under the most advantageous trading circumstances, namely: covering short commitments in a decline; buying long commitments in a decline. Most selling climax reversals occur in one day often the day following the exhaustion gap. On this day, intermediate trend traders in the habit of devoting only part of their attention to the stock market, if possible drop their other duties because they know it is one of the bargain days in the stock market. They ask their customers' man to telephone them, as soon as leading stocks like Steel, General Motors, Chrysler, American Can, "are offered for a bid". On selling climax days, this usually happens in the second hour, occasionally in the

third hour. By the closing, prices have rallied substantially from their lows, and are at the levels from which they started the day's decline. The first hour of the day following the selling climax, also represents a buying opportunity.

Corrective Phases (See Numbers 12-19, Figure 24)

12. The rebound from a selling-climax bottom of a bear market major phase frequently shows an upside gap, which is a factor confirming the probability that a corrective phase is under way.
13. After two or three days of quick advance, much of which is undoubtedly caused by short-covering, a sharp drop in activity, and a gradual reaction in prices for several days, may be expected. This reaction is practically as certain as the rebound which follows the first sharp selling in the corrective phase of a bull cycle. Often the first rapid rally stops at the down trend line, of the previous major phase, and thus confuses technical students not familiar with the details of a bear market corrective phase. From a third to two-thirds of the first short-covering rally is cancelled in the first minor reaction. Then the upside correction is resumed (sometimes with an upside gap), and in this second minor rally the downtrend line across the minor highs of the previous major phase is sharply penetrated. Volume usually shows some increase on this day.
14. The second minor rise also penetrates the intermediate trend (28-day) moving average, thus providing another bullish factor.
15. As the rally proceeds, Dow Theorists are provided with a bullish implication, when the previous minor top of the first short-covering rally, is exceeded. After the second minor rally culminates, another slow reaction, sometimes a sidewise consolidation, usually sets in.
16. Frequently, this is terminated by a substantial increase in bids overnight, which causes an upside gap. As it is assumed that nothing more than a corrective phase is under way, technical students classify this gap as the measuring gap of the corrective phase. If they find that the gap estimate approximates the level of the major downtrend line across the intermediate tops of the bear market, they feel that they have a technical factor confirming the advance as a corrective phase.
17. Occasionally (a good case was that of February 1931 [see Charts 7 and 8]), an ascending triangle will develop in a bear market corrective phase, particularly if that phase develops over the year-end, or in August, in anticipation of better Spring or Fall trade. If the advance breaks upside from the triangle, the technical student uses the measuring of the triangle as another means of estimating the top of the cor-

rective phase, and if this measure again checks to a location in the neighborhood of a major trend line, there is an additional factor providing a confirmation that the advance is only a corrective phase, and not a primary movement in a new bull market.

18. As the advance approaches the major down trend line, the progress of prices as compared with activity (velocity of the uptrend) begins to show that stubborn resistance is being met. This is frequently between the 30 and 40 per cent retracement area of the previous major phase. In rare instances, an upside exhaustion gap develops.
19. In the majority of cases, as the corrective phase culminates at point "C", prices have been advancing for several days, and bullishness has a fairly important place in the news. The average layman, giving only casual attention to the stock market, never suspects that the primary decline in prices is about to be resumed. At this point "bellwethers" frequently appear; one or two stocks "drop out of bed" and the next bear cycle begins. Smart technical students who have sold their long commitments as factors (18) and (19) have appeared, then put out their short lines, with wide stops, and sit patiently until a good minor decline in the next major phase provides them with the opportunity to move their stops down to areas where they cannot lose any of their capital.

End of Detour

In completing the discussion outlined on page 117, let us now take up the last point, and briefly summarize and coordinate the various approaches by means of which we have attempted to learn something about the intermediate trends of stock price movements.

Let us first summarize, and secondly lay down a few simple premises which should make it practically possible for the reader to commence his stock market thinking in terms of intermediate trends, and to gear his trading into a current intermediate cycle.

Summary [Guide to Intermediate Trend Thinking

1. A consideration of the intermediate trend is of the greatest practical importance to both investors and speculators. To investors, it provides a means of making more timely long term commitments. To speculators, it is their chief means of making profits.
2. A study of the intermediate trend basically has to do with the "When" question. Its primary objective is to determine trend reversals (tops and bottoms), as nearly as possible at the time they are occurring. The intermediate trend is best studied by the careful analysis of reliable market averages. (See Chapter II)
3. Intermediate trends, it must always be remembered, are the movements which comprise major trends (bull and bear markets). Most major

- markets include from 3 1/2 to 4 1/2 intermediate cycles.
4. Each intermediate cycle has two parts: (a) the primary movement, or major phase, parallel to the major trend in progress; and (b) the secondary reaction, or corrective phase, counter to the major trend.
 5. There are bull market and bear market intermediate cycles. Although both consist of two parts, they are dissimilar because the vicious cycle of liquidation is vastly different from the virtuous cycle of accumulation.
 6. The size of (amplitude) and the time of (duration) intermediate cycles has no uniformity. The relation of amplitude and duration of one cycle to the next is only coincidental. However, there are general limits, based upon a study of past markets, which are useful in judging both amplitude and duration. (See pages 118-128, inclusive, of this Chapter.)
 7. A study of the velocity of intermediate movements contributes useful information indicating the development of an intermediate top or bottom.
 8. Volume characteristics of intermediate cycles have sufficient regularity to be helpful in determining the probable direction of such trends.
 9. Intermediate cycles appear to be sufficiently related to warrant the consideration of the influence upon them of Spring and Fall business trends.
 10. The fundamental and technical conditions of the final half-cycle in a bull or bear market are sufficiently different from other major phases to be a reliable guide in a general determination of the ends of major trends.
 11. A constant and patient appraisal of these ten factors will place a stock market student in a better position to make profits. However, even the most intelligent understanding of such factors will not insure stock market profits unless, in addition, the student has the courage:
 - a. To make and rely upon his own market opinion.
 - b. To take losses when his judgment is in error.
 - c. To do his buying in declines, and his selling in advances; and
 - d. To let his profits run, and lay aside one-third of every important profit in a reserve fund out of the market.

A Guide For "Gearing Into" the Intermediate Trend

1. *Study the past history of the price trend* until the time you are ready to enter the market. Use charts of the averages, such as: Charts 1, 2, 3, 4, 5 and 15.
2. *Determine the major trend.* Be certain that you know whether you are in a bull or a bear market.¹²

3. *Determine which phase of an intermediate cycle is in progress.* If the major phase of a bull market is in progress, your market position should be long of stocks. If the major phase of a bear market is in progress, your market position should be short of stocks. If a corrective phase of a bull market is in progress, you should be lightly invested or in cash, awaiting the opportunity to accumulate a long position. If a corrective phase of a bear market is in progress, you should be retaining a few short commitments, or be entirely in cash, awaiting an opportunity to take a substantial short position as soon as there is evidence that the major downward trend is to be resumed.
4. *In judging the intermediate trend phase in progress, consider the amplitude* of the movement from the last intermediate top or bottom.
 - (a) *If a bull market major phase is in progress,* and the composite average (Standard Statistics 90 Stocks) has risen only 5 or 10 per cent, long commitments aggregating 100 per cent of one's capital are still justified. But if an advance of 30 or 40 per cent has already occurred, and prices are above the previous intermediate top, it is probably too late to make new long commitments up to 100 per cent. It would be better to keep 25 per cent in cash (see page 119).
 - (b) *If a bear market major phase is in progress,* and the composite average has declined only 5 or 10 per cent, short commitments aggregating 100 per cent of one's capital are still justified. But if a decline of from 20 to 50 per cent has already occurred, and prices are below the previous intermediate low, it is probably too late to make new short commitments up to 100 per cent. It would be better to be from 25 to 50 per cent in cash (see page 120).
 - (c) *If a bull market corrective phase appears to be in progress,* the trader must have the courage and patie progress, and has run from 6 to 10 weeks, the beginning of a new major upward phase may be expected at any time.
 - (d) *If a bear market corrective phase is in progress,* and has run from 4 to 8 weeks, the beginning of a new major downward phase may be expected at any time.
5. *In judging the intermediate trend phase in progress, consider the duration* of the movement from the last intermediate top or bottom.

¹² THE GARTLEY WEEKLY STOCK MARKET REVIEW SHOULD BE VERY HELPFUL TO READERS WHO ABE JUST BEGINNING TO TAKE AN INTEREST IN THE TECHNICAL SIDE OF THE MARKET. ISSUED WEEKLY, IT PRESENTS A BRIEF DIGEST, AND INDICATES THE OUTLOOK FOR BOTH THE MAJOR AND INTERMEDIATE TRENDS.

- (a) If a bull market major phase is in progress, and has run from 3 to 5 months, the beginning of a corrective phase may be expected at any time.
 - (b) If a bear market major phase is in progress, and has run from 5 to 10 weeks, the beginning of a corrective phase may be expected at any time.¹³
 - (c) If a bull market corrective phase is in progress, and has run from 6 to 10 weeks, the beginning of a new major upward phase may be expected at any time.
 - (d) If a bear market corrective phase is in progress, and has run from 4 to 8 weeks, the beginning of a new major downward phase may be expected at any time.
6. In judging the intermediate trend phase in progress, consider the season of the year.
- (a) Many bull market major phases have begun in June, many others in November and December.
 - (b) Many bear market major phases have begun in either March-May, or in September.
 - (c) A substantial number of bull market corrective phases have begun in August-September.
 - (d) Bear market corrective phases in many instances have begun in December.
7. In judging the intermediate trend phase in progress, consider the sequence of technical working tools. Remember that a single factor can never be relied upon. The safest market operations are based upon conclusions made with several working tools confirming the probable direction of a particular trend. Remember that all the technical factors commonly used in judging the trend do not appear in every major and corrective phase of intermediate cycles.¹⁴
8. In judging the intermediate trend phase in progress, consider the trend of the volume of trading. Remember first of all that:
- (a) Activity expands in the minor uptrends of a

STUDY
IS THE COORDINATION OF A NUMBER OF FACTORS.

¹³ IN STUDYING BULL MARKET CORRECTIVE PHASES, IT MUST BE REMEMBERED THAT THERE ARE TWO TYPES OF BULL MARKET CYCLES (LONG AND SHORT). AS THE VAST MAJORITY OF CASES IN HISTORY HAVE BEEN OF THE SHORT TYPE, IT SEEMS SAFER TO BASE OUR PRACTICAL OPERATIONS ON THE ASSUMPTION THAT A PARTICULAR CYCLE IS OF THE SHORT TYPE, UNTIL EVIDENCE TO THE CONTRARY DEVELOPS. (SEE PAGE 116 OF THIS CHAPTER.)

¹⁴ UNTIL A MARKET STUDENT, BY CONSTANT STUDY AND PRACTICE, HAS BECOME SO FAMILIAR WITH THE VARIOUS TECHNICAL WORKING TOOLS AND THEIR SEQUENCE THAT HE SEES THEM UNCONSCIOUSLY, JUST AS HE MIGHT PERFORM THE OPERATIONS OF DRIVING A MOTOR CAR, HE SHOULD NEVER PLACE GREAT RELIANCE UPON ONE OR TWO INDIVIDUAL FACTORS, NO MATTER HOW CONFIDENT HE MAY BE OF THEIR PARTICULAR SIGNIFICANCE. THE ART IN STOCK MARKET

bull market major phase, and contracts in minor reactions.

- (b) Conversely, in bear market major phases, activity tends to increase in minor declines, and decrease in minor advances.
- (c) Volume characteristics of corrective phases are less pronounced than those of major phases.

In bull markets, the proportion of activity (compared with total volume) in dividend-paying investment stocks tends to increase as the decline in corrective phases terminates. Conversely, the proportion of activity in speculative non-dividend-paying stocks (particularly of lower price) tends to increase sharply as intermediate trend major phases culminate.

In bear markets, the proportion of activity in dividend-paying investment stocks tends to increase as the proportion of activity in speculative non-dividend-paying stocks tends to increase as major phases terminate. 9. *In judging the intermediate trend phase in progress, consider the implications of the Dow Theory*, as applied to the minor trends which comprise a particular intermediate major or corrective phase. An upward zigzag is bullish, a downward zigzag is bearish. A movement away from a "line" forecasts the direction of the ensuing trend. (See Chapter VII)

10. *In judging the intermediate trend in progress, consider relative group movements.* In the major phases of both bull and bear market cycles, the more important industry groups such as the Steel, Building, Automobile, Agricultural Machinery, and Railroad Equipment groups may be expected to take an important part. Unless the market is broad, including these issues, or until they do become active in a particular major phase, the market student can reasonably entertain doubts about its importance. In corrective phases, extensive counter movements may be expected in those groups which have been heavily overbought, and have had a proportionately large percentage rise, or heavily oversold, and have had a relatively large percentage decline. These should not be relied upon in judging the trend.
11. *In judging the intermediate trend phase in progress, consider the implications which may be obtained from figure charts.* (See Chapter XVI). In emphasizing supply and demand areas, and in some cases in evaluating the extent of a movement, they are very helpful in determining the intermediate trend position to take.
12. *In judging the intermediate trend phase in progress, consider the possibility that a particular major phase may culminate a bull market, or terminate a bear market.*
 - (a) If, in a bull market, three complete in-

termediate cycles have already developed, it is reasonable to assume that the major upward phase of what appears to be the fourth cycle may become the last half-cycle in that bull market, particularly if the bull market has been in progress for two years or more. Review the conditions which attend the final swing in a bull market. Check the conditions to see how many are present in that particular major phase (see page 128).

- (b) If, in a bear market, three complete intermediate cycles have already developed, it is reasonable to assume that the major downward cycle of what appears to be the fourth cycle may become the last half-cycle in that bear market, particularly if the bear market has been in progress for 15 months or more. Review the conditions which attend the final swing in a bear market. Check the conditions to see how many are present in that particular major phase (see page 129).

With the exception of the group movements and figure chart implications, all of these factors which are so useful in making intelligent intermediate trend commitments may be studied from only three or four charts.

1. A chart like Chart 2 is useful in observing the long term background. As price movements of the last ten years are of the greatest interest, the reader can get all he needs in this respect from the *Annalist* chart.¹⁵

The graphs on page 4 of the New York Stock Exchange Bulletin are also useful for this purpose.¹⁶

2. One chart of the Standard Statistics 90 Stock average, like Chart 8 for a period of the last several years is essential. Only a few moments a week are necessary to keep it up to date.¹⁷
3. One chart of the Dow Jones Industrial and Rail averages, like Chart 15, for a period since January 1932, is essential. Only a few moments a week are necessary to keep this up to date.¹⁸

With these few essential charts, the stock market student with about one-half hour's work each week,

¹⁵ FOR ONE DOLLAR THE READER CAN OBTAIN A CHART OF THE MONTHLY AXE-HOUCHTON INDEX FROM 1854 TO DATE, WITH SPACE TO KEEP IT UP TO DATE ONCE A MONTH, FOR A YEAR. THIS MAY BE PURCHASED FROM THE ANNALIST, TIMES SQUARE, NEW YORK CITY.

¹⁶ THIS BULLETIN MAY BE OBTAINED, WITHOUT CHARGE, BY MAKING REQUEST TO THE SECRETARY'S OFFICE OF THE NEW YORK STOCK EXCHANGE. IT CONTAINS NUMEROUS DATA VALUABLE TO STOCK MARKET STUDENTS.

¹⁷ REPRODUCTIONS OF CHART 8, 28 x 102 INCHES, WITH SPACE FOR L8 MONTHS' PLOTTING, CAN BE OBTAINED FROM H. M. GARTLEY, INC. AT \$8.00 EACH.

¹⁸ REPRODUCTIONS OF CHART 15, 28 x 90 INCHES, WITH SPACE FOR L8 MONTHS' PLOTTING, CAN BE OBTAINED FROM H. M.

GARTLEY, INC. AT \$8.00 EACH.

has the minimum background necessary to study the intermediate trend.

In studying group movements, the student with limited time can get a good idea of some of the important group movements by studying the group charts which appear weekly, in *The Annalist*. Charts which can be made from the stock group figures which appear in the New York Herald-Tribune daily, although limited in their scope, and statistically unbalanced, provide another means of summing up. For the intermediate trend trader charts made from the widely published Standard Statistics weekly group figures are without question the most comprehensive.¹⁹

For the market student who has the time, or has sufficiently large capital in the market, to warrant a more complete study of the group movements, the Gartley Daily Stock Market Data provides essential figures for the detailed study of group movements.²⁰

Trading the Intermediate Trend Summary

As we come to the end of the discussion of the important intermediate trend, a simple trading plan, based upon the retracement of secondary corrections, is suggested. When the student has become thoroughly familiar with the "feel" of the intermediate trend, this plan will be extremely helpful in future trading operations. It is founded upon a common-sense interpretation and application of the basic principle that the stock market moves in cycles. Every downtrend (major phase) in a bear market will be followed by a correction or reaction (remember that Dow termed a corrective rally as a reaction); just as every uptrend in a bull market will be followed by a correction, which will be a decline.

We have learned that these two movements, when classed together, represent an intermediate cycle. With the knowledge of them, we may lay down *a plan of market operation which, if adhered to, in spite of all the disturbing influences of current news, is likely to turn in a good profit year after year*.

In presenting this plan, we will, for the moment, lay aside the technical factors enumerated above in "Sequence of Technical Factors", and which will be discussed in detail in later Chapters. We will consider "the theory of retracement", as our principal basis of operation.

This plan is founded upon the primary premise that most corrections (corrective phases of intermediate cycles) retrace from 30 to 70 per cent of the preceding advance or decline. Now let us turn to Chart 9, where we will find a graphic study of the plan. This chart shows an imaginary bear market, followed by a bull market. Each of these major

¹⁹ SEVENTY-FIVE STANDARD WEEKLY GROUP CHARTS WITH BACKGROUND FROM JANUARY 1934 AND SPACE TO CARRY ON UNTIL DECEMBER 1938, WITH RATIO TO THE MARKET LINES, ARE AVAILABLE WITH DURABLE BINDER FOR \$65.00 ADDRESS INQUIRIES TO H. M. GARTLEY, INC.

²⁰ SEE CHAPTER XVII FOR A MORE COMPLETE DESCRIPTION OF GARTLEY STOCK GROUP CHARTS.

markets shown is made up of 3 1/2 intermediate cycles. In the bear market, the major downward phases are shown by the declines from 1 to 2; 3 to 4; 5 to 6; and 7 to 8. The corrective phases, or reactions (which in a bear market, are of course, rallies), are the advances from 2 to 3; 4 to 5; and 6 to 7.

Beginning at the bear market bottom at 8, the major trend reversed from the bear to the bull side. Thus, we find that the advance from 8 to 9 was the initial major phase of the first cycle in a new bull market. (The decline 7-8 was the final half-cycle which completed the bear market.) The other major phases are from 10 to 11; 12 to 13; and 14 to 15. The corrective phases of the cycles in the bull market are the movements from 9 to 10; 11 to 12; and 13 to 14.

Let us first review the plan of operation based on an upward major trend, such as begun with the July 1932 lows. Notations have been made on Chart 9, between points 8 and 9, which concern particularly the reversal of a major trend.

In order to clarify the present discussion of a bull market intermediate trend trading plan, we will begin at point 9, which is the top of the first intermediate cycle in the bull market. It compares with September 1932 on Charts 7 and 8. Further, we will assume that other technical factors, discussed in other Chapters, have been employed for the purpose of selling long commitments at or near point 9; and now the problem is When shall we re-enter the market? (theoretically our trading account is in cash)

We adopt the plan of operation indicated by the following table of commitment (which also appears on Chart 9), wherein, when 30 per cent of the movement from 8 to 9 has been retraced, we will commit our trading account to the extent of 50 per cent. When 40 per cent has been retraced, we will increase our commitments 10 per cent, to 60 per cent, until, when 70 per cent has been retraced, we will be 100 per cent committed. Margin traders may adopt the policy of committing up to 140 per cent, in the event 90 per cent of the advance 8-9 is retraced.

Table of Commitment
Based Upon Per Cent Retracement
in Corrective Phases of Intermediate Cycles

Per Cent Retraced	Per Cent Committed
30	50
40	60
50	70
60	80
70	100
80	120*
90	140*

* Margin Traders

For convenience, we have applied scales with horizontal lines, indicating each successive 10 per cent retracement level, to Chart 9; similar procedure is suggested in the regular course of market study. These scales, shown on Chart 9, have been applied to the corrective phase of each cycle shown on the chart. Study them carefully; remember they represent per cent retracements, not points.

In the corrective phase of the first cycle of our imaginary bull market (9-10), a little more than 30 per cent was retraced. In the second cycle, slightly more than 70 per cent (11-12); and in the third cycle, again it was slightly more than 30 per cent (13-14). Thus, if we confine the plan of operation to only the table of commitment, we would have been committed 50 per cent during the major phase of the second cycle, 100 per cent in the third cycle, and 50 per cent in the fourth cycle. In our illustration, a good part of our trading fund (one-half) would have been idle in the major phases of the second and fourth cycles (10-11 and 14-15), which certainly would not have been making the most of our opportunity, as shown by the price trend displayed.

Assuming that we were convinced, at point 9, because of the extent of the rise from 8 to 9, that there was no further question about the fact that the bear market had terminated at point 8, then of course, logically, it would be our desire to be committed up to 100 per cent of our trading fund during the largest part possible of the major phase of every upward cycle. Therefore, we adopt the policy of making our remaining commitment of 50 per cent as soon as we become convinced of the possibility that point 10 represents the termination of the correction of the advance from 8 to 9. We have some fairly convincing evidence of this as the upward zigzag 10-10A-10B develops. At the right of Chart 9, we see in Case (1), a logical area to extend our commitments up to 100 per cent, in the zone marked by the diagonal line, as prices approach and penetrate top 9. (We have a Dow Theory confirmation of the primary upward swing at this point.) Assuming that the advance from 10 to 11 develops, we will then be 100 per cent committed at an average level about midway between 9 and 10, which would certainly be to our advantage.

In this event, if the case develops where the upward trend proceeds to a new high such as the move 10-11, we would be in line for a substantial profit, providing we used other technical factors, in clinching such profits somewhere near the top at 11.

But now let us assume the situation presented in Case (2), as an alternative, wherein we make our 100 per cent commitment, prices rise slightly above top 9, to top 9A, and then a substantial decline sets in, forming what we later see to be a double top. Oftentimes, an intermediate cycle correction will develop in two parts, separated by a rally such as from 10 to 9A, in Case (2). *In most such cases, if the secondary is to develop in two waves, the rally does not exceed the top 9, but instead forms a lower top.* However, whether the advance exceeded top 9 or not,

we would probably have increased our commitments to 100 per cent because of the strength displayed following bottom 10. Now our problem is, "What shall we do now?" when prices begin to decline. As we are convinced that the move from 8 to 9 has established the major turn upward, we must then have the courage to assume that, although prices may decline to a new low (possibly), it will merely be a further correction of the advance 8-9, which will offer us a better buying opportunity. But to take any advantage of such better opportunity, we must either have sold part of our commitments, at the top 9A, or at some time during the downtrend, before it had penetrated bottom 10.

But as we do not know how far the decline will go, our only logical defense is to assume that possibly a double top has formed at 9 and 9A, and that the correction of the advance from 8 to 9 is to be more extensive than the decline from 9 to 10. Therefore, we set stops on, or decide to liquidate, 50 per cent of our commitments when and if a recession carries below 10, which we purchased at the time we thought the major trend had been resumed.

Having gone back to cash to the extent of 50 per cent, as the decline penetrates the bottom at 10, we courageously await more advantageous levels to repurchase, still adhering to the theory that the major trend is upward because of the performance from 8 to 9. We then vary our program, by planning to repurchase, under the same table of commitment, an additional 20 per cent, when, as and if 50 per cent of the advance from 8 to 9 is retraced. If the situation (a decline, 9A-10A) as shown in Case (2) develops, we then increase our commitment to 70 per cent at point 10A, laying further plans to increase long commitments to 100 per cent (following the same table of commitment), in the event of 70 per cent retracement of the advance 8-9. The decline 9A-10A, shown in Case (2), stopped just a little more than 50 per cent retraced. We were therefore in the market 70 per cent as the advance appeared to be resumed from 10A.

Now that we have a situation where bottom 10 has been penetrated, we may assume that the resumption of the upward trend may be interrupted by a broad trading area, such as from September 1932 to March 1933 (see Chart 8). Therefore, we place stops on the entire commitment (which now totals 70 per cent), just under the bottom 10A, on the theory that if this low is penetrated, without the top 9A having been exceeded, there is a possibility we are in a more extended decline than a bull market would warrant.

At this juncture, we still have 30 per cent in cash. The tops at 9 and 9A are sufficiently impressive to make us feel that they must be penetrated before what may be a broad trading area, between 9A and 10A has been left behind. Therefore, we decide to hold this 30 per cent in cash, until such time as 9A is penetrated decisively, with the thought of being 100 per cent invested shortly after the penetration of top 9A.

If, on the other hand, after a small rally from bottom 10A, the decline from top 9A is resumed, we

stand ready to continue our plan of accumulation by increasing commitments another 10 per cent at the 60 per cent retracement point, and an additional 20 per cent to a wholly invested position at the 70 per cent retracement level.

In discussing both Cases (1) and (2), we have assumed alternative conditions, both with a turn upward at 10, as shown in the large diagram.

Now let us assume another alternative, as shown in Case (3), wherein, after only a minor rally from bottom 10, the correction from top 9 is resumed, and proceeds down to bottom 10C a correction of two waves of liquidation which has been the pattern of the majority of secondaries in the past 40 years. In that event, we would be 50 per cent in the market at the 30 per cent retracement point, 60 per cent at the 40 per cent retracement point, 70 per cent at the 50 per cent retracement point, and 80 per cent at the 60 per cent retracement point. Then bottom 10C forms, at about the 62 per cent retracement level of the advance 8-9. As this is an unusually deep correction, the chances of a sustained resumption of the uptrend (assuming a bull market continues) are decidedly good, or at least better, than in the case of a smaller correction such as at bottom 10 because a very substantial correction of "the error of optimism" has occurred. As we are already well invested (80 per cent), we can afford to await a strong upward zigzag before putting the other 20 per cent in the market. In Case (3), the same as in Cases (1) and (2), our entire commitment would be stopped out just below 8 in the event that the downtrend was resumed to a point where it carried through the, low 8, or we would plan to liquidate on the first important rally following a penetration of 8.

Although not absolutely consistent, a study of past bull markets indicates that *the extent of corrections in bull market cycles tends to diminish in amplitude as prices rise to their bull market top*. This may be seen on Charts 6 and 10, in the period from 1923 to 1929. The early cycles are likely to have larger corrections than the later ones. Thus, we may expect situations like Cases (2) and (3) in the early cycles, while, after public interest has been widely extended during a long bull market, we are more likely to find situations like Case (1) in the later cycles.

At first, the plan of operation which has just been described may seem somewhat intricate; but if the reader will review it several times, and apply it to the markets shown on Charts 7 and 8, its actual simplicity will become more apparent. Naturally, the operation of such a plan is more efficient with the aid of broad technical learning. However, it must be understood that it covers only one-half of a complete program. Its purpose is to make commitments advantageously. With it, must be combined a plan for selling commitments in the neighborhood of the highs such as points 9, 11, 13 and 15. Before discussing this necessary section of the two-part program, let us sound some warnings:

IN EXECUTING THE ABOVE PROGRAM, WE ARE APPLYING THE THEORY OF PURCHASING IN A DECLINE. AS A GENERAL PROPOSITION, THIS ALMOST ALWAYS REQUIRES

MORE COURAGE THAN THE ORDINARY AMATEUR SPECULATOR HAS AT HIS COMMAND. ALMOST WITHOUT EXCEPTION, THE CURRENT NEWS IS AT LEAST MODERATELY ADVERSE TO IMMEDIATE PURCHASES. A DOWNTREND IS IN PROGRESS. THERE IS SOME FEAR THAT THE MAJOR TREND MAY HAVE REVERSED, AT THE PREVIOUS TOP. THE OUTLOOK FOR BETTER BUSINESS SEVERAL MONTHS AHEAD IS OFTEN OBSCURE. POLITICAL UNCERTAINTIES MAY COMPLICATE THE PICTURE.

TO BOLSTER HIS COURAGE, THE SPECULATOR MUST STEADFASTLY REMEMBER THAT EVERY ADVANCE IS SUBJECT TO A CORRECTION, THAT CORRECTIONS ARE A NATURAL PHENOMENON IN A MAJOR UPWARD TREND, AND THAT WITHOUT THEM, A LONG ADVANCE WOULD BE IMPOSSIBLE, BECAUSE EVERY SO OFTEN, "THE ERROR OF OPTIMISM" MUST BE ADJUSTED TO REALITIES. HABITUALLY THE STOCK MARKET TENDS TO DISCOUNT OPTIMISTIC

FUTURE CONDITIONS TOO RAPIDLY. IF THE SPECULATOR WILL KEEP THESE FACTS ALWAYS IN MIND, IT WILL PROVIDE HIM THE FOUNDATION FOR THE NECESSARY COURGE TO BUY IN A DECLINE.

Before we take up the selling side of the program, let it be understood that the general premises laid down above regarding a bull market, apply with the same force and importance to a bear market. Although the pattern of intermediate cycles is somewhat different, in the case of a bear market, from that of a bull market (this has been discussed in detail on page 118), the same general plan may be applied to short selling in a bear market. It will be noted that the scales for retracement levels in the bear market, pictured on the left side of Chart 9, are laid out similar in every way to those in the succeeding bull market.

Now let us take up the problem of disposing of our bull market long-side commitments. In order to make the plan discussed above profitable, we must attempt to dispose of our commitments in the neighborhood of the intermediate tops when the major phases of the successive cycles culminate, such as points 9, 11, 13 and 15 (we are still working with Chart 9). Each intermediate top in a bull market develops in the presence of a few well-defined conditions. First, the previous top has usually been exceeded by an amount equivalent to 10-15 per cent (see page 124), or more. Secondly, activity (the total volume of trading) has risen to a relatively high point, compared with that when the previous correction terminated, at the beginning of the major phase. Thirdly, public interest in the market has usually reached a high point, brokers' loans have shown a substantial increase, the business of the odd lot houses shows substantial sales on balance, and the board rooms of the brokers are often crowded. Fourthly, speculative stocks, as compared with investment issues, represent a large part of the total trading (see Chapter XIV). Fifthly, current news reports are predominantly bullish, financial commentators see higher levels, business prospects look good. Sixthly, price fluctuations in individual issues are occurring in wider amplitude, and more erratically. The "dogs" are being trotted out.

In the presence of these general conditions, it is quite usual to find that for a period of from several

days to several weeks, prices, as reflected by the averages, fail to push forward proportionate to the volume of trading, as compared with the previous advance (velocity declines). Sometimes, an early signal of the culmination is provided by a divergence in one of the principal averages. The Rails, for instance, decline moderately for ten or fifteen trading days, while the Industrials push forward to a slightly higher new top. This was the case in July 1933 (see Chart 15). At about this point of the intermediate top, it is not unusual to find several stocks which have been very prominent on the upside unexpectedly crack wide open, and in the course of two or three days, while the market as a whole seems fairly stable, these individual issues (often Curb stocks) retrace a third or even a half of their previous advance. A particular case in point is American Commercial Alcohol at the July 1933 high.

A combination of these conditions is ample warning of an impending correction. If we get out of the market, and cash in our profits, when it comes it will not hurt us. What of it, if we are early, and do not get the last six or eight points. Our plan of operation will still show substantial profits, as long as stock prices continue to move in the manner in which they have fluctuated for the past 80 years.

As we go on to other Chapters in the course, we will find more detailed but not more important technical factors, such as the implications of the Dow Theory, the penetration of trend lines and moving averages, the appearance of gaps, and other technical factors, which will assist us in confirming the indications of the above factors, after the intermediate top has been formed.

This simple plan, although subject to the exceptions which are ever present in the stock market, represents a careful composite of the work and experience of many technical students, beginning with that of Charles Dow, as far back as 1885.

It is not a perfect plan, because its operation, like everything connected with the stock market, is subject to personal judgment, and the speculator using it must always combat the unfortunate force of psychological pressure, which is always tugging at his mind, telling him not to do the thing which he knows is logical.

Bear Market Plan

Now let us review a similar plan of operation based on a downward major trend. Those of us who went through the bear markets of 1919-1921, 1922-1923, and 1929-1932, are very conscious of the fact that major downtrends always follow major uptrends, just as certainly as the darkness of night follows the light of day.

Again using Chart 9 as our guide, we see an imaginary bear market, from point 1 to point 8, consisting of three and one-half cycles. The declines from 1 to 3, 3 to 4, 5 to 6, and 7 to 8, as stated previously, are the major downward phases. The advances from 2 to 3, 4 to 5, and 6 to 7 are the corrective phases. The advance from 8 to 9, we see, was the major phase in a new bull market.

Let us assume that somewhere along about point 1A, we have become convinced that a bear market is in force, and have liquidated our last long commitments of the previous bull market (probably with some losses).

As we are aware that almost every bear market phase ends in a well-marked selling climax, we lay our plans to make temporary long commitments in the event a climax develops, with the idea of profiting by the corrective phase of the first bear market cycle.

As we know that the most profitable position in a bear market is one on the short side, we plan to use only half of our capital on the long side in this corrective phase, awaiting the opportunity to reverse to a 100 per cent short position, when conditions seem to indicate that the corrective phase of the first cycle is culminating.²¹

Assuming that we have made 50 per cent long commitments in the first selling climax (see Index for complete references concerning "selling climaxes") of the bear market at 2, let us further assume that the corrective phase of the first cycle is well under way, and we are laying our plans to take our 100 per cent short position.

Our studies of the retracements in the corrective phases of bear market cycles show us that usually not more than 30 to 50 per cent of the previous major phase is retraced. Therefore, we adopt the same general plan of operation as suggested in bull markets, wherein when 30 per cent of the movement from (1) to (2) is retraced, we make short commitments to the extent of 50 per cent of our capital. Naturally, if at the time, we have a 50 per cent long position, we also liquidate this. When 40 per cent has been retraced, we will increase our short commitments 10 per cent, to 60 per cent, until, when 70 per cent has been retraced, we will be 100 per cent on the short side. Margin traders may adopt the policy of committing up to 140 per cent, when between 50 and 70 per cent has been retraced.

In the event that, as in the case shown on Chart 9, the corrective phase retraces just over 40 per cent, we will be 60 per cent committed on the short side. Our object, of course, is to be 100 per cent short as soon as we are certain that the new major phase is under way, because we know that the "force of liquidation" sooner or later will provide us with some handsome profits on our short commitments.

Thus, we increase our short commitments to 100 per cent in the first minor rally following the first sharp minor decline which appears to establish the resumption of the major downward trend, at a point

²¹ IN THE BULL MARKET PLAN, OUTLINED IN THE PREVIOUS PAGES, WE HAVE NOT SUGGESTED A PLAN OF SHORT SELLING IN THE CORRECTIVE PHASES OF BULL MARKET CYCLES, BECAUSE THERE ARE NO EQUALLY RELIABLE COUNTERPARTS OF THE SELLING CLIMAX, WHICH TERMINATES MOST BEAR MARKET MAJOR PHASES, AT THE CULMINATIONS OF BULL MARKET MAJOR PHASES. VERY SKILLFUL TRADERS, OF COURSE, OFTEN MAKE SIZABLE SHORT-SIDE PROFITS IN THE CORRECTIVE PHASES OF BULL MARKET CYCLES.

such as 3A.

When this minor rally culminates, and the decline is resumed, to penetrate the previous minor low, as for example at point 3B, it is to our greatest advantage if we then turn our eyes away from all bullish news, and tenaciously maintain our bearish attitude (having placed stops on our short commitments just above the previous intermediate top at 3), until the previous intermediate low (2) has been penetrated downside. By the time this occurs, our short side profits will provide us with the necessary courage to maintain our short commitments until the previous low has been exceeded downside by from 8 to 20 per cent (see page 124), and evidence of a selling climax provides us with technical reasons to take our profits and cover our short commitments. We may then repeat the procedure of making 50 per cent long commitments in a selling climax, for the purpose of profiting by the ensuing corrective phase.

If three full cycles in a given bear market have developed, we must naturally alter our short covering operations if, after the previous intermediate low has been broken, the conditions coincident to the last half-cycle in a bear market (see page 128) appear to be developing. In this case, we know that the chance is against a selling-climax reversal, which would provide us an ideal condition to cover our short commitments. We must be ready to do our covering as soon as prices appear to be working sidewise for 10 days or more, with activity remaining at a very low level. If the absence of a selling climax misleads us, we must certainly be ready to cover our shorts as soon as an upward zigzag develops.

In closing the discussion of the bear market trading plan, it must be remembered that what appears to be the corrective phase of the final half-cycle in a bear market develops into the major phase of the first cycle in a new bull market. Experience indicates that several defenses, to protect short commitments made under the trading plan described above, are logical when the initiation of a bull market ruins the program. First, the absence of a selling climax, and a sidewise movement on small volume, such as at (8), should provide the alert operator with the opportunity to be out of his shorts near the bottom. Assuming that the new short commitments are made between the 30 and 40 per cent retraction levels (in what turns out to be the first major phase of a new bull market), *it is pretty safe to believe that if the rally retraces from 70 to 90 per cent, there is a good possibility that the major trend has turned.* The trader might just as well take his losses on the short commitments, after 70 per cent has been retraced. Thirdly, if, because of special conditions, he stays short, he should certainly cover on the first sharp minor reaction following the point where 80 per cent retraction has taken place (see notations on chart 9).

THIS ENDS OUR DISCUSSION OF THE INTERMEDIATE TREND. IN THE NEXT CHAPTER, WE WILL CARRY ON THE DISCUSSION OF THE "WHEN" QUESTION, FROM THE VIEWPOINT OF THE MLNOR TREND.

APPENDIX I

Table 1
Amplitude of Major Phases in Bull Markets
 (According to Robert Rhea,
 "The Dow Theory", p. 65)*

Price at end of advance, minus
 Price at beginning of advance

Formula:

Price at beginning of advance

	%	From	To			
	7.0	7/12/12	9/30/12	44.3	5/22/05	1/19/06
	7.4	9/30/22	10/14/22	45.0	4/19/97	9/10/97
	7.6	6/ 1/18	9/ 3/18	49.9	10/19/98	4/25/99
	9.9	** 3/25/29	5/ 4/29	57.8	3/12/04	12/ 5/04
	10.0	11/8/97	2/ 5/98	59.7	5/14/15	10/22/15
	10.1	12/24/14	1/23/15	93.9	** 7/ 8/32	9/ 7/32
	10.7	9/11/18	10/18/18	116.6	** 2/27/33	7/18/33
	11.00	12/ 8/00	12/27/00		Total No. of Cases: 53	
	11.2	4/11/18	5/15/18		*Brought Up to Date	
	12.5	6/12/22	9/11/22			**Late Cases
	12.5	8/24/21	9/10/21			
(13 Cases)	13.1	** 10/22/27	1/ 3/28			
Q ₁	14.5	11/27/22	3/20/23			
	14.7	9/22/08	11/13/08			
	15.0	5/31/99	9/ 5/99			
	15.5	** 2/20/28	6/ 2/28			
	16.1	5/ 9/01	6/17/01			
	17.2	1/19/01	5/ 1/01			
	17.3	10/17/21	12/15/21			
	18.1	** 10/27/23	2/ 6/24			
	18.7	** 10/19/26	5/31/27			
	19.1	6/23/08	8/10/08			
	19.5	10/15/03	6/27/04			
	19.5	** 5/20/24	8/20/24			
	19.7	** 6/18/28	9/ 7/28			
	19.8	6/15/98	8/26/98			
Median—	20.5	** 6/27/27	10/ 3/27			
	21.5	8/20/19	11/ 3/19			
	22.7	1/10/22	5/29/22			
	23.2	** 3/30/26	8/14/26			
	24.0	11/22/07	1/14/08			
	24.2	2/23/09	8/14/09			
	24.4	12/19/17	2/19/18			
	24.5	9/25/11	4/26/12			
	24.6	** 10/14/24	1/22/25			
	24.8	** 9/27/28	11/28/28			
	25.1	** 12/ 8/28	2/ 5/29			
	27.0	3/25/98	6/ 2/98			
	27.3	12/12/04	4/14/05			
	27.7	2/10/08	5/18/08			
Q ₃ —	29.6	4/22/16	11/21/18			
(13 Cases)	29.9	** 5/27/29	9/ 3/29			
	32.3	2/24/15	4/30/15			
	32.9	9/24/00	11/20/00			
	40.9	** 3/30/25	2/13/26			
	41.8	2/ 8/19	7/14/19			

APPENDIX**Table II**

**Amplitude of Secondary Corrections
in Bull Markets**
(According to Robert Rhea,
"The Dow Theory", p. 65)*

Price at beginning of secondary
correction minus price at end
of secondary correction

Formula:

Price at end of previous major
phase minus price at beginning
of previous major phase

APPENDIX I

	% Of Previous Major Phase	From	To	179.5	2/ 5/98	3/25/98
	12.4	** 9/ 7/28	9/27/28			
	16.5	4/26/12	7/12/12			
	20.9	5/18/08	6/23/08			
	21.9	6/ 2/98	6/15/98			
	24.2	12/15/21	1/10/22			
	26.4	** 5/31/27	6/27/27			
	27.8	12/ 5/04	12/12/04			
	30.7	9/10/21	10/17/21			
	31.5	11/20/00	12/ 8/00			
(11 Cases)	31.8	10/22/15	4/22/16			
Q ₁ –	31.8	** 5/29/22	6/12/22			
	35.2	** 1/22/25	3/30/25			
	37.1	** 8/20/24	10/14/24			
	37.9	** 2/ 5/29	3/25/29			
	38.0	4/25/99	5/31/99			
	40.3	2/19/18	4/11/18			
	41.6	7/14/19	8/20/19			
	49.6	1/27/04	3/12/04			
	50.7	9/11/22	9/30/22			
	51.2	** 1/ 3/28	2/20/28			
	55.4	1/14/08	2/10/08			
Median –	56.3	** 2/13/26	3/30/26			
	57.2	9/ 3/18	9/11/18			
	58.6	9/10/97	11/ 8/97			
	58.6	10/ 3/27	10/22/27			
	60.8	8/10/08	9/22/08			
	64.1	** 6/ 2/28	6/18/28			
	64.9	4/30/15	5/14/15			
	65.4	** 11/28/28	12/ 8/28			
	66.6	** 8/14/26	10/19/26			
	69.0	4/14/05	5/22/05			
	72.3	5/15/18	6/ 1/18			
Q ₃ –	74.9	11/13/08	2/23/08			
(11 Cases)	76.5	5/ 1/01	5/ 9/01			
	76.9	** 9/ 7/32	2/27/33			
	80.4	1/23/15	2/24/15			
	83.4	** 2/ 6/24	5/20/24			
	88.8	12/27/00	1/19/01			
	93.2	8/26/98	10/19/98			
	114.0	** 5/ 4/29	5/27/29			
	115.1	10/18/18	2/ 8/19			
	160.0	10/14/22	11/27/22			

*Brought up to Date

**Late Cases

Table III

Amplitude of Major Phases in Bear Markets
 (According to Robert Rhea,
 "The Dow Theory", p. 66)*

Price at Beginning of Decline
 Minus price at end

Formula:

Price at Beginning

	%	From	To		Price at Beginning of Previous Major Phase Minus Price at End of Previous Major Phase	From	To
	3.4	8/14/09	11/29/09				
	7.4	10/18/10	12/ 6/10				
	8.5	** 8/29/23	10/27/23				
	8.6	** 8/ 2/21	8/24/21	% of Previous Major Phase			
	10.1	8/15/00	9/24/00	29.5	8/21/07	9/ 6/07	
	11.0	** 5/29/23	7/31/23	31.1	3/20/13	4/ 4/13	
	11.8	6/17/01	8/ 6/01	31.5	8/ 8/03	8/17/03	
	12.0	** 7/ 8/20	8/10/20	33.4	** 6/20/21	8/ 2/21	
(10 Cases)	12.0	** 3/20/23	5/21/23	35.6	6/23/00	8/15/00	
Q1—	12.8	4/24/02	12/15/02	38.5	** 1/ 5/32	3/ 8/32	
				(7½ Cases)	38.8	** 5/21/23	5/29/23
	13.0	2/ 3/14	12/24/14				
	13.3	4/ 4/13	6/11/13				
	13.4	** 11/ 3/19	11/29/19				
	14.4	12/29/09	2/ 8/10				
	16.0	3/10/37	6/14/37				
	16.2	6/19/11	9/25/11				
	16.6	8/26/01	12/12/01				
	16.9	9/30/12	3/20/13				
	17.3	1/19/06	7/13/06	Median—			
	17.3	** 4/ 8/20	5/19/20	(51.8)	51.7	12/18/99	2/ 5/00
Median—	18.1	** 1/ 3/20	2/25/20		51.9	8/ 6/01	8/26/01
	18.5	5/ 3/07	8/21/07		52.2	2/ 2/17	6/ 9/17
	18.9	** 5/ 5/21	6/20/21		52.3	** 11/13/29	4/17/30
	21.0	11/21/16	2/ 2/17		55.9	12/12/01	4/24/02
	21.5	2/ 5/00	6/23/00		56.6	** 12/21/20	5/ 5/21
	21.6	8/17/03	10/15/03		58.5	7/26/10	10/18/10
	22.1	10/ 9/06	3/25/07		59.6	** 8/10/20	9/17/20
	22.3	3/ 8/10	7/26/10		63.2	** 7/31/23	8/29/23
	24.9	9/ 5/99	12/18/99	Q3—	—		
	25.8	** 9/17/20	12/21/20	(7½ Cases)	64.9	7/13/06	10/ 9/06
Q3—	28.0	** 4/17/30	6/24/30		66.9	2/ 8/10	3/ 8/10
(10 Cases)	28.2	9/ 6/07	11/22/07		78.7	** 2/25/20	4/ 8/20
	30.0	2/16/03	8/ 8/03		84.9	3/10/37	6/14/37
	34.7	6/19/17	12/19/17		92.7	12/15/02	2/16/03
	35.7	9/10/30	12/16/30		100.0	6/11/13	2/ 3/14
	37.4	** 2/24/31	6/ 2/31		100.6	11/29/09	12/29/09
	39.0	** 11/ 9/31	1/ 5/32		116.5	12/ 6/10	5/19/11
	44.9	** 6/27/31	10/ 5/31				
	47.9	** 9/ 3/29	11/13/29				
	53.6	** 3/ 8/32	7/ 8/32				

Total No. of Cases: 39

*Brought Up to Date

**Late Cases

APPENDIX I

Table IV

Amplitude of Secondary Corrections in Bear Markets
 (According to Robert Rhea,
 "The Dow Theory", p. 66)*

Price at End of Correction Minus
 Price at Beginning of Correction

Formula:

	% of Previous Major Phase	From	To
	29.5	8/21/07	9/ 6/07
	31.1	3/20/13	4/ 4/13
	31.5	8/ 8/03	8/17/03
	33.4	** 6/20/21	8/ 2/21
	35.6	6/23/00	8/15/00
	38.5	** 1/ 5/32	3/ 8/32
	38.8	** 5/21/23	5/29/23
	39.1	** 5/19/20	7/ 8/20
	39.2	** 11/29/19	1/ 3/20
	40.4	** 6/24/30	9/10/30
	42.1	** 12/16/30	2/24/31
	43.0	** 10/ 5/31	11/ 9/31
	45.2	** 3/25/07	5/ 3/07
	48.5	** 6/ 2/31	6/27/31
	51.7	12/18/99	2/ 5/00
	51.9	8/ 6/01	8/26/01
	52.2	2/ 2/17	6/ 9/17
	52.3	** 11/13/29	4/17/30
	55.9	12/12/01	4/24/02
	56.6	** 12/21/20	5/ 5/21
	58.5	7/26/10	10/18/10
	59.6	** 8/10/20	9/17/20
	63.2	** 7/31/23	8/29/23
	64.9	7/13/06	10/ 9/06
	66.9	2/ 8/10	3/ 8/10
	78.7	** 2/25/20	4/ 8/20
	84.9	3/10/37	6/14/37
	92.7	12/15/02	2/16/03
	100.0	6/11/13	2/ 3/14
	100.6	11/29/09	12/29/09
	116.5	12/ 6/10	5/19/11
		Total No. of Cases: 30	
		*Brought Up to Date	**Late Cases

APPENDIX I

Table V

Amplitude of Net Gain
in Complete Bull Market Cycles
(Using Closing Levels, Standard
90 Stock Index, 1923-1935)

Per Cent Gained	From Low	Through High	To Low
Q ₁ —6.0	8/ 1/23	8/29/23	10/24/23
	10/24/23	2/ 4/24	5/19/24
	5/19/24	8/18/24	10/14/24
Median—11.0 (11.6)12.3	6.6	3/30/25	4/ 1/26
	10.4	12/ 8/28	5/27/29
	11.0	10/14/24	3/ 9/25
	12.3	4/ 1/26	8/13/26
	13.0	10/22/27	5/14/28
	19.5	6/19/28	11/30/28
Q ₃ —25.4	7/ 8/32	9/ 7/32	2/27/33
	27.1	10/15/26	10/22/27
	45.6	2/27/33	7/18/33

Price at End of Cycle
Minus Price at Beginning

Formula:

Price at Beginning

Table VI

Amplitude of Net Loss
in Complete Bear Market Cycles
(Using Closing Levels, Standard
90 Stock Index, 1929-1932)

Per Cent Lost	From High	Through Low	To High
Q ₁ —15.7	2/26/31	6/ 2/31	6/27/31
	4/11/30	6/24/30	9/10/30
Median—18.8 21.3	9/10/30	12/16/30	2/26/31
	9/ 7/29	11/13/29	4/11/30
	11/ 9/31	2/10/32	3/ 8/32
Q ₃ —34.5	6/27/31	10/ 5/31	11/ 9/31

Price at Beginning of Cycle
Minus Price at End

Formula:

Price at Beginning

APPENDIX I

Table VII

Per Cent Advance in Bull Market
 Intermediate Major Phases
 Beyond Previous Intermediate Tops
 (Dow Jones Industrials, 1921-1933)

CHAPTER 5

Per Cent Advance	From	To
4.0	2/11/26	8/13/26
4.2	2/ 6/24	8/20/24
Q ₁ - 7.3	5/29/22	10/14/22
8.1	8/29/23	2/ 6/24
8.9	11/28/28	2/ 5/29
10.6	10/ 3/27	5/14/28
Median - 12.9	8/20/24	3/ 6/25
18.3	12/15/21	5/29/22
18.5	8/14/26	10/ 3/27
18.5	2/ 5/29	9/ 3/29
Q ₃ - 19.0	3/ 6/25	2/11/25
33.8	5/14/28	11/28/28
36.2	9/ 7/32	7/18/33

Top of Intermediate Major Phase
 Minus Previous Top

Formula: _____
 Previous Top

Table VIII
 Per Cent Decline in Bear Market
 Intermediate Major Phases
 Beyond Previous Intermediate Bottoms
 (Dow Jones Industrial, 1919-1935)

Per Cent Decline	From	To
+ 6.6	11/13/29	6/24/30
2.9	2/25/20	5/19/20
Q ₁ - 4.3	12/21/20	8/24/21
4.8	5/19/20	8/10/20
5.6	11/27/22	7/ 3/23
Median - 13.1	12/22/19	2/25/20
17.6	10/ 5/31	1/ 5/32
19.8	8/10/20	12/21/20
22.8	12/16/30	6/ 2/31
25.7	6/24/30	12/16/30
Q ₃ - 29.0	6/ 2/31	10/ 5/31
38.9	10/ 4/29	11/13/29
42.2	1/ 5/32	7/18/32

Previous Bottom Minus Intermediate
 Major Phase Bottom

Formula: _____
 Previous Bottom

APPENDIX I
Table IX

Duration of Complete Bull Market Cycles
(1923-1935)

No. of Days	From	To
84	8/ 1/23	10/24/23
146	5/19/24	10/14/24
Q ₁ - 167	10/14/24	3/30/25
170	12/ 8/28	5/27/29
172	6/19/28	12/ 8/28
197	4/ 1/26	10/15/26
Median -		
(202)	10/24/23	5/19/24
234	7/ 8/32	2/27/33
241	10/22/27	6/19/28
Q ₃ - 367	3/30/25	4/ 1/26
372	10/15/26	10/22/27
745	2/27/33	3/14/35

Table X
Duration of
Complete Bear Market Cycles
(1929-1932)

No. of Days	From	To
121	2/26/31	6/27/31
121	11/ 9/31	3/ 8/32
135	6/27/31	11/ 9/31
Median -		
(143)	4/11/30	9/10/30
169	9/10/30	2/26/31
216	9/ 7/29	4/11/30

Table XI

Duration of Major Phases in Bull Markets
 (According to Robert Rhea,
 "The Dow Theory", p. 65)*

Calendar Days	From	To
14	9/30/22	10/14/22
17	8/24/21	9/10/21
19	12/ 8/00	12/27/00
30	12/24/14	1/23/15
34	4/11/18	5/15/18
37	9/11/18	10/18/18
39	5/ 9/01	6/17/01
40	** 3/25/29	5/ 4/29
48	6/23/08	8/10/08
52	9/22/08	11/13/08
53	11/22/07	1/14/08
(13 Cases)57	9/24/00	11/20/00
Q1—59	10/17/21	12/15/21
59	** 12/ 8/28	2/ 5/29
61	** 7/ 8/32	9/ 7/32
62	12/19/17	2/19/18
62	** 9/27/28	11/28/28
65	2/24/15	4/30/15
69	3/25/98	6/ 2/98
72	6/15/98	8/26/98
73	** 10/22/27	1/ 3/28
75	8/20/19	11/ 3/19
80	7/12/12	9/30/12
81	** 6/18/28	9/ 7/28
89	11/ 8/97	2/ 5/98
91	6/12/22	9/11/22
Median ---92	** 5/20/24	8/20/24
94	6/ 1/18	9/ 3/18
97	5/31/99	9/ 5/99
97	2/10/08	5/18/08
98	** 6/27/27	10/ 3/27
99	** 5/27/29	9/ 3/29
100	** 10/14/24	1/22/25
102	1/19/01	5/ 1/01
102	** 10/27/23	2/ 6/24
102	** 2/20/28	6/ 2/28
104	10/15/03	1/27/04
113	11/27/22	3/20/23
123	12/12/04	4/14/05
127	** 3/30/26	8/14/26
Q3—139	1/10/22	5/29/22
(13 Cases)141	** 2/27/33	7/18/33
144	4/19/97	9/10/97
156	2/18/19	7/14/19
161	5/14/15	10/22/15
172	2/23/09	6/14/09
188	10/19/98	4/25/99
213	9/25/11	4/26/12
213	4/22/16	11/21/16
224	** 10/19/26	5/31/27
242	5/22/05	1/19/06
268	3/12/04	12/ 5/04
320	** 3/30/25	2/13/26

Total No. of Cases: 53

*Brought Up to Date

**Late Cases

APPENDIX I

Table XII

Duration of Secondary Corrections
 in Bull Markets
 (According to Robert Rhea,
 "The Dow Theory", p. 65)*

Calendar Days	From	To
7	12/ 5/04	12/12/04
8	9/ 3/18	9/11/18
8	5/ 1/01	5/ 9/01
10	** 11/28/28	12/ 8/28
13	6/ 2/98	6/15/98
14	4/30/15	5/14/15
14	5/29/22	6/12/22
16	6/ 2/28	6/18/28
17	5/15/18	6/ 1/18
(11 Cases)18	11/20/00	12/ 8/00
Q1—19	9/11/22	9/30/22
19	** 10/ 3/27	10/22/27
20	** 9/ 7/28	9/27/28
23	12/27/00	1/10/01
23	** 5/ 4/29	5/27/29
26	12/15/21	1/10/22
27	1/14/08	2/10/08
27	** 5/31/27	6/27/27
32	1/23/15	2/24/15
36	5/18/08	6/23/08
36	4/25/99	5/31/99
Median ---37	7/14/19	8/20/19
37	9/10/21	10/17/21
38	4/14/05	5/22/05
43	8/10/08	9/22/08
44	1/27/04	3/12/04
44	10/14/22	11/27/22
45	** 2/13/26	3/30/26
48	2/ 5/98	3/25/98
48	** 1/ 3/28	2/20/28
48	2/ 5/29	3/25/29
51	2/19/18	4/11/18
54	8/26/98	10/19/98
Q3—55	** 8/20/24	10/14/24
(11 Cases)59	9/10/97	11/ 8/97
66	8/14/26	10/19/26
67	** 1/22/25	3/30/25
77	4/26/12	7/12/12
102	11/13/08	2/23/09
103	** 2/ 6/24	5/20/24
113	10/18/18	2/ 8/19
173	** 9/ 7/32	2/27/33
182	10/22/15	4/22/16
608	** 7/18/33	3/18/35

Total No. of Cases: 43

*Brought Up to Date

**Late Cases

APPENDIX

Table XIII
Duration of Major Phases in Bear Markets
 (According to Robert Rhea,
 "The Dow Theory", p. 66)*

Calendar Days		From	To
22	**	8/ 2/21	8/24/21
26	**	11/ 3/19	11/29/19
33	**	7/ 8/20	8/10/20
40		8/15/00	9/24/00
41		12/29/09	2/10/10
41	**	4/ 8/20	5/19/20
46	**	5/ 5/21	6/20/21
49		10/18/10	12/ 6/10
(10 Cases)50		6/17/01	8/ 6/01
Q1—53	**	1/ 3/20	2/25/20
57	**	11/ 9/31	1/ 5/32
59		8/17/03	10/15/03
59	**	8/29/23	10/27/23
62	**	3/20/23	5/21/23
63	**	5/29/23	7/31/23
68		4/ 4/13	6/11/13
68	**	4/17/30	6/24/30
71	**	9/ 3/29	11/13/29
73		11/21/16	2/ 2/17
Median—77		9/ 6/07	11/22/07
95	**	9/17/20	12/21/20
97	**	9/10/30	12/16/30
98		6/19/11	9/25/11
98	**	2/24/31	6/ 2/31
100	**	6/27/31	10/ 5/31
104		9/ 5/99	12/18/99
107		8/14/09	11/29/09
108		8/26/01	12/12/01
110		5/ 3/07	8/21/07
Q3—122	**	3/ 8/32	7/ 8/32
(10 Cases)135		6/19/17	12/19/17
138		2/ 5/00	6/23/00
140		3/ 8/10	7/26/10
167		10/ 9/06	3/25/07
171		9/30/12	3/20/13
173		2/16/03	8/ 8/03
175		1/19/06	7/13/06
235		4/24/02	12/15/02
324		2/ 3/14	12/24/14

Total No. of Cases: 39

*Brought Up to Date

APPENDIX I

Table XIV
Duration of Secondary Corrections
 in Bear Markets
 (According to Robert Rhea,
 "The Dow Theory", p. 66)*

Calendar Days		From	To
8	**	5/21/23	5/29/23
9		8/ 8/03	8/17/03
15		3/20/13	4/ 4/13
16		8/21/07	9/ 6/07
20		8/ 6/01	8/26/01
25	**	6/ 2/31	6/27/31
(7½ Cases)28		2/ 8/10	3/ 8/10
Q1—29	**	7/31/23	8/29/23
30		11/29/09	12/29/09
35		11/29/19	1/3/20
35	**	10/ 5/31	11/ 9/31
38	**	8/10/20	9/17/20
39		3/25/07	5/ 3/07
42	**	2/25/20	4/ 8/20
Median—43	**	6/20/21	8/ 2/21
49		12/18/99	2/ 5/00
50	**	5/19/20	7/ 8/20
53		6/23/00	8/15/00
63		12/15/02	2/16/03
63	**	1/ 5/32	3/ 8/32
70	**	12/16/30	2/24/31
78	**	6/24/30	9/10/30
84		7/26/10	10/18/10
Q3—88		7/13/06	10/ 9/06
127		2/ 2/17	6/ 9/17
133		12/12/01	4/24/02
135	**	12/21/20	5/ 5/21
155	**	11/13/29	4/17/30
195		12/ 6/10	6/19/11
237		6/11/13	2/ 3/14

Total No. of Cases: 30

*Brought Up to Date

**Late Cases

**Late Cases

CHAPTER VI

THE MINOR TREND

"The pitcher that goes too often to the well will soon be broken." Anonymous

REFERENCES

"The Stock Market Barometer"	William Peter Hamilton
"The Truth of the Stock Tape"	W. D. Gann
"Studies in Tape Reading"	R. D. Wyckoff
"Tape Reading and Market Tactics"	H. P. Neill
"Stock Market Theory and Practice"	R. W. Schabacker
"Methods of Dealing in Stocks"	J. H. Kerr, Jr.
"The Dow Theory"	Robert Rhea
"The Story of the Averages"	Robert Rhea
"The Business of Trading in Stocks"	J. Durand and A. T. Miller
"Stock Market Tactics"	L. L. B. Angas

Pursuing further the study of stock market trends, we now come to the consideration of the smaller fluctuations which are designated as the minor trend. As in the case of both the major and intermediate trends, the study of the minor trend is logically part of the problem of "When" to buy or sell.

In Chapter IV, we learned that major trends (bull and bear markets) were made up of a series of intermediate cycles. Later, in Chapter V, it was noted that these intermediate cycles were in turn composed of a series of minor cycles.

The inserts in Chart 6 show rather clearly that, in general, minor trends develop in much the same way, and have the same saw-tooth pattern as intermediate trends.

WE STUDY THE MINOR TREND TO LEARN MORE ABOUT THE INTERMEDIATE TREND. IN PRACTICE, INTERMEDIATE TREND COMMITMENTS CAN BE MADE MORE ADVANTAGEOUSLY WITH THE AID OF A KNOWLEDGE OF THE MINOR TREND.

Unfortunately, the vast majority of persons who trade in the stock market are intrigued by the numerous fluctuations of the minor trend which seem to offer vast potential profits. At some time during their market operations, nearly everyone tries his hand at making some quick profits from the day-to-day fluctuations in stock prices. Almost always, they think they see some "easy money" in "getting in and out" of the market. Thus, consciously or unconsciously, - they enter into a "purely gambling operation", in most cases without knowing and/or without being willing to assume the risk involved.

When the Securities Exchange Act of 1934 was passed, it was evident that one of its objects was to curb "public gambling" in stocks. The whole import of the legislation was in this direction. Although, under this Law, the Securities Exchange Commission has proceeded a long way in curbing dishonest practices, which increase the risk of gambling on the minor

trend, it seems obvious that nothing the Commission can do will eliminate what appears to be the natural desire of many men (and a few women) to gamble with their accumulated (or often inherited) surplus. Making more honest rules does not necessarily eliminate the desire to "play the game".

Assuming that most people who gamble on the minor trend are not inherently fools (it is conceded that many are), the only rational explanation seems to be that they are unaware of the risk they take. In this contention, we are naturally leaving out those who "play the market", just as they would bet on the racehorses, or play roulette.

As the average man becomes wise in the ways of Wall Street, it is usually costly experience which has taught him that a very special temperament is necessary for successful trading in the minor trend. *Emotion*, the chief enemy to profits, must first go down in everlasting defeat. The arch-enemy *greed* must be overpowered. *Fear* must be brought under stern control. Having passed these almost insurmountable barriers, the minor trend trader is then ready to entrench himself for the never-ending battle.

Trading the minor trend is a full-time job, confining and nerve-racking, and every dollar of profit obtained (available for spending) is earned. He must be in front of the tape much of the time; and after 3 o'clock, and before 10, there is plenty to do, digesting news, and digging out necessary corporation facts.

A test of the results of trading the minor trend, on an annual basis for five years or more, quickly dispels the idea that there is "easy money" in the short swings of stock prices.

The particularly suited few who do "make money trading the minor trend" invariably depend upon the "law of average" wherein, over a large number of trades, the majority turn in a profit, which in the aggregate is greater than numerous losses which have been limited to small proportions. These very few sue-

cessful minor trend traders have the nerve to take several losses in a row — they have an open mind, and are able to change from the bull to the bear, and back again to the bull side, in a single day. You won't find them in the board room. They don't want anything to do with the "know-it-all" hangers-on, who never make any money. They want isolation, a ticker, a telephone to the order room, or preferably one directly to the floor, and to be left alone. To them, stock trading is a serious business that has no first-rate "kibitzers". They mistrust a fortuitous profit, just as they take quiet satisfaction in a case where their judgment proves correct, and a planned gain ensues.

In presenting the various methods of analysis of the minor trend, outlined in this Chapter, our effort is in the direction of assisting intermediate trend traders. Those who must gamble, in an effort to trade the minor trend as such, in turn may be considerably assisted by using the technical approach, in the analysis of minor trends. Certainly chart studies of the minor trend give a more clear, precise, balanced and less distorted view than may be obtained from the vagaries of the tape or bias of the mind of the observer who watches the tape. The average trader who follows the ticker tape is bound to give undue weight to the action of certain stocks in which he has an interest or a commitment.

Minor trend chart studies provide the tape-reader with a precision instrument which facilitates him "in remembering" the story told by the miles of tape which he watches. With simple and adequate minor trend charts, the tape trader can "take time off, and return easily able to pick up a thread of continuity. However, to the trained tape-reader, charts more often than not are chiefly "a record of the past". To them, charts are the salt, but not the meat, in the market stew. This writer contends that every tape reader, within reasonable limits, can improve his profit ratio by means of minor trend studies.

so badly impaired that the size of his future operations must be so substantially reduced that, even with the most fortunate future operation, and with the elimination of many of his mistakes, it will take him a long while to build his capital back to where he started, let alone make a profit for his worry and work. It is a sad commentary upon human nature that, even if you explain these difficulties, the average novice nevertheless goes through each step before he is willing to admit the truth of the premise.

As an example of the high cost of operation, let us compare the results of two demonstration accounts, traded on purely a mechanical basis, which employed a 21-hour moving average (see Chapter XI), applied to the Dow Jones Industrial average. The period under examination was from April 5, 1933 to April 4, 1934. From the following tabulation, it is easy to see what serious inroads can be made into the capital account by the cost of frequent trading. Both accounts started with the same sum. Account No. 1, in following every minor trend, made 62 trades, while Account No. 2 followed only certain minor swings, which seemed to be more important, made only 31 trades.

From the brief tabulation, it will be noted that Account No. 1, which made twice the number of trades, had gross profits of only 6 1/2 per cent of that of Account No. 2. Taxes were 96 per cent greater; commissions were 88 per cent greater; and taxes and commissions together were nearly 90 per cent greater. Result: - Account No. 1 lost \$5,817.00, or 27.8 per cent, while Account No. 2 made \$12,127.00, or 58 per cent. These figures speak for themselves. If the risk of judgment had been added, it is likely that the loss in Account No. 1 would have been even greater; and yet, compared with the results of the average trader, relatively good. Few minor trend traders of average ability end up a year's trading with only a 27.8 per cent loss on their capital.

Assuming that at this point we have provided the

Acct.	Original Capital	No. Trades	Gross Profits	Taxes	Commissions
1	\$20,922	62	\$13,814	\$4,943	\$14,688
2	20,922	31	22,446	2,520	7,799

Cost of Operation the Stumbling Block

What licks the minor trend trader of only average ability is the cost of operation. He tries to capitalize on the swings in the market ranging, let us say, from 2 to 7 or 8 per cent, not realizing, until his capital has been dissipated, that fluctuations of 10 per cent or more in the market as a whole are necessary to yield profits commensurate with the risk involved in trading the minor trend. Until he reads (sadly) his monthly statement, he is often not entirely convinced that the costs of late decisions, whip-sawing, odd-lot charges, commissions, and taxes have gradually, if not quickly, eaten away his capital. When it is much too late, he comes to understand that his available capital has been

Total Taxes & Profit Comm.	Net Loss	Capital At End Of Year	% Cain or Loss
		Of Capital	
		Of Year Cain	Loss
\$19,631	\$5,817	\$15,105	27.8 58.0
10,319	\$12,127	33,049	

reader with a few mild warnings (which in many cases will probably not be heeded), concerning the hazards of trying to trade the minor trend, let us now proceed to a more or less detailed study of it, beginning with some general definitions.

Minor Trend Defined

A simple definition of the minor trend is no easy task. In general, we may say that:

Minor trends are those relatively small movements which have a duration of from three to five days, or as many weeks, and account for swings of 3 per cent or more in amplitude.

In any study of the day-to-day and hour-to-hour

stock price fluctuations, it is quickly found that both their amplitude and duration vary quite widely. In general, the movements which are counter ("reactions" as Dow called them) to the intermediate trend in progress (major or corrective phase) tend to have the greatest amplitude, and the shortest duration (see the decline of May 28-June 1, 1935, Chart 11). Some minor trends occur in a matter of 8 or 10 trading hours, while the development of others may encompass three to six weeks. Occasionally, the major phase of an intermediate cycle will appear as just one long minor trend.

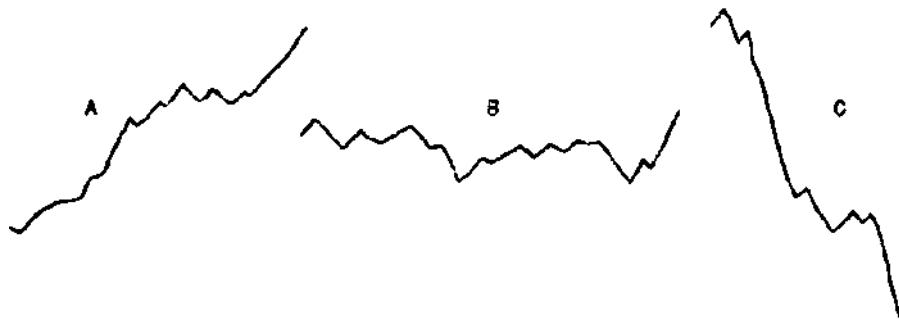
Naturally, the amplitude, in aggregate, of the successive minor moves in the direction of the major trend will be in excess of the total of the minor moves counter to the major trend. Otherwise, a major trend in one direction or the other would not develop.

In similar pattern to major or intermediate trends, minor trends develop in three definite types, as illustrated in Figure 1.

construed to have a bearing on stock prices. Frequently, this news is most inaccurately interpreted. In measuring the true effects of some potent news events, it is not unusual for prices to turn about several times in a single day. Although possibly less so since the Securities Exchange Act of 1934, manipulation probably has an important part in molding the minor trend. The activity of floor traders who make their living by being alert to the minute changes in prices, cause temporary bulges and dips merely by their presence in the market.

Odd-lot houses, in evening up their transactions, often provide activity which has little connection with the intermediate or major trends. Boardroom traders following the tape will frequently expand a rally or reaction in their "efforts to follow the trend". Investment operations by some of the larger investment trusts will occasionally influence the market for a day or two. Several earnings statements of important companies may cause a broad wave of buying or

Figure 1



They may be classified as (A) uptrends, (B) horizontal or sidewise movements, and (C) downtrends. Most sidewise movements appear as minor trends, rather than as intermediate trends. For example, the so-called Dow Theory "line", about which we will hear in the next Chapter, is a horizontal minor trend.

It is in this respect that minor trend cycles are somewhat different from intermediate trend cycles. In a successive series of minor trends, we may frequently find that the so-called corrective phase, instead of being counter to a previous minor trend, such as shown in Figure 2, will appear as a sidewise movement, or consolidation, with no very important loss of ground; and this will be followed by a continuation of the trend, as in Figure 3.

Minor Trends Most Illogical

Unlike major trends, which may be ascribed to the swings of the business cycle, or intermediate trends, which represent the alternating efforts of stock prices to keep in line with the major trends in business, the minor trend, more frequently than not, is illogical and hard to explain.

Minor trends represent chiefly the ebb and flow of emotional reactions to the news of the day, which is

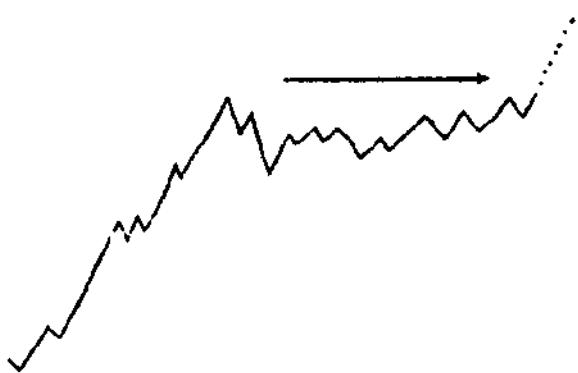
selling, notwithstanding the fact that they do not reflect a situation which is general. Occasionally commodity prices, particularly grain and cotton, in moving sharply up or down, will have temporary effects on the minor trend. From time to time, the recommendations of stock market letter services or investment counsel organizations will, for very short periods, cause general market strength or weakness. Political developments, especially legislation, affecting one of the major groups, such as the Rails or Utilities, will importantly affect the general market. The adjustments of margins often provide selling which temporarily depresses prices. And then there are, or rather were (pre-SEC), the so-called pool operations, that are much talked about, and so difficult to identify. And last, but not least, just plain public gambling in stocks, which is more likely to be present after an extended advance.

A Guessing Game

With the constant interplay of these numerous forces, it should be easy to understand how illogical the minor trend is likely to be. Guessing the minor trend is like forecasting the action of a mob without knowing the circumstances of the mass meeting.

Figure 2

**MINOR TRENDS
MOST ILLLOGICAL**

Figure 3

Machinery Employed in Studying the Minor Trend

In practice, the minor trend is studied by two general methods.

1. Tape reading (observation of the sales made on the New York Stock Exchange, as recorded by the stock ticker), and
2. Charts showing the hour-to-hour and day-to-day fluctuations of averages and individual stocks (frequently prepared during the day).

Veteran tape readers hold that they can learn all they need from the tape. However, the limited number of successful practitioners in this field suggests that inherent ability and special temperament are needed, including the "photographic eye" and phenomenal memory.

The chief function of the tape, to the average man, is as a book of original entry. Like any journal, it contains a jumble of facts, set down as they occur in the course of a day's business. The modern trend in accounting is toward comprehensive, scientific analysis of such facts; first, to classify all items of income and outgo to determine costs as exactly as possible, and second, to enable the management to view the enterprise as a whole, with a finger on its pulse at all times. The aim is to reduce guesswork to an absolute minimum.

Similarly, if the trader, particularly in the minor trend, wishes to avoid being in a "babe in the woods" position, he must know precisely what is going on in

the market, because uninformed guessing is expensive, if not disastrous.

As it is not the purpose of this course to teach the technique of tape reading, we will proceed immediately to the consideration of the study of the minor trend, by means of the interpretation of graphs or charts.

Successful minor trend operations, although they require a much more detailed study of individual stock movements, like the major and intermediate trends, are also founded upon a study of the averages.

Minor trend studies, by means of averages, may be grouped in four categories,¹ namely:

1. The study of daily closings, such as are shown on Chart 15 (Dow Theorists prefer this type of study⁴).
2. The study of hourly fluctuations, as shown, for example, on Chart II.³
3. The study of 20-minute fluctuations of the aggregate of a small number of stocks (or an individual stock), as, for example, shown on Charts 13³ and 14, and
4. The study of charts showing every sale of an individual stock, such as shown in Figure 4, on page 160.

Traders interested chiefly in the intermediate trend usually confine their study of the minor trend, which they use for making intermediate trend commitments to greater advantage, to the observation of charts of the daily closing prices, or daily ranges, of the better known averages, such as Charts 7, 8 and 15.

Hourly Averages

Traders interested more primarily in the minor trend usually find that studies of daily prices are not sufficient for their purpose. Thus, they make observations of price fluctuations more frequently, and employ the hourly averages. These are relatively a new development in stock market statistics. For a short period in 1932, from January to May, the Standard Statistics Company published some of their averages on an hourly basis. Later in the year, after these were abandoned, on October 5, 1932, Dow Jones & Company began the publication of the Dow Jones averages on an hourly basis,⁴ on the broad tape (the news ticker), and in the Wall Street Journal. These

¹ EXCLUSIVE OF FIGURE CHART STUDIES, WHICH ARE TREATED SEPARATELY IN CHAPTER XVI.

² A CHART OF THIS TYPE APPEARS WEEKLY ON THE BACK PAGE OF THE GARTLEY STOCK MARKET REVIEW (SEE APPENDIX I, CHAPTER I).

³ THE NECESSARY DATA FOR THESE CHARTS APPEARS IN SECTIONS 3, 4 AND 8 OF THE GARTLEY DAILY STOCK MARKET DATA (SEE APPENDIX I, CHAPTER II).

⁴ THE AUTHOR, AND A GROUP OF TECHNICALLY-MINDED FRIENDS, HAD NO SMALL PART IN URGING THE EDITORS OF DOW JONES TO PUBLISH THE HOURLY AVERAGES. LATER, A SIMILAR CAMPAIGN WITH THE NEW YORK STOCK EXCHANGE, RESULTED IN TOTAL VOLUME BEING PUBLISHED HOURLY.

hourly averages have been of invaluable aid to technical students and traders interested in the study of, and operation in, the minor trend. Their publication, by means of eliminating the substantial amount of time and labor involved in their computation, made accurate and very useful figures available to the average market student, at a minimum cost.

In using the Dow Jones hourly averages, the opening prices are not usually considered. The theory of hourly studies is to observe the movement of stock prices at the end of each consecutive period of 60 minutes of trading. Also, it is to be understood that, with the exception of the closing figures, the computations for the daily high and low cannot be reconciled with hourly figures. The daily high and the daily low are the results of an aggregate computation of the best and poorest levels for each of the stocks in the average, during the day as a whole. In computing the hourly figures, the price of each stock in the average is appraised at exactly the same time. Thus, extreme high or low prices, which might be recorded in between, might have a bearing on the daily high and low figures without appearing in the hourly figures.

Industrials	Rails
American Can	Baltimore & Ohio
Anaconda	New York Central
General Electric	Pennsylvania
General Motors	Southern Pacific
U.S. Steel	Union Pacific

"Wave" Charts

For a number of years prior to the publication of the Dow Jones hourly averages, many market students who were particularly interested in the minor trend, employed simple averages or aggregates of a handful of stocks, as a guide in determining the progress of minute fluctuations in stock prices. These, Charles Dow, as early as 1898, called "wave charts".

Most such minor trend studies are prepared by tabulating the price changes during the day of 5 or 10 active stocks, adding up their totals either every time the price of one stock in the group changes, or at specific time intervals, such as 10, 20, or 30 minutes. The resulting computations are then plotted on a simple graph.

Some traders, who make a habit of watching the tape all day, believe that they can get most benefit from a wave chart reflecting the movement of 5, 7 or 10 stocks, which is plotted every time one of the group changes price. This naturally requires constant observation of the tape, and is no small job in a busy market. The chief advantage of the wave chart which is prepared to reflect every sale of the stocks under observation, is that it enables the student to measure the relative and comparative amplitude and duration of each successive, and frequently minute, minor trend.

The average market student will find that the effort involved in the preparation of such charts is excessive compared with the benefits gained, because the numerous very minute fluctuations are so mag-

nified that they often confuse the observer.

One of the chief problems in studying the minor trend is to avoid being misled by meaningless ripples in the price change.

15-Stock Aggregate

In the course of his laboratory work, the writer developed an average or index of his own to observe intra-day movements. Experience proved the worth of this fifteen-stock aggregate, plotted every 20 minutes.⁵ This is not an average, but simply the total value of fifteen stocks at such intervals. The 20 minute interval was selected to avoid the activity which often occurs at 10:30 A.M., 1:30 and 2:15 P.M. and to permit observations at intervals other than half hours.

Five stocks in each major group (Industrials, Rails and Utilities) were selected. Each was studied for its ability to move with the trend, its inherent importance economically, and its freedom from special influences, particularly frequent pool manipulation. As now constituted, the aggregate contains the following:

Utilities
American Telephone
Consolidated Gas
North American Public
Service of N.J. United
Corporation

Beginning with the opening each day, the aggregate value of one share of each of these issues is totalled and the sum plotted every 20 minutes (see Chart 13). The figures are most dependably obtained by an observer who has access to an automatic teleregister board.

The totals are plotted in single line form, by placing a dot at the proper point on the chart and drawing a straight line back to the previous plotting. Closing and opening prices are not connected. A continuous roll of 16 x 16 (to the inch) cross-section paper is best for this work. The arithmetic rather than the ratio or semi-logarithmic scale is employed. At least two months' plotting should be on view at all times. This type of chart forms an excellent medium to record news events.

From a statistical viewpoint, there seems to be a definite advantage in observing minor fluctuations of a group of stocks, such as those in the 15-stock aggregate, at specific intervals, in similar fashion to the hourly averages. The 15-stock aggregate, plotted at 20-minute intervals, provides a detailed background which fits nicely into the hourly studies.

Minor trend traders often find it convenient to make 20-minute charts of several market leaders, such

⁵ ALL THE NECESSARY FIGURES COVERING THE 15-STOCK AGGREGATE AND ITS COMPONENT PARTS, OF 5 INDUSTRIALS, 5 RAILS AND 5 UTILITIES, MAY BE OBTAINED FROM SECTION 8 OF GARTLEY'S STOCK MARKET DATA, A SAMPLE OF WHICH APPEARS AS APPENDIX I OF CHAPTER II.

as Chart 14, for example, which shows fluctuations at this interval, of U. S. Steel.

Minor trend traders who like to follow the Dow Theory, sometimes plot the 5-stock aggregates of the Industrials and Rails separately.

Every Sale Charts

Some traders who make a business of trading in one or two stocks, find considerable advantage in plotting every fluctuation. They obtain the data for this either directly from the stock tape, or the official sheet.⁶

Figure 4 illustrates this type of chart, covering August 23 and 24, 1935, for Chrysler. Very efficient results, from a chart viewpoint, can be obtained by using the geometric form of plotting, on 16 x 16 standard Keuffel & Esser cross-section paper.

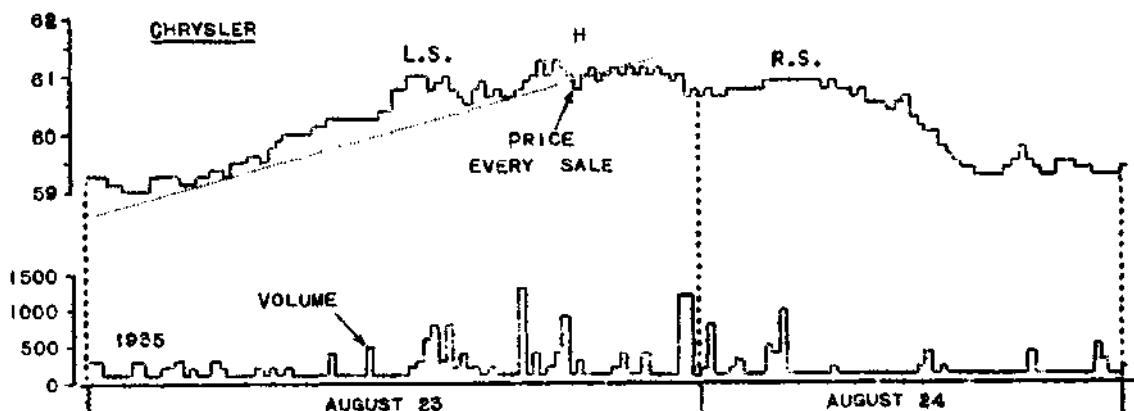
Now that we have discussed the logical reasons why we study the minor trend, presented some general definitions, and suggested various methods of study, let us go on with a brief, but somewhat more detailed examination of minor trends.

Let us use, as the basis of our examination, Chart 10,⁷ which shows all of the 3 per cent movements in the Dow Jones Industrial index, from January 1897 to September 15, 1935, inclusive. The reversals in each year have been numbered consecutively, with a new series for each successive year. Major turning points have been marked "M.T." for bull market tops, and "M.B." for bear market bottoms. Intermediate tops and bottoms have been marked "I.T." and "I.B.", respectively. In the earlier years, until 1905, for example in 1899, it will be noted that an intermediate top (13) appears to have exceeded the previous major top (3). During this period, the stock market was preponderantly in Rail shares, just as in recent years, it has been preponderantly in Industrial shares. Thus, in those early days, while the Industrials were the "lagging index", the major turning points in the Rails were considered.

Number of Minor Cycles in Intermediate Trends

Before proceeding to a discussion of the amplitude and duration of minor trends, let us consider the

Figure 4



Minor Trend Cycles

First, let us repeat that intermediate trends, which were considered in Chapter V, are composed of numerous minor cycles, in the same general way that major trends are composed of intermediate cycles.

3 Per Cent Fluctuations, Chart 10

For the purpose of this discussion, we will consider a minor fluctuation to be a movement of 3 per cent or more. Unfortunately, we cannot set a comparable minimum for the element of duration, because a detailed study of minor movements clearly shows that even 3 per cent fluctuations vary widely in duration.

number of minor cycles which usually comprise the major and corrective phases of intermediate cycles. It must be definitely understood that these numerous minor cycles are most irregular in both amplitude and duration. Nevertheless, it is possible to discern from any chart which is prepared to emphasize the minor trend, that these smaller cyclical moves are a very definite part of the price trend.

An examination of the major and corrective phases of intermediate cycles which together total 658, indicated that there were, as shown on Chart 10, approximately 329 complete minor cycles from January 1897 to August 1935, inclusive.

After separating the intermediate movements for

⁶ COPIES OF THE OFFICIAL SHEET, WHICH RECORD EVERY SALE ON THE NEW YORK STOCK EXCHANGE, ARE PUBLISHED BY FRANCIS EMORY FITCH & Co., 136 PEARL STREET, NEW YORK CITY, AND MAY BE OBTAINED THROUGH ANY OFFICE OF ANY MEMBER OF THE NEW YORK STOCK EXCHANGE, AT A FEE OF \$28.00 PER YEAR. A SIMILAR SHEET IS PUBLISHED BY THE NEW YORK CURB MARKET EXCHANGE.

⁷ IN ORDER TO CONDENSE THE GRAPH ON THIS CHART, TO MAKE IT PRACTICAL FOR PUBLICATION, THE TIME SCALE HAS BEEN COMPRESSED BY USING THE SAME ARITHMETIC DIVISIONS FOR EACH FLUCTUATION, REGARDLESS OF ITS DURATION. THIS CHART IS INVALUABLE FOR RESEARCH WORK, AND PROVIDES THE BACKGROUND FOR A STUDY OF MANY TECHNICAL PHENOMENA.

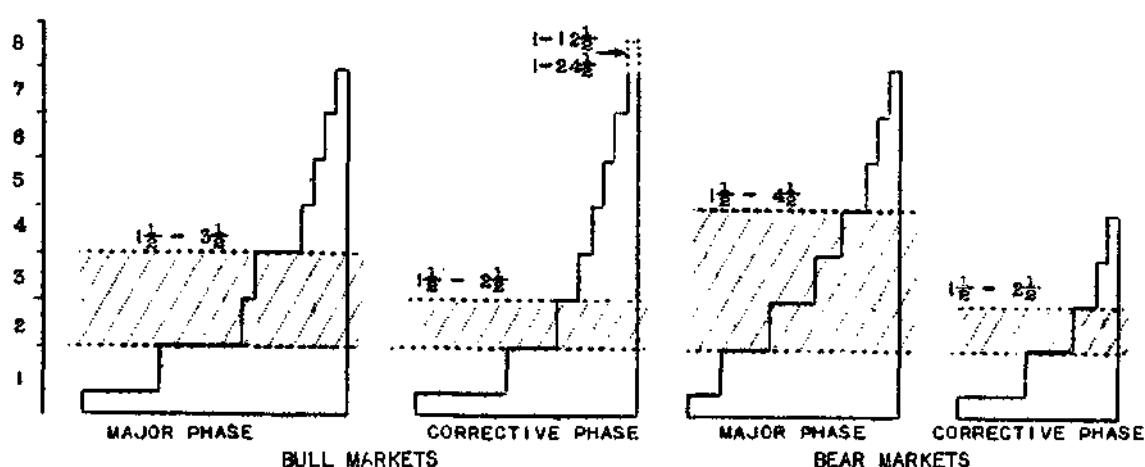
bull and bear markets, and then classifying them for major and corrective phases, the number of minor cycles in each of the four resulting divisions was ascertained, tabulated, and the number of cases ranked.

Figure 5 presents simple graphs of the results, based on the median cases of the voluminous tabulations. A detailed study of all the cases leads to the conclusion that a consideration of the medians is about all that is practically useful.

The cross-hatched areas on the four diagrams on Figure 5 show that, in the large majority of cases:

1. The upward movements (major phases of intermediate cycles) in bull markets frequently consist of from 1 1/2 to 3 1/2 minor cycles.
2. The downward movements (corrective phases of intermediate cycles) in bull markets frequently consist of from 1 1/2 to 2 1/2 minor cycles. The greatest irregularity appears in this classification. For example, the corrective phase of the 1933 advance (to the March 1935 lows) extended to 24 1/2 minor cycles.
3. The downward movements (major phases of intermediate cycles) in bear markets frequently consist of from 1 1/2 to 4 1/2 minor cycles, and
4. The upward movements (corrective phases of intermediate cycles) in bear markets frequently consist of from 1 1/2 to 2 1/2 minor cycles.

There have been a number of cases wherein either the major or corrective phase of an intermediate cycle consisted of only one advance or decline, without a rally or reaction of as much as 3 per cent. Thus, there are some intermediate phases, particularly corrective phases, which consist of only 1/2 minor cycle.



Amplitude and Duration of Minor Trends

Now let us proceed to an examination of the amplitude and duration of minor movements, again remembering that our study is limited to a minimum of movements of 3 per cent or more.

Our study of amplitude and duration of minor movements is classified according to the following diagram:

	Intermediate Major Trend	Minor Trend
	Major Phase	(A Major Phase) Corrective Phase
Bull Market	Corrective Phase	(C Major Phase) Corrective Phase
	Major Phase	(E Major Phase) Corrective Phase
	Corrective Phase	{(G Major Phase) Corrective Phase}

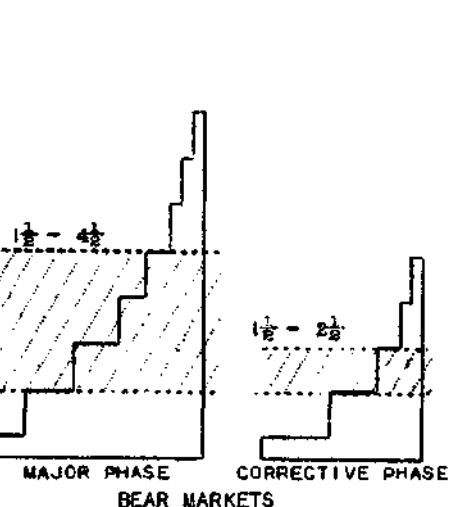
Amplitude of Minor Movements

First, let us consider the amplitude of minor movements. Figures 6 and 7 present simple graphs of the results, *based upon the median cases*, of the amplitude of all the minor swings shown on Chart 10. These have been separated for bull and bear markets, and classified for intermediate major and corrective phases. Although the total cases in each examination showed a wide variation, there were enough cases near the medians, to provide a general idea of the amplitude of many minor movements.

Figure 6 presents, in graphic form, the broad generalities which may be drawn from the numerous data. The letters applied to the graphs are keyed to the diagram presented above.

From Figure 6, we may summarize that, *in bull markets*, during intermediate cycles: Major Phases

- A Minor advances (major phases of minor cycles)
in the past 37 years, have frequently



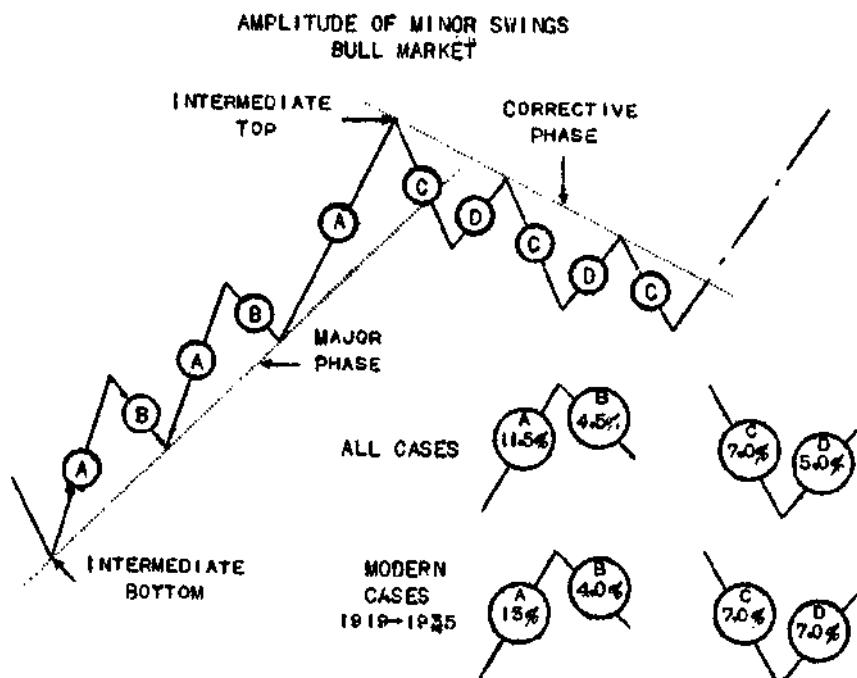
shown a rise of 11.5 per cent. In the more modern cases, (1919-1935), many such advances have been 13 per cent.

- B Minor declines (corrective phases of minor cycles) have frequently shown a fall of 4.5 per cent, and in more recent years, 4 per cent.

Corrective Phases

- C Minor declines (major phases of minor

Figure 6



cycles) have frequently shown a fall of 7 per cent, which seems to be more or less consistent through the years.

D Minor advances (corrective phases of minor cycles) have frequently shown a rise of 5 per cent, and in more modern cases, 7 per cent. Although this may seem inconsistent with C, there have been enough extremes quite distant from the medians so that, although the average minor advance and decline is similar, the gross movement in an intermediate trend corrective phase shows a substantial decline.

From these general indications, it will be noted that the amplitude of minor advances in major phases of bull market intermediate cycles is likely to be about 1.6 times the amplitude of the minor declines in the corrective phase. This differential plays an important part in building a major upward trend by means of a series of successive small gains. Also, we note from these general figures, that the retracement in minor cycles are quite in proportion to the retracements which we found in studying intermediate cycles. Thus, we see the characteristic price pattern carried out in the minor trend.

Now let us make some similar observations concerning the amplitude of minor trends in bear markets. For this purpose, we will use Figure 7. Again, the letters applied to the graph are keyed to the diagram on page 163.

From Figure 7, we may summarize that, in bear markets, during intermediate cycles: Major Phases

E Minor declines (major phases of minor cycles) in the past 37 years, have frequently

shown a fall of 10 per cent; in more recent cases (1919-1935), many such declines have been 12 per cent.

F Minor advances (corrective phases of minor cycles) have frequently shown a rise of 5 per cent, and in more recent years, 5.5 per cent. Corrective Phases

G Minor advances (major phases of minor cycles) have frequently shown a rise of 8 per cent, and in more recent cases, 8.5 per cent.

H Minor declines (corrective phases in minor cycles) have frequently shown a fall of 5 per cent, and in more recent cases, 5.2 per cent.

A comparison of these figures seems to indicate that the amplitude of the minor declines in major phases of bear market intermediate cycles is likely to be 1.25 times the amplitude of the minor advances in the corrective phases. It is upon this differential that the major downward trend is built (or rather, torn down) by means of a series of successive small losses.

In comparing the data used to prepare Figures 6 and 7, it was noted that the amplitude of major phases of minor cycles, in both bull and bear markets, has been consistently greater in current years.

Now let us review briefly similar studies of the duration of minor trends.

Again, the reader is emphatically reminded that the vagaries of the minor trend make it absolutely impossible to present any exact conclusions, of highly practical value, concerning either the amplitude or duration of minor trends. Nevertheless, we may gain something, at least, from the results of a careful and tedious study of the 658 minor movements (of 3 per cent or more) during the years from 1897 to 1935, as shown on Chart 10.

Figure 7

AMPLITUDE OF MINOR SWINGS
BEAR MARKET

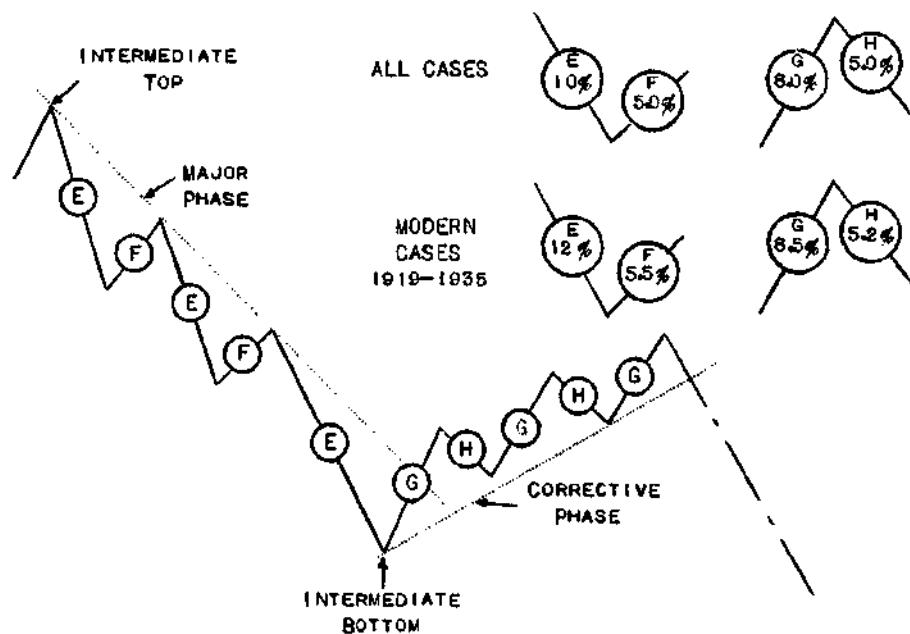
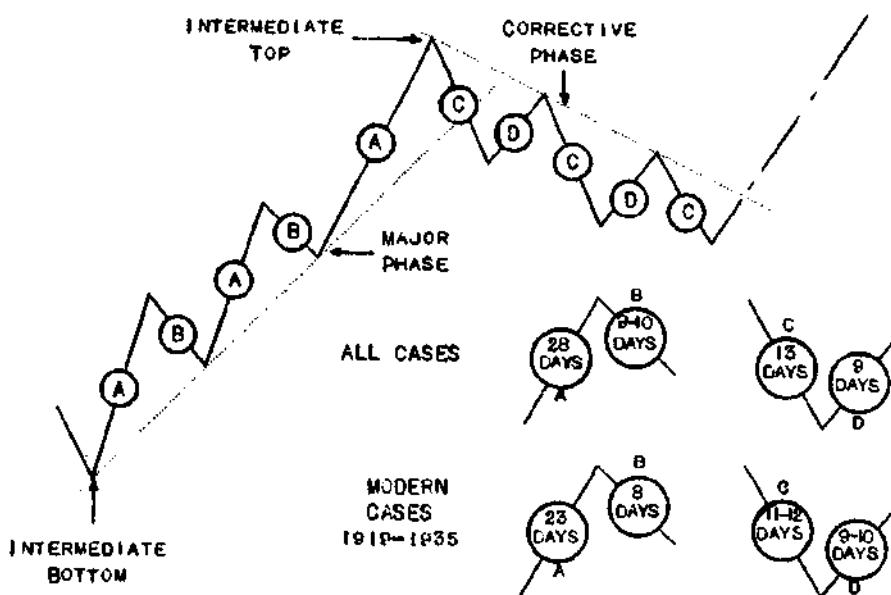


Figure 8

DURATION OF MINOR SWINGS
BULL MARKET



Figures 8 and 9 present simple graphs of the duration studies, *based upon the median cases*. As in the cases of amplitude, the classifications shown in the outline on page 161 have been employed.

Figure 8 should be studied in connection with Figure 6. From Figure 8, we may summarize that in bull markets, during intermediate cycles:

Major Phases

A Minor advances (major phases of minor cycles) in the past 37 years, have frequently

lasted about 28 days. In the more modern cases (1919-1935), many such advances have averaged only 23 days. B Minor declines (corrective phases of minor cycles) have frequently lasted 9-10 days, and in more modern cases, 8 days. Corrective Phases C Minor declines (major phases of minor cycles) have frequently lasted 13 days, and in more modern cases, 11-12 days.

D Minor advances (corrective phases of minor cycles) have frequently lasted 9 days, and in modern cases, 9-10 days.

From these summaries, it is quickly noted that, in major phases of bull market intermediate cycles, the duration of minor advances in intermediate major phases is likely to be twice the duration of the minor declines in the intermediate corrective phases. This relation is so pronounced that every stock market student should always remember that minor declines in the corrective phase of an intermediate cycle in a bull market are likely to be sharp and quick.

On the other hand, the corrective phases of minor cycles appear to be more or less of similar duration (B and D).

Let us now look at Figure 9, and make some general observations concerning the amplitude of minor trends in bear markets.

From Figure 9, which should be studied in connec-

tion with Figure 7, we may summarize that, in bear markets, during intermediate cycles: **Major Phases E** Minor declines (major phases of minor cycles) in the past 37 years, have frequently lasted 19 days, and in more recent cases, 14-15 days. **F** Minor advances (corrective phases of minor cycles) have frequently lasted 7 days, and in more modern cases, only 4 days. **Corrective Phases G** Minor advances (major phases of minor cycles) have frequently lasted 12 days, and in more modern cases, 10 days. **H** Minor declines (corrective phases of minor cycles) have frequently lasted 6 days, in both earlier and more recent years. Comparing the duration of minor declines in bear market intermediate cycles, we note that the duration

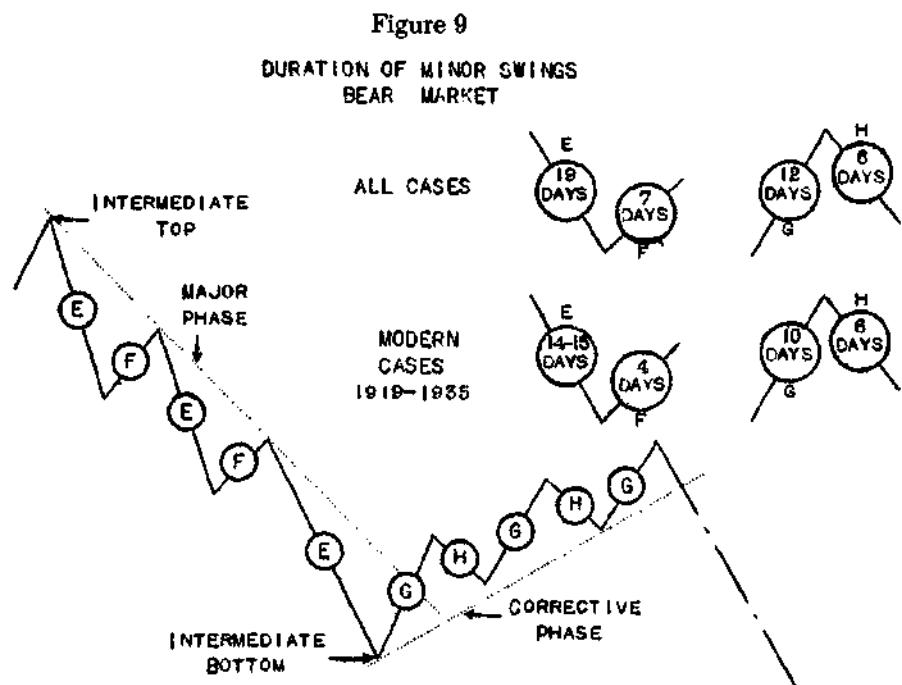
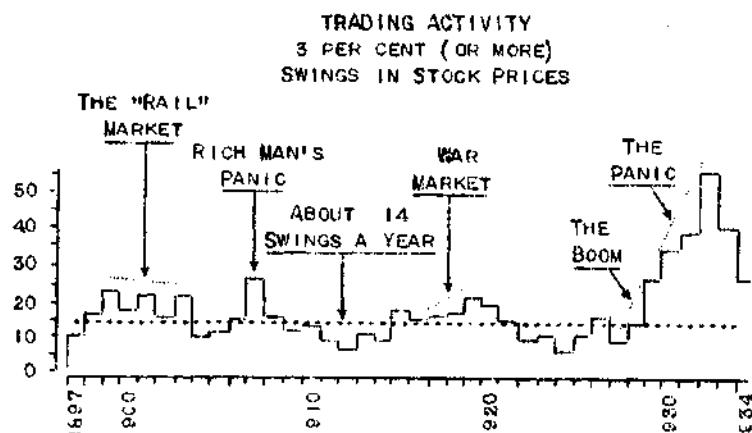


Figure 10



of the minor declines, in the major phases, are likely to be 1 1/2 times the duration of minor advances in corrective phases.

In studying the amplitude of minor swings in bull markets and their duration (Figures 6 and 8), it is to be noted that as the amplitude in modern cases increased to an average of about 13 per cent, from 11.5 per cent, the duration of these advances dropped from an average of 28 days, to 23 days, for the major phases of minor cycles. On the other hand, the corrective phases of minor cycles showed little change in either amplitude or duration.

Similarly, we find in bear markets that as the minor declines increased to 12 per cent, from an average of 10 per cent, the duration dropped from 19 to 14-15 days, in the major phases of minor cycles; while again, in the corrective phases of minor cycles, there was little change in either amplitude or duration.

From the plethora of data used in making these studies of the amplitude and duration of minor trends, we see no useful relation between either the amplitude or duration of minor advances and declines and their subsequent counter-movements. For example, if a minor advance is of substantial proportions, or of long duration, it does not follow that the subsequent decline will be in proportion; and the same is true in converse cases. How would it be otherwise, when we realize that minor trends represent the interplay of such a vast number of different forces?

Every now and then, when the market gets dull for several weeks, we often hear vague opinions that the trend is "narrowing down", and might again resemble that between 1910 and 1914. In the past year, since the SEC made its bow on the stock market stage, we have also been told that "regulation is bound to slow down the market".

One good way to test the validity of these contentions is by a comparison of the number of 3 per cent swings during comparable time periods. Let us take an annual basis, for example. Analyzing the 3 per cent swings shown on Chart 10, from 1897 to date, we find that their number ranged from a minimum of 6 in the years 1912 and 1924, to a maximum of 56 in 1932.

Figure 10 shows a diagram of the trading activity in the past 37 years, in terms of the number of market swings of 3 per cent or more (Dow Jones Industrial average).

From it, we see that the average appears to be about 14 swings a year (rallies and declines combined). Measured in this way, we see that the market was quite active in the five years 1899-1903, when, as shown on Chart 3, we had a big Railroad market. Again, in the year 1907, when President Theodore Roosevelt was "busting the trusts", we had a very active market on the downside. Again, from 1915 to 1921, during the war boom and the post-war depression, the minor swings were more numerous.

In the 31 years 1897-1928, market activity, in terms of 3 per cent fluctuations, averaged less than half of the period from 1929-1933. Thus, we can see

quite clearly that stock market activity in the past six years has been relatively greater than any other time in history. Even in 1934, the 3 per cent swings were almost double the 37-year average. In the year ending July 1935, there were 18 of these 3 per cent swings, notwithstanding the sustained advance from March to July, which was interrupted by only one reaction of 3 per cent or more.

Assuming that SEC regulation began to have a bearing on stock prices in July 1934, it is interesting to note that, during the ensuing year, including this exceptional advance from March to July, the 3 per cent swings were well over the long-term average.

There seems to be little statistical proof that regulation, or any other force, has made any material difference in "slowing down" stock price fluctuations quite the contrary.

Before proceeding to a consideration of the hourly averages, and their use in studying the minor trend, let us look at the duration of minor swings from another angle.

In his excellent work, entitled, "The Story of the Averages", Robert Rhea has summarized and tabulated data showing the consecutive number of days' advance or decline in the minor swings during the 35 years from 1897 to 1932. Similar data for the period from July 1932 to date are uniformly like those of the earlier period.

A detailed study of these figures seems to provide information which is really useful to the minor trend trader, or to the intermediate trend trader who is observing the minor trend.

For example, we find that:

1. THERE IS NO CASE SINCE JANUARY 2, 1897, WHEN THE CLOSING LEVEL OF THE DOW JONES INDUSTRIAL INDEX (WHICH IS THE BASIS FOR THE WHOLE STUDY) ADVANCED OR DECLINED FOR MORE THAN 14 CONSECUTIVE DAYS WITHOUT AT LEAST A ONE-DAY COUNTER MOVEMENT.
2. WELL OVER ONE-HALF OF THE MARKET'S TINY MOVEMENTS ARE OF ONLY ONE DAY'S DURATION; AND FURTHER THAT MORE THAN 90 PER CENT ARE OF THREE DAYS OR LESS.
3. BUT MOST IMPORTANT IS THE FACT THAT: 98.3 PER CENT OF THE MINOR SWINGS RUN SIX CONSECUTIVE DAYS OR LESS. THUS, IF PRICES HAVE ADVANCED OR DECLINED TO CLOSE FOR THE SEVENTH OR EIGHTH CONSECUTIVE DAY WITH A GAIN OR LOSS, A COUNTER MOVEMENT OF FROM ONE TO FOUR DAYS MAY BE EXPECTED WITH ALMOST CERTAINTY.

This conclusion is somewhat at odds with the interesting story which appears in "The Business of Trading in Stocks", Chapter 8, wherein it is pointed out that the probability for any given number of successive days showing a gain or loss "seems to be fashioned largely by chance." A frequency table based on tossing pennies, comparing the number of heads and tails with the number of advances and declines in an individual stock, is used to illustrate the probability that minor fluctuations, that is, consecutive days' advance or decline in an individual

stock, are fashioned by chance. There is no argument with this contention, as applied to individual stocks. But applied to an average like the Dow Jones 30 Industrials, which smooths out the opposed fluctuations of a number of stocks during the same day, the probability that only chance influences the minor fluctuations is decidedly less.

For example, it is hard to get around the fact that less than 2 per cent of the hundreds of minor fluctuations, during the current century, have proceeded for more than six days. The author cannot recall one single other stock market factor which shows a statistical efficiency of anything like 98.3 per cent.

As stock price fluctuations have expanded, both in number and amplitude, in the past six years, there seems to be no change in the regularity of the figures for consecutive days' advance or decline.

It may be a surprise to some readers to learn that the duration of minor declines in a bull market is often greater than the duration of minor advances; and conversely, the duration of minor advances in bear markets is often greater than the duration of minor declines. At first, this seems most illogical; but the answer lies in the amplitude of the minor swings. In a bull market, a preponderant number of minor advances will be, individually and in the aggregate, of greater amplitude than the counter minor declines; and vice versa in bear markets.

The casual observer of stock price trends probably also has the impression that in a bull market a substantial majority of daily movements are upward, while in a bear market they are downward. The truth of the matter on this point is usually quite astonishing.

Robert Rhea, in "The Story of the Averages", states that:

1. In a Bull Market:

43.2 per cent of the daily changes show declines, while 77 daily declines are matched with each 100 daily advances.

2. In a Bear Market:

46.1 per cent of the daily changes show advances, while 86 daily advances are matched with each 100 daily declines. Before leaving the subject of duration of minor movements, something is to be gained by observing the seasonal influence (if any) on the minor trend.

Let us start with the months of the year. Briefly, from time to time we read newspaper discussions stating that stock prices usually go up or down in a given month. Let us look into the facts, employing as our basis for observation, the closing level of the Dow Jones Industrial index each month from January 1897 to July 1935. First, we have computed the per cent net change from month to month. Then we divided the cases by months, for gains and losses. Finally the cases were ranked from the largest gain to the largest loss, for each month.

In the left half of Figure 11, we see a graph of all the months in which gains were registered. From it, we may conclude that:

August is preponderantly an up month; so is December; while January and March have a similar; but less pronounced tendency.

The graph in the right half of Figure 11 shows all the months in which losses were registered. From it, we may conclude that:

February is preponderantly a down month, while September is a close second. May is also a month in which declines may be expected.

Studying the data in a little more detail, let us look at Figure 12, which shows the relative amplitude of the various monthly advances and declines, which are ranked from the largest advance to the largest decline. The vertical center line indicates a division of the cases into gains and losses. Immediately, we see that not only is August a month of advances, but also the advances are of comparatively substantial amplitude.

Further, we see that, although February has the largest number of declines, September is likely to have more severe drops. December, which is the second important up month, it will be noted, has some of the most pronounced declines. The greatest of these has to be eliminated, because it is in connection with the opening of the Stock Exchange in 1914.

October is another month which, we see in looking at the details, is likely to have some fairly severe declines. These go hand in hand, and frequently represent an extension of the September declines.

The characteristic movements in February, August, September and December seem to be of the greatest interest to students of the minor trend. In line with similar observations made concerning the intermediate trend, in Chapter V, it seems safe to say that the movements in these months are closely allied to, or at least reflect, the trend of industry and trade. The predominance of declines in February probably is a reflection of disappointment in the Spring advance in business.

The preponderance of advances in August probably reflects the hope of a substantial rise in Fall business.

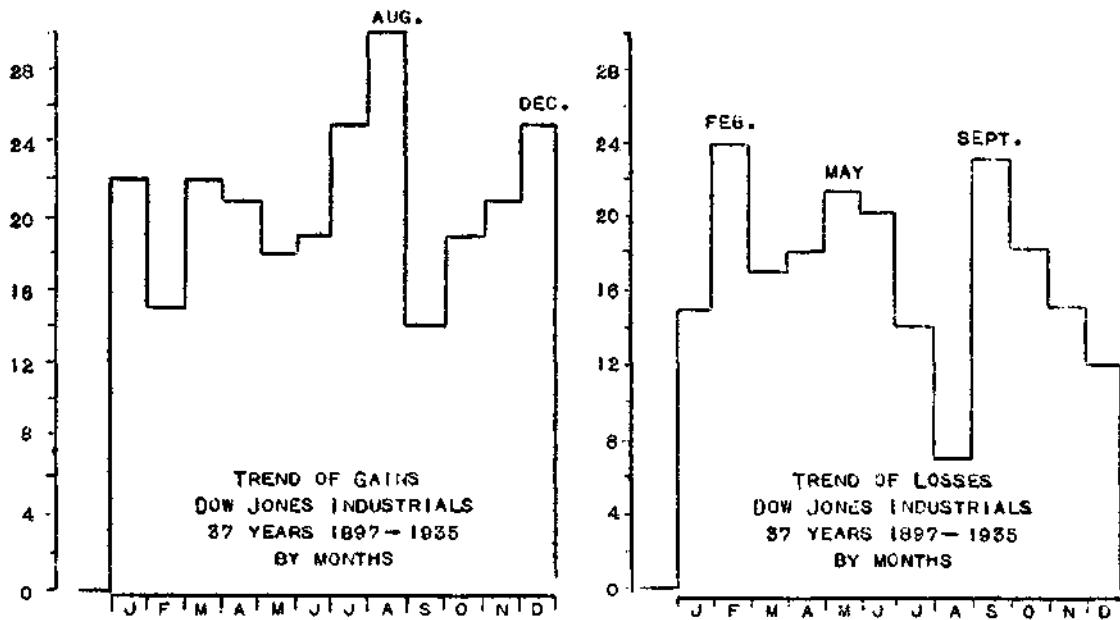
On the other hand, numerous and sharp drops in September, frequently carried through October, in all probability represent disappointment in Fall business.

The large number of advances in December, like those in August, seem to reflect the hope for good Spring business.

A further study of the monthly per cent net change data shows that in only 13 of the 459 months included in the study beginning in January 1897, has the monthly fluctuation exceeded 15 per cent, as measured by the closing price of the Dow Jones Industrial index; while in only 42 of the 459 cases, has the fluctuation exceeded 10 per cent. Thus, we may say that the expectancy is 90 per cent in favor of a monthly fluctuation of 10 per cent or less.

It is upon this premise that a few well-informed sellers of Puts and Calls are almost always willing "to write a paper" with a 10 per cent spread, for a 30-day period.

Figure 11



Sub-Minor Fluctuations

Having presented some general information concerning the minor trend, in terms of 3 per cent fluctuations, as shown on Chart 10, now let us turn to a consideration of the infinite number of what we choose to call "sub-minor" fluctuations. These are the hour-to-hour, and even moment-to-moment trends, representing the impulses which compose the ripples of the minor trend. Their causes are so numerous as to limit a useful discussion of them.

As suggested earlier in this Chapter, a detailed study of the minor trend, including these sub-minor movements, is most conveniently made by using charts of the Dow Jones hourly averages, and, if time permits, also charts of an aggregate of a small number of stocks, including from 5 to 15 or 20 individual issues.

For a number of years, this writer has used the aggregate described on page 159, and shown on Chart 13.

The average reader should place greatest emphasis (considering the fact that his chief interest should be in the intermediate trend) *upon the study of the hourly averages*, unless he is especially interested in the minor trend, in which event it is worthwhile to study the less-than-hourly movements.⁸

"Wave" Charts

As this course is not written particularly for tape readers, we will not give space to a discussion of "wave charts", which are intended to appraise every variation in a list of five or seven stocks, on a basis of the

⁸ SECTION 5 OF GARTLEY'S STOCK MARKET DATA CARRIES THE FIGURES FOR THE DOW JONES INDUSTRIAL INDEX, AT 30-MINUTE INTERVALS, AS WELL AS THE FIGURES FOR THE 15-STOCK AGGREGATE, WHICH APPEAR IN SECTION 8. SEE APPENDIX I, CHAPTER II.

exact time it occurs. Such charts are undoubtedly useful, but are not of much practical value to the layman who hasn't his nose buckled down to the grindstone of the ticker every minute from 10 A.M. to 3 P.M.

Hourly Averages Best Suited to Study of Minor Trend

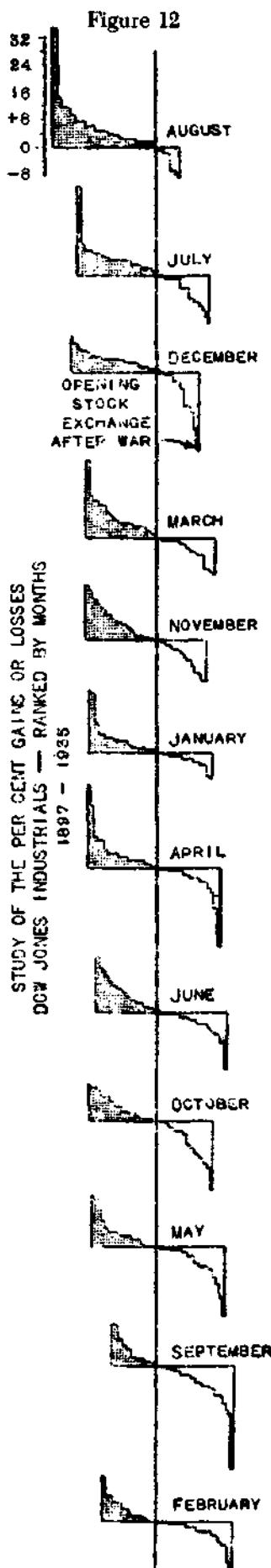
A chart of the hourly averages, including the Industrials, Rails and Utilities, and possibly the Dow Jones hourly Commodity index, with hourly volume, such as Chart 11, or Chart 12,⁹ is about all that the average reader needs for an adequate knowledge of the minor trend. It is only upon special occasions, such as in a decline like that of May 28-June 1, 1935, or for example the upside penetration of the top of the Dow Theory "Line" in the case of the Rail average, on June 22-23, that the average reader would find it important to have the hourly figures in front of him, and his chart up to date, during a particular trading day. Most of the time, if the figures are available on the morning following,¹⁰ the user is not handicapped seriously.

Caution!

In studying the hourly averages, the reader must never forget that he can easily be misled by the numerous and meaningless jiggles. What he is trying to scent is the trail of a minor trend which will develop into an intermediate trend. The hourly chart should be used to

⁹ PHOTOSTATIC COPIES OF THE CHARTS USED IN THE WRITER'S OFFICE WITH PROVISION FOR SEVERAL MONTHS* FUTURE PLOTTING, INCLUDING THE INDUSTRIAL, RAIL, UTILITY AND COMMODITY INDEXES, MAY BE OBTAINED AT A COST OF \$9.00 EACH, OR \$3.00 FOR EACH SEPARATE INDEX.

¹⁰ VVLTH THE USE OF AIR MAIL, GARTLEY'S STOCK MARKET DATA, WHICH INCLUDES ALL THE FIGURES NECESSARY TO MINOR TREND CHARTS, IS AVAILABLE EVERY WEEK-DAY MORNING WITHIN A RADIUS OF 1500 MILES OF NEW YORK CITY.



gauge more accurately the intermediate turning points. For these, the general conclusions should be drawn first from the weekly and daily charts, with the hourly chart acting as a micrometer to see the final turn.

Take, for example, the situation in March 1935 (Chart 11). The Industrial average established a low at 11 o'clock on March 18 (A). A persistent rise ensued, until the final hour of March 23 (B). Then a reaction to the final hour of March 26 (C). Then the rally was resumed, and in the third hour on March 28, at D, the previous minor top was exceeded, producing a bull signal, in that an orthodox (Dow Theory) upward zigzag had developed, giving the first adequate technical reasons for believing that the turn in March might be the beginning of an attack on the February 1934 high, and possibly the beginning of a new intermediate major phase, which would carry prices to a new bull market high. (The key points have been annotated with the same letters on Chart 8.)

This bullish deduction, however, was not drawn from Chart 11, but rather from Chart 8. Chart 11 merely provided a magnified view of the minor trend, which was very helpful in determining the importance of the March turn, at an early time. It will be noted that, on the minor reaction B-C, volume dried up, whereas previously, in the decline from the February high to the March low, activity had shown a tendency to expand in the minor recessions.

After D had been reached, prices moved sidewise for several days, and then had a sharp dip on April 2 and 3, to form a higher minor bottom at E, above the low of the reaction B-C. Two days later, when the advance was resumed, and a sharp rally penetrated the previous minor high, at F, there was little further question that an important uptrend was probably under way. This is a typical example of a Dow Theory upward zigzag, which could not help but be interpreted as bullish (see Chapter VII).

Now let us observe the minor advance from 11 o'clock on March 18, at point A, to the high at 11 o'clock on May 24, at point Z. This move compares with the advance 6-7, 1935, on Chart 10, and with the move A-Z, on Chart 8. In studying this minor trend, it will be noted that there were 17 minute movements, comprising 8 1/2 sub-minor cycles, each consisting of an advance and a correction: for example, the movement from A through 1, to 2, and the movement from 2 through 3, to 4, et cetera.

This was an unusually long minor advance: thus it had an exceptional number of sub-minor cycles. A 58-day advance (trading days), without a 3 per cent reaction, is indeed an exceptional picture to find in the stock market.

The subsequent minor correction, from the second hour on May 24 to the second hour on June 1, was also unusual, in that it cancelled approximately one-third of the previous minor rise, in approximately six trading days. Thus, one-third of the price rise was lopped off in about one-tenth the duration. Although minor corrections are usually much shorter than the

previous minor advances, this particular one was extraordinarily so.

The minor decline from May 24 to June 1 consisted of only 2 1/2 sub-minor cycles.

Although it is true that each minor advance or decline, when detailed on an hourly chart, appears to be composed of a variable number of these sub-minor cycles, it is to be emphatically understood that neither the number nor the amplitude or duration of the parts of these sub-minor cycles, can be studied with any useful conclusions, of even a general nature, such as were drawn on previous pages concerning intermediate cycles, and the minor trends of 3 per cent or more. The number, as well as the amplitude and duration of these sub-minor cycles, appears to be pretty much a matter of chance.

The minor trends during the period from January to September 30, 1935, shown on Chart 11, are typical of the past few years. It will be noticed that like the larger intermediate reversals, there are two types of minor reversals, which we also classify as the "rounding type", and the "V-type". Examples of the "rounding type", which are numbered 1, may be seen by the dotted lines in January and March. Examples of the "V-type", which are numbered 2, are also shown by the dotted lines in February and June. These are typical working tools, and are exposed in greater detail in Chapter VIII.

As we will learn in subsequent Chapters (VIII-XIII), many of the working tools customarily applied to the intermediate trend are applicable to a study of the minor trend. However, there should be no misunderstanding about this. The significance of minor Trend Lines, Triangles, Moving Averages, and Gaps, as well as Net Change Oscillators and Volume, is of much less importance than in the intermediate trend because of the illogical vagaries of the minor trend.

Nevertheless, they are useful. Take, for example, the case of the March 1935 turn. Between the low at A and the high at B, the following technical factors lined up to confirm the bullishness:

1. Volume showed a consistent tendency to dry up, from the February high, to the March 18 low.
2. From the 13th to the 18th of March, a broadening bottom, or reverse triangle, developed (see Chapter VIII). This pattern also showed a tendency toward the typical "rounding" pattern mentioned above.
3. On the 19th and 20th of March, the minor trend (21-hour) moving average was decisively penetrated, and the reaction on March 21 failed to reverse this bullish signal (see Chapter XI).
4. During March 22, the minor downtrend line across the minor highs of the previous decline, was decisively penetrated.
5. In the third hour on March 28, a clear-cut Dow Theory upward zigzag had developed.
6. Activity, as measured by the hourly Volume figures, had reversed its tendency, and shown evidence of expanding in price advances, and

contracting in price declines (see Volume notations on Chart 11), and

7. Shortly thereafter, the Dow Jones Industrial hourly average opened with a gap on Friday, April 5.

Earlier in the Chapter, page 158, it was noted that minor trend corrections are frequently horizontal, or sidewise movements, rather than declines or advances counter to the intermediate trend phase then in progress. Two excellent examples of this appear on Chart 11, during the period from middle June to middle July, and again during most of August. The shaded areas on the Industrial and Rail indexes emphasize these examples.

Frequently, these horizontal movements, which are almost always continuation patterns, rather than tops or bottoms (the example at the March bottom in the Rails being an exception), are classified as Dow Theory "lines". If an uptrend is under consideration, we may say that these horizontal movements take the place of minor declines. In an uptrend, we may consider that the horizontal type of minor correction connotes greater bullishness than the reactionary type; and conversely, in a downtrend, the horizontal type of minor correction implies greater bearishness than the rallying type.

It is because of this that the upside penetration of a sidewise movement in an uptrend is considered a safe buying point, while the downside penetration of a similar movement in a downtrend, conversely is considered a good selling point (see points marked "P" on Charts 11 and 12).

The successful use of these breakout points, as signals for buying and selling, depends upon their application to the individual major averages. For example, in middle January 1935, a notable sidewise movement developed in both the Rails and Utilities. It was not so pronounced in the Industrials, which were trading downward. When the downside breakouts came, on January 26 in the Rails, and on February 4-5 in the Utilities, individual stocks in both these groups were a sale; while this was not particularly true of stocks in the Industrial group. As another, and even better example, take the unusual case in the Utilities, wherein, after a horizontal correction from May 10 to May 28, the Utility average had an upside break, signalling bullishness, right in the midst of a very drastic drop in the Industrials, and a sizable set-back in the Rails.

The bearishness engendered by the weakness at this time in the Industrials, undoubtedly left many technical students with the feeling that a comparable break was imminent in the Utilities. Yet just the reverse occurred, and the upside break from the May 10-28 "line" proved to be a very valid and profitable bull signal.

Now let us turn briefly to a consideration of volume as related to the minor trend. As the average reader is limited in the time available to study the market, about the only thing he can do profitably is to watch the fluctuations of hourly volume in connection

with hourly price fluctuations.

In observing volume, it is important that a reasonably large scale be used on the charts, in order to see fluctuations. Some students like to divide volume, and mark that which occurs in an hour when prices are rising in one color (blue or black), and that which occurs in an hour when prices decline in another color (red).

In studying hourly volume, the chief factors to be considered are the peak points when volume appears at an unusually high level compared with the previous periods, and the low points when, for a period of 10 to 30 hours, activity is trending at a very low level.

In studying Chart 11, we note that the greatest peaks of hourly activity appeared:

1. At the "Gold Clause Rally" in February (the Rails were very active in the last two hours on Monday, February 18, 1935);
2. In the last hour on March 21, which established the first important expansion of volume on the upside, in the intermediate advance which began at the March lows;
3. Next the peak of May 16-18, which should be observed carefully because it covered several days (peaks of this kind are of far greater importance than a sharp rise in a single hour). Although this developed some eight days before the May 28-June 1 correction developed, in the interim the Industrial average moved sidewise without any notable further gains.
4. Interestingly enough, the next peak was in the opening hour on May 28, which aggregated 840,000 shares. In this hour, the price trend did not sustain any severe decline. At the closing on Monday, May 27, the Industrial average stood at 116.72; while at 10:30 on Tuesday, May 28, the level was 116.73, a change of only .01; and at 11 o'clock it had declined to only 115.93, or a loss of .80 with more than 800,000 shares turnover. The inability of the average to rise in the first half-hour, during tremendous activity, provided the final clue of the impending decline.
5. The next peak of importance appeared in the first hour on August 5, when, over the weekend, rumors indicated that the House of Representatives would not assent to the "Death Clause" in the Holding Company Bill. The chief activity during this peak was, naturally, in the Utility stocks.

From the viewpoint of the intermediate trend trader, a study of minor trend volume is valuable chiefly in determining Dow Theory indications (see Chapter VII, page 192), and in confirming the importance of a given minor rise or fall in the price trend.

The application of the Dow Theory to the minor trend is a subject of such great importance that it will be left to its proper place in Chapter VII, which concerns the tenets of the Dow Theory.

The Psychological Factor of the Minor Trend

A discussion of the minor trend should not be concluded without brief consideration of the psychological inferences which have a bearing upon the market, and are usually most visible in the minor trend. It will be remembered from the discussion in Chapter I, that *hope*, *fear*, and *greed* are the three primary springs of action. Men and women who trade in stocks do so with the objective of making a profit. They buy or sell stocks short in hope of a gain. They close a trade because they fear a loss of either paper profits or capital. They operate on margin, trade too frequently, and/or overstay their market because they are greedy for a greater gain.

The forces are so primeval that they are the ruling factors, and cause the bulk of the persons interested in the market to act in unison, as a mob. With the vast improvement in the transmission of news in the past 25 years, combined with greater public interest in securities in general, which expanded as the United States became a creditor nation, the American stock market has become more and more sensitive to both domestic and foreign developments. The mob psychology has become more pronounced.

Consider, for example, the fact that in five of the seven trading days in 1935 which successively followed holidays, we find a pronounced daily fluctuation in the Industrial index.¹¹ Also, we find that in a study covering many years, there is likely to be a more pronounced movement on Mondays, following the regular weekend holiday. From these facts, it seems fair to deduce that, given a little leisure time to think about it, and digest the news during a holiday or over a weekend, the mass of people interested in stock prices frequently tend to act in unison.

This brings up the whole subject as to whether the market has particular daily habits. From time to time, various studies covering short periods have been made, but the findings have been so general in their nature as to be of little practical use to the intermediate trend trader, and of only small value to minor trend traders. In some investigations made by Colonel Ayres of the Cleveland Trust Company, covering the period from June 1922 to June 1925, the following observations were made by William Dunnigan from the summaries:

Mondays Prices declined more often than any other day; widest price changes tend to come on this day; largest daily net changes downward appear on Mondays; Monday quotations are the most variable; it is the poorest day to sell, and the best day to buy.

Tuesdays Has no predominant tendencies, unless it follows a holiday on Monday, when activity is heavy, price change is

¹¹ NEW YEAR'S DAY, LINCOLN'S BIRTHDAY, WASHINGTON'S BIRTHDAY, GOOD FRIDAY, MEMORIAL DAY, JULY 4TH, LABOR DAY.

Wednesdays The amount of advances and the spread of daily range are relatively large on Wednesday; price increases are more frequent.

Thursdays Usually an unimportant day like Tuesday, except following a holiday on Wednesday.

Fridays No predominance of price trend, as indicated by net changes for the day; last hour selling more frequent than on other days.

Saturdays Smallest price changes; usually relatively dull activity; unless following a Friday holiday.

"News" Produces Psychological Changes

The psychological changes in the market naturally are produced by the news of the day. Oftentimes such news, in being premature or incomplete (many of the first flashes of important stock market news are garbled), causes floor traders and tape readers to buy and then quickly sell (or vice-versa), producing a rally or decline which is quite temporary. If the news is really vitally important, has a long range bearing upon the economy of the nation, and consequently affects corporation profits, the movement stimulated by such news is likely to be of importance. (Take, for example, the interment of the NRA on May 27, 1935.) But this can seldom be determined before several weeks or months have passed.

The old Wall Street axioms, "Stocks are a sale on good news" or conversely, "a purchase on bad news", does not always hold true, by any means. It depends largely upon whether the news is new, or of a surprise nature. If, for example, it is of political origin, there is always the question as to whether there has been a leak in Washington. The greatest value of these axioms seems to lie in their application to the movement of individual stock prices, where it is natural that corporate officers and their associates attempt to anticipate the market value of conditions of which they have a knowledge, before the public.

Caution!

In closing the discussion of the minor trend, a few general warnings might be sounded. For those market students who wish to trade the minor trend, and who are confident that they are temperamentally fitted for this type of trading, the writer recommends constant observation of both the tape and short interval indexes.

Confine Minor Trend Operations to a Small Group of Stocks

In trading the minor trend, it must be understood that the greatest profits are likely to be made by confining one's operations to a small list of from 3 to 10 stocks, all of which are active market leaders. As market interest changes from time to time, obviously such a list has to be varied. The following group of stocks,

which is suggested at this time (November 1935), may have to be quite changed at a later period.

Necessary Characteristics of Minor Trend Trading Stocks

The prerequisites of a good minor trend trading medium are:

1. It must be the stock of a leading company.
2. It must be a stock of a company in a good financial position, preferably on the upgrade.
3. It must be a stock in which there has been a sustained public interest for at least 18 months, preferably one of the 100 most active stocks.
4. It must be a stock with between 2 and 5 million shares listed (stocks like General Motors and General Electric are exceptions). There are advantages in trading stocks with less than a million shares outstanding, providing they are in the category of the 100 most active stocks.
5. It must be a stock with a price level ranging not more than 2 1/2 to 3 1/2 times the average of all stocks.¹²

A Few Samples

Some of the stocks which fall in these categories (there are others, of course), are listed below;

Industrials

American Smelting	Loew's
Briggs Manufacturing	Montgomery Ward
Case, J. I.	National Distillers
Chrysler	Phillips Petroleum
Continental Oil	Schenley Distillers
Deere	Sears Roebuck
General Electric	United Aircraft
General Motors	U. S. Steel
International Harvester	Westinghouse Elec.
Johns-Manville	

Rails

Atchison	Columbia Gas
New York Central	Consolidated Edison
Northern Pacific	International Telephone
Pennsylvania	North American
Southern Pacific	

Utilities

Avoid "Cats and Dogs" and Investment Issues

It is important that the minor trend trader avoid trying to trade the minor trend, as he sees it expressed by the averages, in either investment stocks or low priced "cats and dogs". Minor trend trading is distinctly a business of "following the trend". As the trends are often short, the vehicles used must be average, and not extreme, as compared to the market. If they are investment issues and move slowly, or if they are speculative and of little value, and move extremely rapidly, they are no good for minor trend trading. The ideal minor trend stock is one which

¹² SEE NEW YORK STOCK EXCHANGE MONTHLY BULLETIN (PAGE 4) WHICH MAY BE OBTAINED WITHOUT COST BY WHITING TO THE SECRETARY OR THE EXCHANGE.

habitually moves with the market in its percentage fluctuations (Chapter XVII treats this subject in greater detail).

It is absolutely essential that the minor trend trader draw his conclusions from a detailed study of the fluctuations of individual stocks (in which he is trading). Naturally, it is very convenient to use a sensitive average, such as the 15-stock aggregate, in observing the minor trend movements, but in practical trading, it becomes necessary to buy and sell the shares of individual issues.

Trade in Full Lots Whenever Possible

Another thing that the minor trend trader must never forget, is that the odd lot differential seriously multiplies his cost of operation. He is far better off trading in one stock, in 100-share lots than trying to "spread his risk" by trading in odd lots of several issues. Remember speculating is not investing.

Trade Both Sides of the Market

Next, the minor trend trader must be willing to go either long or short, and, for the most part, his success depends upon being in the market practically all of the time. Since he depends upon the minor fluctuations for his profits, in most cases being out of the market is a loss of opportunity, except in the infrequent periods when prices move sidewise for a period of a few days at a time, in dull markets.

No minor trend trader ever got to the first base of profits, in the ball game of the stock market, without limiting every loss.

The minor trend affords limitless opportunities for profits, but it also exposes the trader to losses, not alone because of failure to judge the turns correctly, but also because numerous trades substantially increase the cost of operation. The spread of minor price-changes puts terrific pressure on the trader. He must watch the market closely at all times, either by observing the tape or short-interval indexes. He must make decisions frequently and on short notice, and if he is to survive he must strictly limit his losses. To be fair to himself, he should make minor trading his profession and devote full time to it. He must be endowed with the proper temperament, or he is apt to become a nervous wreck, even though he is successful.

If the average student pursues the course of wisdom, and admits to himself in the beginning that he has not the temperament for minor trend trading, it is likely that he can get more out of a study of the minor trend as a means for making early commitments in the intermediate trend, than he can by using the minor trend as the basis of operations.

IN THE NEXT CHAPTER WE WILL COMPLETE THE STUDY OF THE THEORY OF STOCK PRICE TRENDS BY A STUDY OF THE FAMOUS DOW THEORY.

CHAPTER VII

THE TENETS OF THE DOW THEORY

"The Dow Theory is not an infallible system for beating the market. Its successful use as an aid in speculation requires serious study, and the summing up of evidence must be impartial. The wish must never be allowed to father the thought." Robert Rhea

REFERENCES

"A R C of Stock Speculation"	S. A. Nelson W.
"The Stock Market Rarometer"	P. Hamilton
"The Dow Theory"	Robert Rhea
"The Story of the Averages"	Robert Rhea
"Graphic Charts"	Robert Rhea
"Dow Theory Comment"	Robert Rhea C. J.
"Investment Letters"	Collins
"The Dow Theory - A Test of Its Value and a Suggested Improvement"	Samuel Moment
"The Secondary Trend Rarometer"	Samuel Moment
"Studies in Price Action", in "Investor's Handbook"	William Dunnigan
"Stock Market Tactics"	L. L. R. Angas

Evolution

It is perfectly evident, from the statements made by the contemporaries of Charles H. Dow, that he never intended, in the brief paragraphs which appeared in his Wall Street Journal editorials, to become the grandparent of technical studies. Perhaps if he had lived a little longer, the urging of his friends would have resulted in a more systematic presentation of his theories, from his own mind. As it is, what we know about Dow's theories of stock price movements we learn chiefly from the writings of his contemporaries, and others who have taken up the work where they left off.

It is to be understood that the study of the Dow Theory concerns chiefly the "When" question. Primarily, it is a study of trends. Thus, it fits logically into this work at this point.

Why We Study the Dow Theory

Briefly, there are three primary reasons for our study of Dow's Theory:

1. It is one of the *oldest* theories of technical market action.
2. It is undoubtedly the *most widely publicized* theory of stock price movements, and commands a greater following than any other.

Stock prices are determined by the balance of supply and demand, and the sentiment which sways this balance arises from the thoughts and emotions of all people interested in securities. If a large number of these people are versed in Dow's principles and react to market occurrences with these ideas in mind, this group of

persons constitutes an important factor in the balance of supply and demand; hence, as students of market action we cannot consider ourselves informed unless we are familiar with the reasoning process of Dow Theorists. 3. This Theory, as shown by market action over many years, involves principles which are *absolutely fundamental in price movement*, and no market student can afford to be ignorant of them.

Brief Sketch of the Principles of the Dow Theory

To give the reader some idea of these principles, before examining them in detail, we sketch the main points below, using our own terminology as far as possible.

1. The Averages Serve as Their Own Barometer:
 - a. Buyers and sellers of stocks are always endeavoring to discount the future, hence to the best of human ability, the movement of the averages anticipates coming events. Unpredictable happenings such as earthquakes are not reflected in the averages, but they are soon appraised after they occur. Because of this discounting function of the market, the behavior of the averages affords the first clue as to the future of stock prices.
 - b. It is possible to manipulate minor trend movements in the averages, and to some extent the intermediate trend, but never the major trend.

- c. Individual stocks may be expected to move with the averages, although any individual issue may be under special influences which do not affect the average as a whole.
- 2. There are Three Simultaneous Movements in the Market:
 - a. Primary (Major Trend)
 - b. Secondary (Intermediate Trend)
 - c. Day-to-Day (Minor Trend)
- 3. Successive Highs and Lows Indicate the Trend: Rising tops and bottoms are bullish, declining tops and bottoms are bearish.
- 4. Both Averages Must Confirm: A signal in one average, let us say the Dow Jones Industrials, is not conclusive in judging the future trend unless the other average (Rails in this case) confirms it by a similar signal.
- 5. A Line is formed when prices hold within a narrow range for a period of two weeks or longer, indicating either accumulation or distribution. "Breaking" of the "line" on the up or down side signals the coming trend.
- 6. Volume: When the market is oversold, activity goes dull on declines and increased on rallies. When the market is overbought, activity goes dull on rallies and increases on declines.
- 7. The Extent of the three movements and the Time required for their completion particularly the secondaries may be roughly forecasted by the amplitude and duration of past movements.

The first two principles may be considered the background or field of operation in which the theory is studied, while the latter five principles may be considered the working tools.

Before taking up these premises in detail, let us review briefly some general history of the men who have been responsible for bringing Dow's Theories to us. Naturally, in the years they have moulded the practical use of the early Theories.

Charles H. Dow, himself, was born in New England in 1850. He served as a reporter on the Springfield Republican in his early years. Later he became a member of the New York Stock Exchange, in partnership with Robert Goodbody, an Irishman, who was ineligible for membership in the Exchange because he was not a citizen.

In time, Goodbody secured his naturalization papers and joined the Exchange. The partnership was dissolved and Dow returned to newspaper work. In 1882 he established the Dow Jones financial news service and in 1889 he founded the Wall Street Journal, of which he was the first editor.

Dow appears to have been primarily of reportorial and judicial mold. His integrity was absolutely respected and he commanded the utmost confidence of his readers in his efforts to report fairly and interpret without bias the financial news of the day. In his editorials Dow was always cautious in the extreme, and because of his reticence he never came out with a flat

statement of his principles of technical market action. Although he began keeping averages in 1884, he wrote practically nothing about his theory until 1901 and the first half of 1902, and then his discussions were of fragmentary character, being interspersed, for the most part, in editorials devoted to general business conditions. Nevertheless, he was the first technical student of note.

S. A. Nelson was the first person to speak of "Dow's Theory. In 1903 he published a book called *The A B C of Stock Speculation*. Nelson had been a member of the Wall Street Journal staff when William Peter Hamilton (see *The Stock Market Barometer*, page 29) was a young reporter thereon. Nelson said in his preface that many requests had been received for a book giving the principles governing stock speculation, and if any man was qualified to write such a volume, that man was Charles H. Dow. But Dow could never be prevailed upon to put his theories into a book, and died leaving only a few editorials. However, Nelson says that Dow's theories are given in *The A B C of Stock Speculation*, and acknowledges the assistance of Dow's colleagues and contemporaries in preparing the book. Apparently Nelson was on excellent terms with Dow and the book may be regarded as a reasonably authoritative summary of Dow's Theory as it was originally formulated.

William Peter Hamilton was the editor of the Wall Street Journal from 1908 until his death in 1929. An Englishman by birth, he served in his early boyhood as a page on the floor of the London Stock Exchange. But he had a strong sense of adventure, and when gold was discovered in South Africa, he joined the rush to these regions. After some time spent as a trader in gold and diamonds in South Africa, Hamilton tired of the scene and migrated to Australia and New Zealand, and thence to the United States. Here he joined the staff of the Wall Street Journal, and was closely associated with Charles H. Dow during the closing years of the latter's life. Beginning in 1903, Hamilton wrote editorials for the Wall Street Journal until his death in 1929. Some of these were on the subject of "The Price Movement", and comprise most of his writings on the Dow Theory. These editorials, aggregating some 260 in all, have been collected by Robert Rhea and published as an appendix to his book, *The Dow Theory*. Hamilton also published a volume entitled *The Stock Market Barometer* (1922), which the student will find interesting and entertaining.

Until very recent years, the Dow Theory as generally understood was almost entirely the joint work of Dow and Hamilton. Dow had been reticent and cautious in his statements about price movements, but Hamilton became the ardent interpreter and exponent of the founder's precepts. While he referred constantly to Dow's methods, there is little question that Hamilton was constantly developing the Theory in his own mind.

Hamilton's characteristics may best be summed up by saying that he was a journalist, not a scientist. His

method of observation was impressionistic, not systematic. He was a keen observer and despite occasional errors in forecasting and interpretation, was a good judge of the market. He was often inconsistent, however, in his rationalizations about the market, particularly on the question of volume.

In the Wall Street Journal of January 5, 1911, for example, he wrote, "We prefer to neglect volume and the character of trading in these studies, believing that the average itself makes allowances for these factors."

On February 6, 1911, (W.S.J.) he said, "The market became dull on small reactions, showing increasing activity on any resumption of the advance. As any professional knows, this is a good indication that strength is still on the buying side."

Two months later (W.S.J., April 5, 1911) he said, "So far as volume is concerned we prefer to neglect it in these studies." Yet in his editorial on April 24 of the same year, he wrote, "Perhaps the weakest feature of the market was that it tended to become more active on declines."

Summarizing his comments on volume, it may be noted that in 29 editorials Hamilton explicitly declared that volume was excluded that all factors were discounted in the averages; but in 16 editorials he explicitly based his reasoning on volume characteristics, and in 17 other editorials commented on the behavior of volume.

Again, if there was one Dow principle Hamilton was sure of, it was that averages served as their own barometer. Repeatedly he argued that they represented the sum of all knowledge about business conditions. They discounted, to the best of human ability, wars, strikes, dividend melons, etc. Other indices should be disregarded; attention should be concentrated on the averages themselves. Yet in the Wall Street Journal of October 9, 1919, he wrote, "It cannot be too much reiterated that the averages are not to be regarded by themselves as conclusively presaging future markets. They are only one of many indices of the financial position and should not be overweighted."

These strange inconsistencies on Hamilton's part are probably the result of his impressionistic method of observing the market. However, they should not prejudice the student against Hamilton, for he was the first great expositor of the Theory, and his writings, as collected in Rhea's volume, *The Dow Theory*, can be profitably studied by all.

Robert Rhea, the most prominent contemporary Dow Theorist, first became interested in the Dow Theory in 1910. He had gone to Colorado for his health (where he still resides in Colorado Springs), and after effecting recovery, had opened a small retail automobile tire store. His father, believing that good business men should keep themselves informed on economic conditions, subscribed to the Wall Street Journal for him, and urged his son to read it thoroughly, especially the editorial column by William Peter Hamilton. Little by little, Rhea became inter-

ested in Hamilton's discussions of the price movement, and finally, in 1914 he started trading. His first venture in the market resulted in substantial profits, but he was soon to learn that he did not know enough about Dow's Theory, for when the first bear market came, he lost a large part of his previous earnings. He promptly withdrew from the market, and commenced to study the Theory in earnest to find out where he had gone astray. His studies were interrupted by enlistment in the United States Army, but following the war, his interest was rekindled when he entered the market on the strength of Hamilton's editorials and made a handsome profit. Since that time, says Rhea, he has been an ardent follower of Dow's Theory, and from all reports, the author may add, a very successful one.

In 1931, Rhea published a very helpful book called, *Graphic Charts*,¹ showing the Dow Jones Industrial and Rail averages, together with volume, from 1897 to date. In the summer of 1932, he began writing articles on the Theory for *Barron's*, the popularity of which led to their publication in a volume entitled, *The Dow Theory* (1932). In the fall of that year, Rhea established his market letter, *Dow Theory Comment*, wherein he interprets the current market in terms of Dow's principles. Because of his prestige, Rhea is able to take a stand dear to the hearts of all market commentators; he says what he chooses about politics.

Rhea maintains a dogmatic attitude in his writings about Dow's Theory, holding that, as transmitted to us by Hamilton, it is quite flawless, and should be followed implicitly, without many admixture whatsoever of other viewpoints or theories. It would appear to an outside observer, however, that in addition to his intimate knowledge of orthodox Dow Theory, Rhea's supplementary market studies, together with his native shrewdness, have had much to do with his profit production.

Rhea's studies and current market letters are strongly recommended to technical students. *The Dow Theory* and *Graphic Charts* can be obtained directly from Robert Rhea or from *Barron's* Book Department, 30 Kilby Street, Boston, Massachusetts. For *Dow Theory Comment*, write Robert Rhea, Colorado Springs, Colorado.

C.J. Collins, the other important contemporary Dow Theorist, entered the securities field in 1919 as head of the statistical department of a New York Stock Exchange firm. Later he became a partner and then the firm's floor member. He was always interested in economic analysis and methods of forecasting, and for many years examined thoroughly all available approaches. He was a consistent reader of Hamilton's editorials from 1919 to 1929, but gave no more credence to the Dow Theory than to the other methods under study.

¹ 10"x 14 l/2" CHARTS, ONE PAGE TO THE YEAR, PRICE \$12.50
WHITE TO ROBERT RHEA, COLORADO SPRINGS, COLORADO.

Early in 1930, after eleven hectic years in Wall Street, Collins felt the need of a rest, and believing that the market's rebound from the 1929 crash was only a temporary affair, he sold his seat, disposed of his partnership and went abroad for a vacation. In the summer of 1930 he observed that the bear market had resumed in a fashion most destructive to prices, though he had been assured early in the year by many eminent economists that the worst was over and a turn for the better had come.

Upon his return to the United States, Collins re-examined the "systems" and "theories" that had attained recognition in the previous eleven years, and checked the prediction therein against subsequent market trends. As a result, he discarded everything but Hamilton's editorials and entered upon an intensive study of the Dow Theory for a period of eight or nine months, which convinced him that the Theory was fundamentally sound, both from the point of view of logic and from that of past performance. In the summer of 1931 the editors of the Wall Street Journal invited Collins to interpret the Dow Theory through their columns, and since then, his discussions of the price movement have appeared irregularly in this paper.

About three years ago, Collins inaugurated an investment counsel service, "Investment Counsel, Inc.", and "Investment Letters, Inc.", in Detroit. He issues a weekly letter discussing the technical aspect of the market, in the light of Dow's Theory, and giving specific recommendations as to commitments. He also publishes occasional studies covering the business situation, economic trends and other matters affecting investment and security prices.

Collins is a veteran of the Street, a statistician and practical economist. His market thinking is clean-cut and dependable, and is highly recommended to technical students.²

Samuel Moment, who more recently gained some note in a Dow Theory study he made, is a University Fellow and Teaching Assistant at Stanford University. For several years he has been studying the possibilities of predicting stock price trends. The Dow Theory is only one of his many research interests in connection with the stock market, and unlike Rhea and Collins, he does not concentrate on it to the exclusion of other methods. He does not write a market letter or conduct an advisory service.

Two studies of the Theory by Moment have been published by Dunnigan's *Forecast Reports*.³ The first is entitled, "The Dow Theory - A Test of Its Value and a Suggested Improvement", and the second, "The Secondary Trend Barometer". In these studies he has sought to eliminate the element of independent judg-

ment or "art" which Rhea insists must accompany all Dow Theory interpretations, and substitute well-defined rules which can be applied mechanically. In working out these rules he has modified considerably the orthodox Dow Theory, eliminating entirely in his second study the axiom that the averages must confirm before a signal is to be considered valid. Moment has tested his modifications of the Theory by paper trading the averages back to 1897, with a resulting average increase in capital of as high as 15 per cent per annum.

Although many followers of Dow feel that Moment has varied the Theory until the founder would no longer recognize it, his studies have been done with great patience and care, and every student who presumes knowledge of the Dow Theory should be familiar with them.

Now let us turn to a discussion of the Dow Theory as outlined in the earlier part of this Chapter.

The Averages Serve As Their Own Barometer

Close observation of the movements of the averages (Dow Jones Industrials and Rails) has convinced the various exponents of the Dow Theory, from Dow to Collins, that, in all the welter of facts and fancies which might bear on future market and economic trends, the most dependable *single* indications are given by a study of stock price averages.

Three Simultaneous Movements in the Market

In 1900, Charles H. Dow wrote in a Wall Street Journal editorial, "The market is always to be considered as having three movements, all going on at the same time. The first is the narrow movement from day to day. The second is the short swing, running from two weeks to a month or more; the third is the main movement, covering at least four years in its duration." (*Stock Market Barometer*, page 30)

The validity of Dow's classification of the three market movements, although not his timing (duration), is evident to anyone who observes stock price changes. Charts 3, 4, 7, 8, 10 and 15, depicting the course of the market two decades after Dow's death, bring out the principle in striking fashion, and, if the student has the slightest hesitation in accepting this classification, he is urged to study these charts intently.

Advantages

Every Dow theorist begins his analysis of the current market by classifying the situation in terms of these movements. By such procedure he *reduces his guesswork substantially*. He knows that if the primary (major) movement is upward, the normal expectation is that it will develop in a series of sizable advances (major phases), each followed by a sharp, comparatively brief secondary reaction (corrective phase). He knows that in a major phase, activity dwindles on minor reactions, and that when the advance has pro-

² TO OBTAIN HIS STUDIES, WRITE TO INVESTMENT LETTERS, INC., 1012 UNION GUARDIAN BUILDING, DETROIT, MICHIGAN.

³ P.O. Box 369, SAN FRANCISCO, CALIFORNIA.

ceeded a substantial distance and great activity produces little or no gain, the secondary reaction (corrective phase) is near. When the corrective phase has proceeded for a time and declines tend to dry up, he begins to look for the resumption of the next major phase. Above all, he *knows* that the long side is the overwhelmingly safe side in bull markets.

Conversely, if the primary movement is downward, the observer has reason to expect that it will develop in a series of long downward swings (major phases), each followed by a sharp secondary reaction (corrective phase). In a major phase he looks for increasing steepness of descent and expansion of activity to signal the approaching correction. He learns after a time that, contrary to instinct, belief and prejudice, the short side is the safer side in bear markets.

Clarification of Terminology

The terms used by the chief Dow Theorists in referring to the three market movements have not always been clear. Bull and bear markets are called "primary" or "main" movements, and there is no uncertainty on this point. But where the writer speaks of "intermediate" movements, meaning both major and corrective phases of intermediate cycles, Dow, Hamilton and Rhea have generally restricted their term "secondary" to the corrective phase of the cycle alone, referring to the major phase as the "primary" movement. To avoid confusion, the writer prefers to reserve the term "primary" or "major" to bull or bear markets; the term, "secondary", he believes, should refer to the intermediate cycles including both the major and corrective phases. Dow's third order of price change, consisting of day-to-day fluctuations has been variously named "tertiary", "day-to-day", and "minor" movement. The writer prefers the last term, though the other two are clear in their reference.

The Eight Possible Market Situations

Under the terminology just outlined, the market at a given moment may be in any one of eight situations (see page 161, Chapter VI), as outlined below:

Major, or Primary	Intermediate, or Secondary	Minor, or Tertiary
1. Bull	Bull (major phase)	Bull
2. Bull	Bull (major phase)	Bear
3. Bull	Bear (corrective phase)	Bull
4. Bull	Bear (corrective phase)	Bear
5. Bear	Bear (major phase)	Bear
6. Bear	Bear (major phase)	Bull
7. Bear	Bull (corrective phase)	Bear
8. Bear	Bull (corrective phase)	Bull

Working Tools of the Dow Theorist

We have now discussed the two initial principles of Dow Theory analysis; first, that the averages are their own barometer, and second, that there are three simultaneous movements in the market. When the theorist has decided, to the best of his ability, the posi-

tion of the market with respect to the three trends at a given moment, he is then ready to develop an estimate of coming movements by application of the Dow Theory working tools.

It will be recalled that these tools are:

1. Successive Highs and Lows.
2. Confirmation.
3. Lines.
4. Volume.
5. Amplitude and Duration of Movements.

Successive Highs and Lows

The course of stock price movements consists of a series of rallies and declines. For short periods of time these rallies and declines may describe horizontal "line" formations (see pages 191-193); but they more frequently move in diagonal patterns or trends.

In one of his few editorials about the price trend, Dow pointed out that "prices were always moving, either up, down, or sidewise" (see page 170, Chapter VI).

Scrutiny of any chart, whether it depicts primary, secondary, day-to-day, or intra-day movements, clearly shows that any *uptrend* consists of a series of successively *higher* tops and bottoms, while any *downtrend* consists of a series of successively *lower* tops and bottoms. The student will find a wealth of graphic illustration of this principle in studying Charts 3, 4, 7, 8, 10 and 15.

Formulation of the Principle

From observation of such phenomena, Dow formulated his famous principle of successive highs and lows as indicators of the trend. He said:

It is a bull period as long as the average of one high point exceeds that of previous high points. It is a bear period when the low point becomes lower than the previous low points.
(W.S.J.-January 4, 1902)

Rhea describes this principle a little more exactly when he says:

Successive rallies penetrating preceding high points with ensuing declines terminating above preceding low points, offer a bullish indication.

Conversely, failure of the rallies to penetrate previous high points, with ensuing declines carrying below former low points, is bearish.
(The Dow Theory, page 75)

Application in the Three Trends

Does this principle of successive highs and lows apply to all three trends? Or, to put the question another way, do

1. Day-to-day or what we might call "sub-minor", rising tops and bottoms signal the minor trend?
2. Minor tops and bottoms signal the secondary (intermediate) trend?
3. Secondary tops and bottoms signal the major trend? and
4. Major tops and bottoms signal the long term (growth of the nation) trend?

Hamilton was dubious on all but the third proposition. Broad conclusions on the price movement, under the Dow Theory, he wrote, "are valueless on the daily fluctuations, and deceptive on the secondary movement, but possible and helpful on the main movement." (W.S.J. - August 8, 1919) It would thus appear that Hamilton restricted the principle of successive high and lows to secondary indications of the major trend, *but, actually, he himself analyzed many secondary movements on the basis of minor tops and bottoms*, and also, as we shall see later, often interpreted as a secondary what we might call a minor movement.

Rhea and Collins both employ the principle of successive highs and lows in all three trends, though both warn that minor signals of this character are often changeful, *especially in secondaries* (intermediate corrective phases). The author would go even further than Rhea and say that this working tool can be applied not alone to the three trends here mentioned, but also to the sub-minor trends which develop in the less-than-daily indexes, though the latter are the most changeful of all. The value of carrying the analysis down to hourly indexes is that these micrometers give the initial signal at important turning points.

Confirmation

A companion principle to the theory of successive highs and lows is that of confirmation.

On this point Rhea says, "The movement of both the railroad and industrial stock averages should always be considered together. The movement of one price average must be confirmed by the other before reliable inferences may be drawn. Conclusions based upon the movement of one average, unconfirmed by the other, are almost certain to prove misleading." (*The Dow Theory*, page 68)

In 1929 Dow Jones & Company, Inc. began computing a utility average in addition to the railroad and industrial averages, but the leading Dow Theorists require confirmation only by the two older indexes.

The reason for ignoring the utilities in the matter of confirmation, according to Rhea, is that this industry is controlled by inter-locking directorates, hence the average might be unduly influenced by conditions applicable to only one or two stocks. Moreover, he says, careful study of the relation of the utility average to the Rails and Industrials since 1929, does not indicate that the junior average has any particular confirmatory value.

The theory of successive highs and lows and confirmation may be illustrated simply by a few hypothetical cases. In Figure 1, the two averages, Rails and Industrials, give identical signals. In the uptrend, the failure of the bottom C to penetrate the previous bottom A, and subsequent penetration of the top B at D, is bullish. Failure of F to penetrate C, and later penetration of E at G is likewise bullish. Inability of I to penetrate F suggests bullishness, but subsequent failure of J to exceed H, with penetration of I at K, signals reversal to a bear trend. Failure of M to exceed J and later penetration of L at N signals the continuance of the downtrend.

In Figures 2 and 3, the averages give contradictory signals. In Figure 2, inability of C to penetrate A, and later breaking of B at D is bullish in the first average, but the second average fails to confirm, since J is unable to break through H on the upside, and later penetrates I downside at K. The signal is neutral until the move is confirmed by the first average when C is broken downside at F.

In Figure 3, the higher bottoms at C and F, and the higher top at E in the first average are bullish. In the second average, the higher bottoms at J and M, and the higher top at L are likewise bullish, but the failure of N to exceed L, and subsequent penetration of M at O is bearish, thus failing to confirm the bullish signal in the first average when E was broken at G. The signal now is neutral, but is made definitely bullish when L is exceeded at Q.

Figure 4 illustrates a series of neutral signals produced when the price fluctuations are narrowing

Figure 1

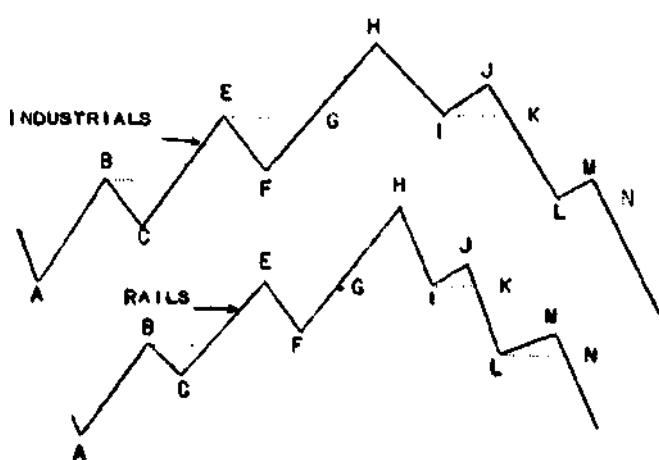


Figure 2

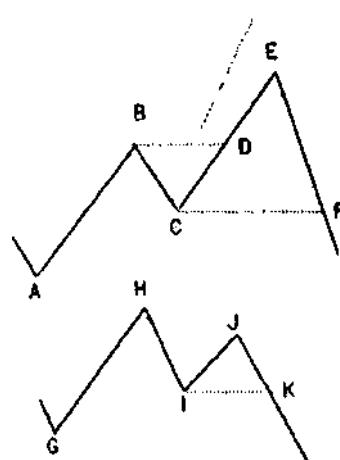
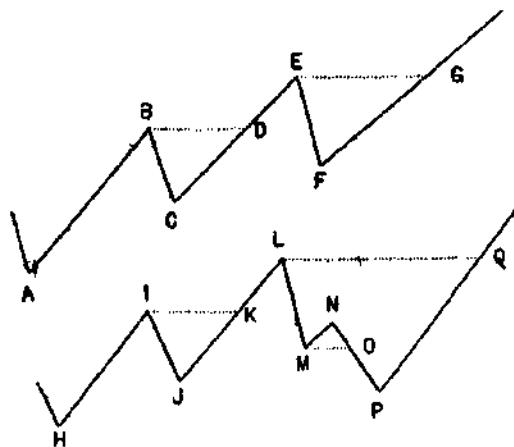
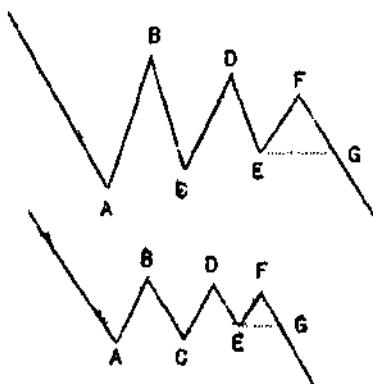
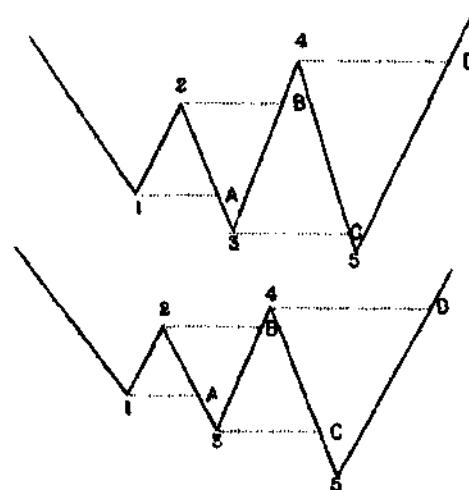


Figure 3**Figure 4****Figure 5**

down to form a triangle.⁴ The higher bottom at C suggested bullishness but D fails to exceed B upside to complete the signal. The lower top D suggests bearish-ness, but again the signal remains incomplete through failure of E to penetrate C. After one more reversal, forming a lower top at F, the movement finally penetrates E at C, gaining authority as C and A are penetrated downside.

The reverse of this triangle formation, known as a broadening top or bottom,⁵ gives a series of false Dow Theory signals.

In Figure 5, two reversals take place and the bottom at 1 is broken at A, giving a bearish signal. A reversal occurs at 3 and the top at 2 is broken upside at B, making the signal bullish. Another reversal takes place at 4 and the bottom at 3 is broken at C, giving a

bearish signal. A reversal occurs at 5 and the top at 4 is broken at D, changing the signal to the bull side, and giving the true indication of the move. Thus, in a broadening top or bottom formation, or wherever the price movement broadens on reversals, the theory of successive highs and lows inevitably gives a series of false signals. *This is plainly one of the limitations of the Dow Theory.*

The averages, according to Dow Theory, need not confirm on the same day. This principle is illustrated in Figure 6 (see May, 1933, Chart 15). A bullish indication is given by the higher bottom at C with later penetration of B at D, and shortly thereafter a second bull signal occurs when F fails to penetrate C and E is broken upside at G. It will be noted, however, that this later signal was delayed for some time, although the second average was bullishly moving up.

In Figure 7, failure of C in the first average to penetrate A, and later breaking of B at D is bullish. The signal, however, is soon reversed by penetration

⁴ SEE CHAPTER IX

⁵ SEE CHAPTER VIII

Figure 6

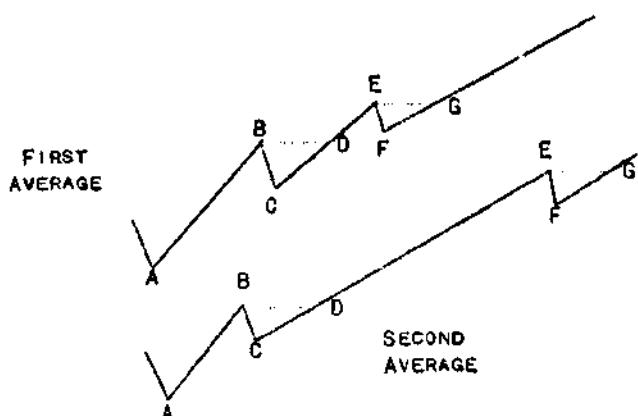


Figure 7

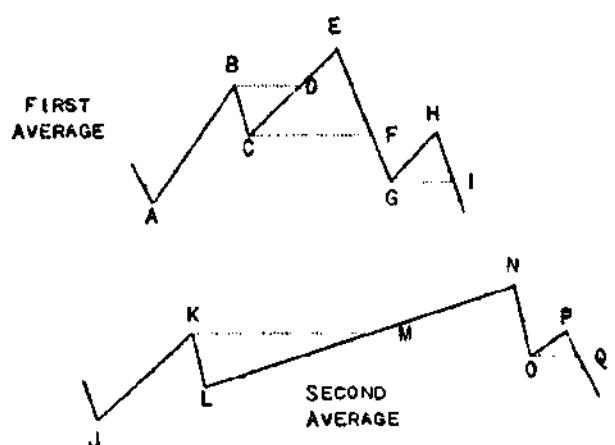
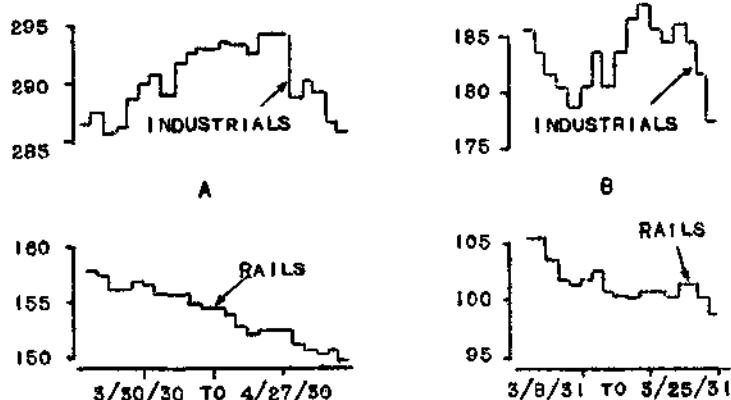


Figure 8



of C at F and this bearish signal is strengthened by failure of H to top E and later penetration of G at I. While these signals have been developing in the first average, the second average has remained bullish, inasmuch as L was higher than J and later K was penetrated at M. The bear indication in the second average finally developed at a later time but in a different way when P failed to penetrate N and subsequently broke O at Q.

"Divergence", a Useful Corollary of "Confirmation"

Figure 8 illustrates another situation involving the principle of confirmation which Rhea declares to be extremely useful on occasion. Usually the Rails and Industrials advance and decline together, i.e., if the Rails close up from the preceding day's trading, the Industrials also close higher, and vice versa, though the extent of the move (amplitude) may not, by any means, be the same. When, therefore, the two averages diverge, one average closing higher and the other lower for several days, an important move often follows. Rhea calls attention to two examples of this, one occurring early in April 1930, at the top of the corrective phase of the first intermediate cycle in the

1929-1932 bear market, and the other in March 1931 at the top of the third intermediate cycle. Figure 8 is plotted from the actual Dow Jones Rail and Industrial figures for these two periods. Another more recent example may be seen on Chart 15, at the July 1933 top.

Successive Highs and Lows in Primary Reversals Bull to Bear

To illustrate the application of the theory of successive highs and lows at major turning points, let us consider the two latest reversals at 1929 and 1932.

Figure 9 is a rough sketch of the Industrial average from April to December 1929. For the sake of simplicity, the exposition is carried through in terms of one average only. *The reader will remember, however, that orthodox Dow Theory requires confirmation by both averages before signals are considered significant.*

In Figure 9, the bottom of the last secondary correction in the bull market is represented by A (see low Number 12, 1929, Chart 10). Failure of the minor bottom C (low Number 14, Chart 10) to penetrate A, and subsequent penetration of the minor top at B (high number 13, Chart 10) at D is bullish on the major

Figure 9

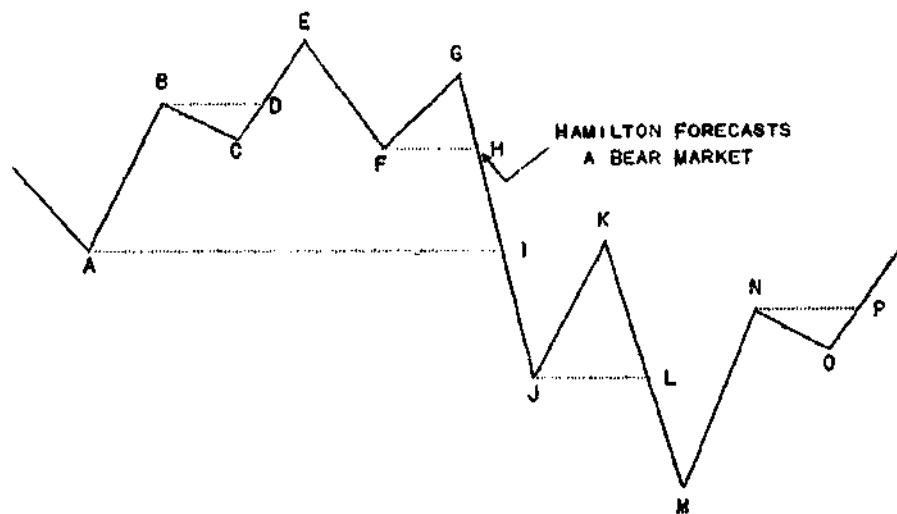
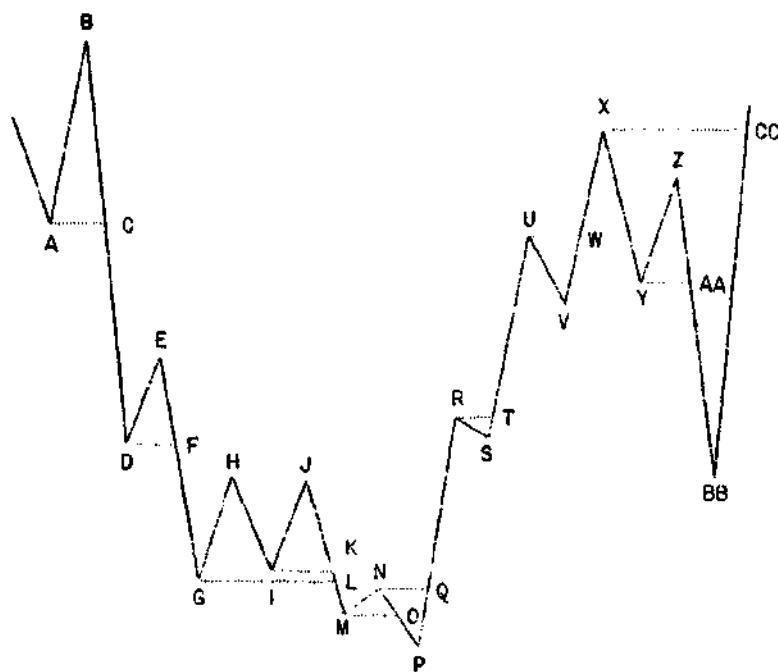


Figure 10



phase. The trend reverses at E (high Number 15, Chart 10), and is first interpreted as the corrective phase of the A to E (Numbers 12 and 15, Chart 10) rise. Penetration of C slightly at F (Number 16, Chart 10) and failure of G (Number 17, Chart 10) to penetrate E, and subsequent breaking of F (Number 16, Chart 10) at H is bearish for the secondary correction. At I the previous secondary bottom A is penetrated, signaling a reversal from a bull to a bear trend. The decline from E is now classified as the first major phase of a bear trend. Failure of K (Number 19, Chart 10) to penetrate G, and later penetration of J (Number 18, Chart 10) at L is bearish. Failure of N

(Number 21, Chart 10) to penetrate K implies bearish-ness, but is soon countermanded by failure of O (Number 22, Chart 10) to break M (Number 20, Chart 10) and subsequent penetration of N at P, suggesting the beginning of the secondary reaction (advance). Observe that the signal at I, indicating a primary reversal, occurred in the first major phase of the bear trend. This, unfortunately for the technical student, is not always the case.

Successive Highs and Lows in Primary Reversals
Bear to Bull

Figure 10 is a *rough* sketch of the course of the

Dow Jones Industrials from December 1931 to June 1933, showing the end of the bear market.⁶ Point A represents the bottom of the sixth major phase and B the top of its corrective phase. Penetration of A at C signals the continuation of the bear market. Failure of the minor top E to penetrate B, with subsequent penetration of the minor bottom D at F is bearish for the major phase. Failure of H to top E is bearish, but inability of the average to push through G at I suggests that the corrective phase of the decline B to G may be in progress. Failure of J to penetrate H, with later breaking of I at K and G at L is again bearish. Similarly, failure of N to top J, and subsequent penetration of M at O also indicates continuation of the downtrend. Penetration of N at O again suggests the beginning of the correction, which is corroborated by failure of S to penetrate P and subsequent breaking of R at T.

The sharpness of the minor advance P - R which exceeded the well-marked supply area represented by the minor tops H and J, combined with expanding volume on rallies and contracting volume on reactions and the series of successive higher tops and bottoms at R - S - T, provided Dow Theorists with their first consciousness of a change in the primary trend.

Failure of V to penetrate S, and later breaking of U at W is bullish on the "secondary correction". Failure of X to break B suggest the beginning of a *new major phase* in the bear market.⁷ Inability of Z to penetrate X, with subsequent breaking of Y and AA is bearish. Failure of BB to penetrate P carries bullish implications. Penetration of X at CC after the prolonged

correction X - BB, indicates a primary reversal from a bear to a bull trend. Now P - X is classified as the first major phase of the bull market, X - BB as its correction, and BB - CC, etc. as the second major phase of the bull uptrend. Observe that, unlike the 1929 reversal, the signal confirming the change of primary trend did not occur until the middle of the second major phase (see and study Chart 15 for the detail of this movement).

What is a Secondary or Intermediate Movement?

In Figure 9, A was regarded as the bottom of a secondary correction; A to E was looked upon as the last major phase in the bull market; and E to M as the first major phase in the bear market. F to G was regarded as a minor movement. This classification required penetration of A and I before the primary reversal signal was given. Not all students, however, would identify the movements in the same way. Robert Rhea's classification, for example, is the one given above. (See *The Dow Theory*, pages 65-66: also Tables I and III appended to Chapter V.) The author agrees with Rhea. But Hamilton regarded the movement E to F (Figure 9) as a secondary, *and when G failed to penetrate E and subsequently broke F at H, he forecast a bear market.* (W.S.J. - October 21, 1929)

Events proved the wisdom of this analysis.

Are Successive High and Low Signals Always Late?

In the 1929 reversal, the first major phase of the first intermediate cycle was practically over before the bearish signal on the primary trend, given by the Industrials at I in Figure 9, was confirmed by the Rails. The 1932 change of primary trend was not signaled until the intermediate top X had been penetrated by both averages at the point CC (Figure 10), halfway along in the major phase of the second intermediate cycle. If the trader had sold short on the confirmed reversal signal in 1929, and had covered on the confirmed signal in 1933, he would have realized a profit of only 42 per cent of the total major movement. *Is not this lateness of the signal, with consequent loss of potential profit, a serious defect in the principle of successive highs and lows?*

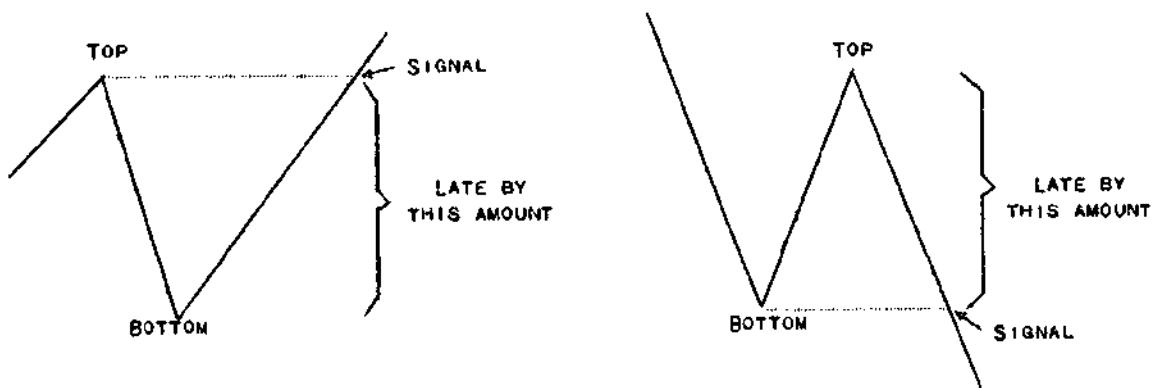
Theoretically, successive high and low indications are *always* late. Their very nature condemns their forecasting usefulness to this defect. As the student can see in Figure 11, the buying or selling signal is not given until the previous top or bottom is broken, hence can never occur until the move is under way. The lateness of the signal, of course, will depend on how far the move must go before it reaches the level of the previous top or bottom. In a primary reversal, as we have seen, the travel required before the signal is given is often very great, but in secondary changes of trend, this distance is very much reduced, until in minor and sub-minor reversals the loss is very small dollar-wise. Minor and sub-minor rising tops and bottoms, as we have learned in Chapter VI, occur continuously in an intermediate trend, hence by utilizing these signals the trader is enabled to take a position fairly near the

⁶ FIGURE 10 IS A SKETCH TAKEN FROM CHART 10, WITH SOME OF THE MINOR MOVES ELIMINATED. THE DISCUSSIONS OF FIGURE 10 MAY BE FOLLOWED ON CHART 10 BY THE FOLLOWING KEY; WHICH SHOWS THE NUMBERS ON CHART 10 WHICH CORRESPOND TO THE LETTERS ON FIGURE 10:

A - 08, 1932	P - 28, 1932
B - 15. "	R - 31. "
D - 20. "	S - 32. "
E - 21. "	U - 33. "
G - 22. "	V - 34. "
H - 23. "	X - 39. "
I - 24. "	Y - 42. "
J - 25. "	Z - 43. "
M - 26. "	BB - 08.
N - 27. "	CC - 15. "

⁷ SOME STUDENTS CONTEND THAT THE SUBSTITUTION OF AMERICAN TOBACCO "B", COCA-COLA, DRUG, INC., INTERNATIONAL BUSINESS MACHINE, LOEW'S, INC., NASH MOTORS, INTERNATIONAL SHOE, AND PROCTER & GAMBLE FOR HUDSON MOTOR CAR, LIGGETT & MEYERS "B", MACK TRUCK, NATIONAL CASH REGISTER, PARAMOUNT PUBlix CORP., RADIO CORP., TEXAS GULF SULPHUR, AND UNITED AIRCRAFT & TRANSPORT ON MAY 26, 1932, SO CHANGED THE INDUSTRIAL AVERAGE SEVERAL WEEKS BEFORE THE 1932 BOTTOM, THAT WHEN THE RISE CAME, IN THE SUMMER OF 1932, THE SEPTEMBER 8 HIGH (TOP 39, CHART 10) FAILED TO EXCEED THE MARCH HIGH (TOP 15, CHART LO) MERELY BECAUSE OF THIS CHANGE IN THE COMPONENTS OF THE AVERAGE. BUT DOW THEORISTS SMUGLY ARGUE THAT, EVEN IF THE "OLD" AVERAGE WERE USED, THE RAILS "FAILED TO CONFIRM".

Figure 11



bottom or top of such a move. *In its practical application, therefore, a rising top or bottom signal may be no more late than our other working tools.* No device has been or probably ever will be invented which will call the absolute reversal point even if this were possible, only a few trades could be made at that figure (consult the official sheets of all transactions, and see how few shares actually change hands at the top or bottom eighth) hence the student will do well to place his goal somewhere short of perfection.

Both Collins and Rhea act on minor signals, the latter, for example, having advised the purchase of stocks practically at the beginning of the first major phase of the present bull swing, giving as his technical reasons a Dow Theory "Line" (see pages 188-192); low volume, a tendency of volume to increase on rallies and diminish on declines, and a minor rising top and bottom.⁸

Is Manipulated Confirmation Possible?

The Dow Theory answer is necessarily in the affirmative. Hamilton consistently maintained that the primary movement could not be manipulated, but he admitted that the secondary swing could be artificially influenced for short periods of time, and that the day-to-day, or minor trend, could be managed so as to give a false view of the situation. If the averages, therefore, were within striking distance of a confirmation point, they could, according to Dow Theory, be manipulated through. Were the resulting signal not justified by the subsequent trend of trade and industry, however, the averages would soon turn back and show that the signal was false.

To show concretely the possibilities of manipulating the averages through an important resistance point, the confirmation of the recent reversal from bear to bull trend may be examined. The student can quickly recall the circumstances by consulting Chart 15. The market rallied vigorously from the bear market lows at C, to D, but failed to penetrate the top of the preceding secondary correction B. Declining to

Q to correct the advance C to D, the averages then rallied through their previous high of D at the "Penetration Point" indicated (between S and T), and signaled that the market had turned from bear to bull. The Industrials gave the first signal on May 11, 1933, then fluctuated in a short trading area until the Rails broke through on May 24, 1933 to confirm the indication.

An analysis of the trading in the 20 stocks in the Dow Jones Rail average on the day of confirmation (May 24) shows that 73.9 per cent of the day's trading in these stocks occurred in six issues, namely:

Atchison	New York Central
Atlantic Coast Line	Pere Marquette
Delaware & Hudson	Union Pacific

The purchase price of all the shares sold in this group amounted to \$1,828,360, hence this sum of money and probably from one-third to one-half of it, if the move were skillfully manipulated would have confirmed the bull market in the Dow Jones averages. The signal, of course, proved to be a valid one, but the analysis shows that manipulation of the averages through important resistance points is entirely possible.

Extent of Penetration Needed for Valid Indication

The possibility of manipulating the averages through important resistance points raises the question of the margin of penetration required before a signal is considered valid. Dow does not appear to have discussed this point. Hamilton regarded any penetration of a preceding high or low as a signal under the Theory, ascribing significance to a break-through of as little as two-hundredths of a point on occasion.

Rhea also holds any penetration valid,⁹ but at important points such as a break-through of a preceding secondary top or bottom, he looks for corroboratory signals in the form of penetration with volume of a pattern of minor successive highs and lows.

Collins maintains that a previous resistance level must be penetrated by a margin of one point to give a

⁸ CRITICS OF THE DOW THEORY SEEM TO OVERLOOK (EITHER PURPOSELY OR THROUGH IGNORANCE) THIS IMPORTANT FACTOR IN ITS USE.

⁹ SEE LINE 37, PAGE 2, "Dow THEORY COMMENT", MAILING 102, DATED JULY 6, 1935; ALSO BARRON'S, SEPTEMBER 23, 1935-

significant indication. Commenting on this formula, Rhea agrees that with many movements, particularly the minor ones, the one-point rule would seem advantageous. But, he argues, if we go back through the history of the averages, "it will be found that many of these plus-one resistance points would again be exceeded just before reversal. It is rare indeed," he says, "where the penetration of a few cents, when confirmed by both averages, has not proved valid. The exceptions increase, of course, as we step down through the three trends, i.e., primary, secondary and minor." (Dow Theory Comment, Mailing No.38)

Moment concluded from his studies that signals are valid only if penetration is decisive. His margin of decisiveness varies with the price level. In his study, "The Secondary Trend Barometer", he required a penetration of at least one point if the price level was under 100. Between the price levels of 100 and 150, he required a margin of 1 per cent, and over 150, 2 per cent. In his first study,¹⁰ Moment used the same limits up to 150, but from 151 to 200 he required a penetration of 1.5 per cent and over 200, 2 per cent. Without exhaustive research, the author can add little to the opinions of the Dow Theorists here given. Pending the development of more concrete evidence, we will have to glean the best idea we can from the views given. As a student of other technical factors, however, the reader has other criteria for determining the validity of an execution signal, such as pattern of price structure, volume, moving averages, etc. (See Chapters VIII to XV, inclusive).

Robert Rhea made an important comment concerning penetration, when, on June 15, 1935, he said:
Simultaneous penetration is supposed to afford somewhat greater authority of forecast than when one average lags in saying, 'me too'. This is because only a movement which is firmly in gear can register such a performance. (Dow Theory Comment, Mailing No. 100)

Are Not Potential Profits Jeopardized by Awaiting Confirmation?

Yes, oftentimes, but the other side of the question is that potential losses are frequently averted by awaiting confirmation. Examples can be given to illustrate both propositions. On October 28, 1929, for example, the Industrials broke their previous secondary low of May 27, 1929 (low Number 12, 1929, Chart 10), giving a bearish signal at 260.64 (close). But the Rails did not confirm by breaking their lows of May 27, 1929 until November 6, 1929, by which time the Industrials had declined to 232.13 (close). (See notations on Chart 10)

To illustrate the point further, the Industrials made an intermediate top on June 2, 1928 at 220.96 (close), then underwent a secondary correction, and on August 7 penetrated upside, signaling the con-

tinuation of the major trend. The Rails made their intermediate top on May 9, at 147.65, but failed to rally above this point and confirm the Industrials until November 10, by which time the latter had reached 265.58. These computations are made on the basis of intermediate successive high and low signals, hence the loss of potential profit is considerably larger than it would be if minor signals had been used, but they serve to illustrate the proposition that for this type of trading, potential profits are oftentimes lost by awaiting confirmation.

On the other hand, the requirement that one average confirm the other frequently saves the trader from serious mistakes. Collins, for example, has examined eight bear market lows from 1900 to 1923, and has found that in six of the eight instances, both averages made a low, then rallied, and returned to the old lows. In five cases, 1900, 1903, 1907, 1921 and 1923, one average made a new low on the second decline, but the other failed to confirm. In these cases the rule of confirmation would have saved the trader from making short commitments at the bottom of these bear markets.

On the whole, the chief Dow Theorists are *strongly* of the opinion that the rule of confirmation saves the trader more than it loses him. Collins follows the rule implicitly, and Rhea is insistent upon it, declaring that, "Conclusions based upon the movements of one average, unconfirmed by the other, are almost certain to prove misleading." (*The Dow Theory*, page 68)

The logic behind the idea, says Rhea, is based both on economic fundamentals and on the price movement itself. Under the first heading is the argument that the railroads serve all industry and therefore any important trend in industry and trade sooner or later is reflected in rail traffic. Because common business factors influence both averages, one may be expected to confirm the other. The second argument for confirmation is the pragmatic one, "it works". Observed over a period of years, says Rhea, the idea of confirmation has generally proved valid for forecasting purposes.

Origin of the Principle of Confirmation

How this part of the Dow Theory developed is an intriguing question. Hamilton attributes the principle to the founder, saying, "Dow always ignored a movement of one average which was not confirmed by the other." (W.S.J. - June 25, 1929). But, so far as the author is aware, Dow never insisted on confirmation in his fragmentary discussion of the market. On the contrary, he spoke of the two averages "drifting apart" in response to the law of values, as if this were a normal event (W.S.J. - November 12, 1901). The rule of confirmation does not appear in S. A. Nelson's little book *The A B C of Stock Speculation*, which is conceded to be a summary of the theory at the time of Dow's death.

Hamilton may have taken the idea over from Dow, but if so, it is curious that for the first six or eight years

¹⁰ "THE DOW THEORY A TEST OF ITS VALUE AND A SUGGESTED IMPROVEMENT."

after he started writing editorials on the price movement for the Wall Street Journal, he made no use of the principle, basing his studies on the indications furnished by the Rails alone.¹¹ Here, for example, is a typical Hamiltonian discussion of the market in 1908: "All students of the average price movement will note with interest the fact that the railroad average yesterday reached 105.20, which is 0.75 above the last high point established on May 18, when 104.45 was touched. This crossing of a preceding high point is usually significant of a bull swing in the stock market." (W.S.J. - July 21, 1908) Note that he says nothing about confirmation, yet as we see on Chart 10 it was a good example of the principle.

In 1909 Hamilton ventured the notion that, "The indication is always stronger when both the industrials and the railroads make...a new high level about the same time." (W.S.J. - July 16, 1909), and while he subsequently wrote editorials on the basis of the Rails alone, he came shortly to adopt the rule that one average must confirm the other and always thereafter required it before attaching significance to the signal. The suggestion therefore exists that confirmation was the contribution of Hamilton, not of Dow. At least this much is true: it was not until nearly a decade after Dow's death that Hamilton began to use the idea regularly. Presumably it arose because of its empirical value, as Rhea indicates.

A Criticism

Only one important critic has publicly assailed the principle of confirmation. He is Samuel Moment. In his first study, "The Dow Theory - A Test of Its Value and a Suggested Improvement",¹² Moment used secondary successive highs and lows to indicate the trend, and found that profits for trades made *without confirmation* were about the same as those made when the confirmation rule was adhered to. In his second study, "The Secondary Trend Barometer",¹² Moment traded on signals from both lines and successive highs and lows, and theoretically increased his capital 15 per cent per year on the average *without observing the confirmation rule*. In his study, unfortunately, he did not make a second test to ascertain what his profits would have been had he employed the idea of confirmation.

Conclusion

At present the weight of opinion is in favor of confirmation. It is reasonable to suppose that if a trend is strong enough to carry two major averages through critical resistance points, it will carry far enough to make profitable commitments. On the other hand, when the averages do not confirm, there is ground for

believing that the price-making forces are indeterminate and lacking in definite conviction, and may well even forecast a reversal. In the majority of cases, Dow Theorists hold that this rule works to the advantage of the trader.

What is needed is more *concrete research* of the type Moment has undertaken. Under his system of trading the profits were no greater when the rule of confirmation was observed than when it was ignored. The evidence is plain on this point. But in the author's judgment the research, aside from Moment's work, has not been exhaustive enough to warrant the abandonment of the confirmation idea. If future study, however, should show results similar to those Moment has already obtained, the author, for one, will be quite ready to consign the rule of confirmation to the limbo of outmoded market beliefs.

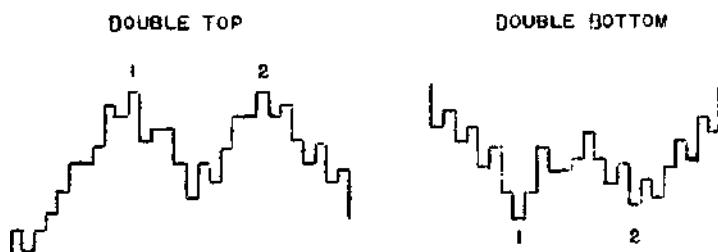
Double Tops and Double Bottoms

Closely related to the theory of successive highs and lows are the patterns known as double tops and double bottoms.¹³ A double top is formed by a rally, a decline, a rally to or near the previous top, followed by a decline. A double bottom consists of a decline, a rally, a decline to or near the previous bottom, followed by a rally. These formations may occur in all three trends, major, intermediate and minor.

Dow observed double tops on occasion, but warned that they were not always reliable as indicators of reversal of the trend. Hamilton, in his later studies of the price movement, made some use of this formation, describing it as "useful and usually dependable", (W.S.J. - May 30, 1927) but, ironically enough, on the strength of such a signal he made one of the worst forecasting blunders of his career. We will go into this presently.

Collins has found that many bear markets have ended with double bottoms. Rhea is of the opinion that the formations have little value in forecasting reversals,¹³ and declares that they have proved to be deceptive more often than not.

Figure 12



¹¹ FROM 1896 TO 1906 THE GREATEST MARKET ACTIVITY WAS IN RAILROAD ISSUES.

¹² PUBLISHED BY WILLIAM DUNNIGAN, P.O. Box 369, SAN FRANCISCO, CALIFORNIA.

¹³ SEE CHAPTER VIII.

¹³ SEE "THE DOW THEORY", PAGES 41-43 AND PAGES 93-95.

Hamilton's Error

Hamilton's error, involving the interpretation of double tops, occurred in 1926. The incident is so instructive that it will be worth our while to follow Hamilton's reasoning in detail throughout this period. To secure a graphic representation of the Dow Jones averages at this time, let us again turn to Chart 10 (1925-1926). All references made in the subsequent discussion are to annotations on this chart.

In October, 1923 (A) after the shortest bear swing on record, the market started its great "New Era" bull climb. The movement had progressed with its typical rallies and declines, and, by the fall of 1925, was in a major phase of an intermediate bull cycle, having completed the previous corrective phase B. The bull market had therefore lasted about two years, and, with this in mind, Hamilton began looking for a top. At point C (August 14, 1925),^M he wrote that there were no signs of a reversal yet, but that the market was probably entering the stage where hopes rather than values were being discounted.

At Point D (October 5, 1925), after the market had made a minor top at 5, Hamilton called attention to the fact that the bull market had been in progress for 23 months (November, 1923 to October, 1925) and advised caution. "This is a time," he said, "when the old theory of double tops might prove useful." Such a formation might occur if, after the decline from 5, a rally followed which approached 5, then reversed into a decline.

At Point E (November 9, 1925) Hamilton once more warned that the bull market had been in progress for about two years, and urged "conservative folk" to be on the lookout for a turn. He added, however, that, "So far as any inference from the Dow Jones stock average is concerned, the major bull market in stocks is still ruling."

At Point F (November 12, 1925) he classified the decline from 7 as "a secondary reaction in a bull market", but thought that since the present bull swing had now run over two years, an ominous warning would be given if the averages recovered almost to 7, then declined (double tops). In that instance, said Hamilton, "there would be strong reason for suspecting that the major upward movement was over."

At Point G (December 17, 1925) Hamilton wrote that the secondary reaction was yet incomplete, though the Rails had penetrated 9 upside at H. If the Industrials closed about 9, the signal would be strongly bullish.

At Point I (January 26, 1926) Hamilton observed that the Industrials had made a clearly defined double top at 7 and 1, but that, meanwhile the Rails had exceeded all previous highs at J. To be bullish, the Industrials would now have to sell above 7 and the Rails above J. On the other hand, if the Rails reacted before

crossing J, they would thereby confirm the "significant double top" in the Industrials and "come near to indicating that the long bull movement had seen its close."

At Point K (February 15, 1926) Hamilton observed that the Rails had made a double top at J and L, and that while the Industrials had made a new high at 3, it would now require penetration of J by the Rails to make a bullish picture. Otherwise, the bear signal given by the double tops in both averages held good.

The market subsequently sold off, and at Points M and N (March 8, 1926 and March 29, 1926) Hamilton rejoiced at having called the turn, at Point K. "There can be no question," he wrote, "that Dow's theory of the stock price movement has once more come successfully through a stringent test of its usefulness and dependability. It called the turn of the market exactly at the top of a completed bull market, and the inauguration of a major bear movement." (W.S.J. March 29, 1926). But the next day the market turned and resumed its upward climb, whereupon Hamilton ceased to write editorials on the price movement for a period of five months.

Periodicity of Bull Markets

There are at least three instructive points to be gained by the student of the Dow Theory from this error in Hamilton's analysis. In the first place, to anticipate an argument that will again be made when we come to discuss the amplitude and duration of market movements, it is a mistake to lean too heavily on the notion that future bear and bull markets will retain the periodicity that has marked those of the past. In Hamilton's experience most bull markets had run about two years, and he apparently was convinced that this one, too, must end in its allotted span of time. With this idea dominating his thinking, apparently he was disposed to rationalize the first available indication into a signal for the reversal of the primary trend. Had the same double top formation appeared, perhaps, ten months earlier, Hamilton, in all probability, would not have placed such emphasis upon it. It is always desirable to remember that bull and bear markets do not last forever, and that, in the past, many have run their course in approximately two years, but this general idea should be kept well in the background of one's thinking, for the important signals are those which appear in the market pattern as it currently unfolds.

Double Tops and Bottoms Ruled Out

The second point to be gleaned from Hamilton's mistake is that double tops and bottoms are none other than successive high and low formations, and are best interpreted under the rule which governs these, namely, rising tops and bottoms are bullish, while declining tops and bottoms are bearish. This simplifies the analysis and also strengthens it, since a successive high and low signal requires, not alone *failure to*

¹⁴ DATE ON WHICH EDITORIAL APPEARED IN WALL STREET JOURNAL.

penetrate a previous top or bottom, as does a double top and bottom indication, but also *subsequent penetration* of a previous bottom or top.

Let us analyze the Dow Jones Rail and Industrial averages for the period under consideration, using only the indications from successive highs and lows to determine how this application of the Dow Theory principle would have worked.

Following the secondary correction which ended at B, the averages revealed a series of rising tops and bottoms. To take up the story at C, the higher tops 5 and 7, and the higher bottoms 6 and 8 were bullish in their implications. In the Industrials, failure of 9 to top 7 with subsequent penetration of 8, and a lower bottom 10 was bearish, but this signal remained unconfirmed since the Rails penetrated 7 upside, and made a higher top at 9 and a higher bottom at 10. This left the averages neutral in their signal.

In the Industrials, penetration of 9 upside suggested bullishness, but subsequent failure to break the previous high point 7 at 1, was bearish. Again the Rails refused to confirm, breaking 9 upside at H and making a new high at 1. This again left the averages neutral.

In both averages, failure of 2 to break 10 suggested bullishness. Later penetration of 1 with a new high at 3 in the Industrials was bullish, but the Rails failed to penetrate 1 on the rally from 2, making a lower top at 3. This failure to confirm the new high of the Industrials at 3 still kept the signal indecisive.

Penetration of 2 downside by both averages was bearish, suggesting that the secondary correction of the long advance from B, which had been threatening since the minor top at 7, had at last arrived. Lower tops at 5 and 7 and lower bottoms at 4 and 6 in both averages, were bearish on the secondary correction. Failure of 8 to penetrate 6, and subsequent breaking of 7 with higher tops at 9, and higher bottoms at 10, implied a secondary turn, the signal gaining weight by failure of 6 to break the low of the previous secondary correction at B (by a large margin). When 3 in the Industrials and 1 in the Rails, were broken topside at O, the continuance of the primary trend, under the Dow Theory, was indicated.

In this analysis Hamilton's double tops have been interpreted by the principle of successive highs and lows, with the result that no definitely bearish signal was observed until the averages penetrated 2 downside, although the indication had been neutral from 9 to 3. Had Hamilton ignored double tops, and studied the price movement in terms of successive highs and lows, he probably would have suspended judgment at 9 and become definitely bearish when 2 was broken downside. It is apparent from this analysis that the Dow Theorist has no need for double tops and bottoms, inasmuch as he already has the more effective principle of successive highs and lows to interpret such formation.

What Is a Secondary or Intermediate Trend?

This brings us to the third point, i.e., what is a

secondary or intermediate movement? The Dow Theory rule, as it has been set forth earlier in the Chapter (page 177) is that sub-minor rising tops and bottoms signal the minor trend, minor rising tops and bottoms signal the secondary trend, and secondary rising tops and bottoms signal the primary trend. If, for example, a minor movement should be mistaken for a secondary trend, the Dow Theorist would forecast a primary reversal whereas the signal in reality would indicate only a secondary turn.

This appears to be one of the causes of Hamilton's error. At Point D (Chart 10, see 1926), it will be recalled, he was prepared to see a double top if the rally from 6 approached, but did not penetrate 5, and on the basis of this signal call a primary turn, even though the amplitude of the correction (decline) from 5 was only 5.96 points, or 4.16 per cent, in the Industrials, and 3.25 points, or 3.15 per cent in the Rails. Likewise he classified the decline 7 to 8 as a secondary and again looked for a double top to indicate the beginning of a bear market. The double top which he had set himself to find finally appeared at 7 and 1 (or quadruple tops at 7, 9, 1, 3 if you choose) in the Industrials, and at 1 and 3 in the Rails; and upon the basis of these he called a primary turn. In retrospect these would appear to have been more logically classified as minor movements, hence any signal developing from them would have significance only for the secondary reversal (corrective phase). This point gains force when we observe the long rise from B which had continued without a substantial correction. Had Hamilton classified these movements as minor, he would have called a secondary rather than a primary turn.

It does not follow from this, however, that all forecasts of primary reversals from minor indications will subsequently prove to be erroneous, for, if the secondary trend in which the minor movement occurs happens to be the first major phase of an intermediate cycle in a reversed primary trend, the forecast will be borne out. This appears to explain the correctness of Hamilton's prediction of reversal of primary trend in 1929 (see page 184). If the initial intermediate movement of the bear market, however, had turned out to be a secondary correction of a major phase in the previous bull market, Hamilton would have called a secondary turn a primary one, as he had in 1926.

Criteria for Secondary and Minor Trends

At this point the reader may ask "What are the criteria, then, for distinguishing minor from secondary movements?" This is never an easy question to answer, and, for the present, the author simply replies, "By the criterion of relative importance of the movements observed, the student himself to be the judge." Chart 6 illustrates this point. Here the student first sees one great wave of liquidation from 1929 to 1932, constituting the primary trend. Next he observes that this primary trend is broken up by a series of pronounced declines and subsequent rallies which stand out as secondary movements. Finally, he notices from the in-

serts that each secondary movement is made up of smaller rallies and declines which are classified as minor trends.

A more precise definition of a secondary or intermediate movement including time and amplitude criteria, and other marks of distinction, as well, is presented in Chapter V.

Dow Theory "Lines"

Broadly speaking, a "Line" is a pattern in the trend of prices where fluctuations are confined within a narrow range. Briefly, the theory is that when prices break out of the line, the direction of the break-out signals the ensuing trend.

Dow, in observing the phenomenon of lines, said that the market moved in two ways: diagonally (upward or downward) and horizontally. He stated that prices often stay within a narrow range, such as two points, for rather long periods of time, then move up or down, depending upon whether stock has been accumulated or distributed. (W.S.J. - July 20, 1901).

Before late in 1906, Hamilton did not mention lines, although several such patterns occurred in the averages. From December 1906 on, however,¹⁵ he frequently observed and interpreted line formations, mentioning this phenomenon in about one out of every three editorials which he wrote on the price movement. In a Wall Street Journal of August 25, 1921, he said, "In all the applications of Dow's theory. . . (the line is) the best of all, as proved by experience."

Since Rhea has published *Dow Theory Comment* the market has fluctuated widely, hence he has not used the line idea in his forecasts, to any extent. But his respect for the importance of the phenomenon may be seen in his statement that "The portion of the Dow Theory which pertains to 'lines' has proved to be so dependable as almost to deserve the designation of axiom instead of theorem." (*The Dow Theory*, page 79).

Moment, in his second study of the Dow Theory,¹⁶ based two thirds of his forecasts upon "line" formations.

"Lines": Chief Points of Interest

We will discuss the amplitude and duration of lines, then we will look into the question of the breakout or penetration of the limits of the line, and its confirmation by both Rail and Industrial averages, and, finally, we will discuss the market philosophy underlying line formations, the applicability of line signals in the three market movement, and the dependability of these signals for trading purposes.

"Lines": Amplitude and Duration

According to Hamilton (W.S.J. - September 23, 1929), *Dow called a formation a "line" when an average was confined within a three-point range for weeks at a time. Dow also referred to a 'line' in a two-point range, as we have already seen.*

Hamilton allowed various widths for lines. In his first editorial on the subject in 1906, he observed that the Rails fluctuated between 134.35 and 137.56, a range of 3.21 points (W.S.J. - December 15, 1906). In 1912, he said, "It may even be allowable to concede more elasticity to the line", and *in this instance he regarded a five-point fluctuation for the rails and a four-point range for the Industrials as a line* (W.S.J. - July 10, 1912). However, in 1922 he said, "*To be of real value, the requirements are strict. . . the fluctuations from day to day should lie so narrow that they can be confined within a range of less than four points.*" (W.S.J. - May 8, 1922). A year later he refused to draw conclusions from a line wider than *three* points (W.S.J. - April 4, 1923). In 1924 he observed a long line in the Rails which had a range of 7 points, making "the most remarkable line either average has every made." (W.S.J. - April 29, 1924). In 1929, he allowed even more liberal limits to a line. In the first four months of that year, the Industrials fluctuated between 322.06 and 295.85, a range of 26.21 points. Hamilton called this a line on the ground that "At these high levels to a much wider range of fluctuations . . . is only to be expected." (W.S.J. - July 1, 1929). When the market penetrated the upper level, he interpreted the signal bullishly.

While Hamilton thus gave various definitions for the amplitude of lines, most of these formations to which he called attention fell within the range of two to five points. He never used a percentage criterion of amplitude, but clearly recognized the principle when he said that at a higher price level, a wider range of fluctuation should be allowed.

On the question of duration, Hamilton was even less specific. He described the time requirements variously, as:

"A SUFFICIENT NUMBER OF DAYS FOR A FAIR VOLUME OF TRADING."

"AN APPRECIABLE PERIOD OF TIME, SAY A MONTH OR MORE."

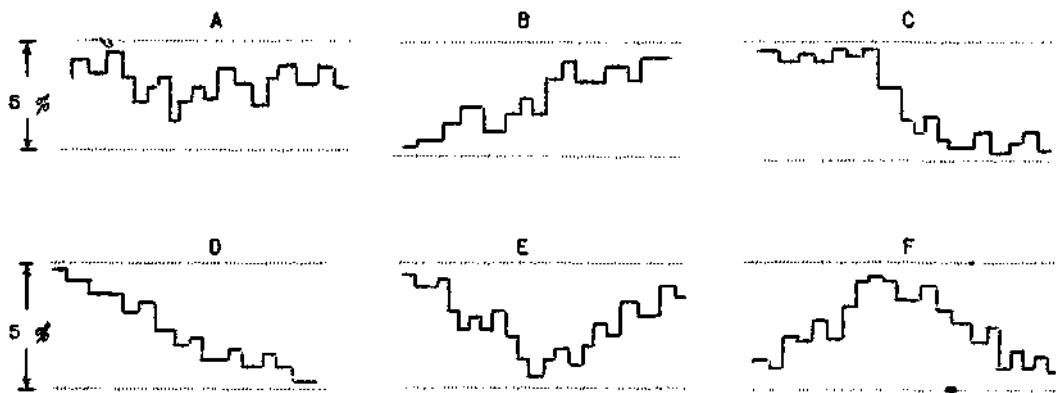
"A LONG SERIES OF FLUCTUATIONS." "LONG ENOUGH TO AFFORD A REAL TEST." "A FLUCTUATION FOR A MEASURABLE PERIOD." At one time, Hamilton spoke of 9 days as the length of a line, and on one occasion regarded 23 days of narrow fluctuations as not involving a line.

Rhea, in *The Dow Theory* (page 79) defines a line as: "a price movement extending two to three weeks or longer, during which period the price variation of both averages moves within a range of approximately five per cent." In the same discussion, however, Rhea warned that "an exact mathematical interpretation on the duration or height of a line. . . cannot be done successfully. The allowable price variation must be con-

¹⁵ POSSIBLY THE WELL-MARKED "LINE" FROM AUGUST 20 TO OCTOBER 22, 1906, STIMULATED HIS MEMORY OF DOW'S USE OF "LINES".

¹⁶ "THE SECONDARY TREND BAROMETER".

Figure 13



sidered in connection with the prevailing activity of preceding fluctuations." This is one reason, he says, why the Dow Theory student must be both artist and scientist.

Collins does not appear to have given a specific definition of a line, but he did interpret the seven months fluctuation from October 1932 to April 1933 (see Chart 15, G to S) as a line, indicating a liberal view as to amplitude.

Moment, after three years experimenting with the Dow Jones averages, finally defined a line as "a series of twelve or more daily closing prices in the average within a range of 5 per cent, measured from the highest point of the range."¹⁷ Thus, if we project a line forward for 12 days from any given day, and draw a parallel line 5 per cent under it, twelve consecutive closings falling within this area would, according to *Moment*, constitute a Dow Theory line.

Using only one average to illustrate the point, the most common pattern under *Moment's* definition would probably be the conventional one as illustrated in Figure 13, Case A. But if formed within a range of 5 per cent and a time span of 12 or more days, any of the other patterns pictured in Figure 13 (Cases B, C, D, E, and F) would constitute a line under *Moment's* formula.

THE AUTHOR BELIEVES THAT THE 5 PER CENT AMPLITUDE OF RHEA AND MOMENT AND A TWO TO THREE WEEKS' DURATION SERVE VERY WELL FOR PURPOSE OF DEFINITION. HOWEVER, THE STUDENT SHOULD NOT REGARD THESE IDEAS AS CUT AND DRIED OR INVARIABLE. IF

A LINE, ON ITS SIXTH DAY, BROKE TO A 7 PER CENT LIMIT, THEN RETURNED TO THE 5 PER CENT RANGE FOR THE NECESSARY TWO OR THREE WEEKS, IT IS BELIEVED THAT THE FORMATION SHOULD STILL BE CLASSIFIED AS A LINE. ALSO, WHEN A SERIES OF MINOR RALLIES AND DECLINES DESCRIBES A HORIZONTAL PATTERN, THE FORMATION, IN THE AUTHOR'S JUDGMENT, SHOULD BE REGARDED AS A LINE REGARDLESS OF THE AMPLITUDE OF THE MINOR MOVE-

¹⁷ "THE DOW THEORY A TEST OF ITS VALUE AND A SUGGESTED IMPROVEMENT", SAMUEL MOMENT

MENTS.

"Lines": Penetration

After a line has formed, the break-out, according to Dow Theory, signals the subsequent trend. If this penetration is upside, an advance is indicated; if the penetration is downside, the forecast is for lower prices. As in the case of successive highs and lows, the chief Dow Theorists differ¹⁸ on the question of what constitutes a valid penetration. *Hamilton interpreted any break-out (even one of .01 points) as significant, and Rhea follows the same rule.* For example, in a paragraph of "Dow Theory Comment" dated August 8, 1934, *Rhea* said,

As a matter of scientific interest, I have checked this matter of penetration over the daily record of the averages since 1897. As a result of that study (which was made on large scale charts), I think I can state, without fear of successful contradiction, that so far as profits are concerned, the pure mathematical odds are more than ten to one in favor of considering any penetration of a previous high (or low) point as being valid. Students desiring to study the subject should always remember to examine every minor rally termination, and not just the important turning points of the past. They should bear in mind that the majority of minor high or low points at which no reversal occurred might have developed into critical primary or secondary turning points.

Until some sound reason can be advanced for doing otherwise, I recommend adhering to Dow's theory as taught by *Hamilton*. Surely that experienced expounder of the theory would not have consistently adhered to the idea that even one cent penetration was valid, if confirmed by both averages, unless he had good reasons for doing so. He was fond of comparing the averages with a barometer; referred to the price movement as indicating 'precipitation' or 'fair weather'; and likened bull and bear markets to Summer and Winter. As to the matter of the degree of penetration required before validity of forecast is implied, he might have aptly pointed

¹⁸ SEE BARRON'S, SEPTEMBER 23, 1935, PAGE 3.

out that when we see the first snowflakes on a dark day, then, in a vast majority of cases, more snow will fall, and that few forecasters would require one inch of snow to accumulate before admitting that a snowfall might occur. At that, clear weather sometimes follows a snow flurry. Likewise, precipitation sometimes ceases after one inch of snow has fallen.

Collins requires a one-point penetration. Frequently, in his "Investment Letters", Collins, upon speaking of the penetration of an important level, such as either a previous top or bottom, or the upper or lower limit of a "line", suggests that a movement must carry 1.01 points (in both averages), to produce a valid signal of trend.

Moment used the sliding scale¹⁰ already described on page 185.

The author leans to Rhea's view, but likes to see activity pick up in the direction of the penetration shortly after it occurs.

"Lines": Confirmation

In our discussion of successive highs and lows, it was pointed out that a top or bottom must be broken by both averages before a signal, under the Dow Theory, is considered significant. The question naturally arises at this point: Is confirmation of one average by the other required in a break-out from a line? The weight of opinion is preponderantly in the affirmative. Although Dow, so far as the author is aware, made no reference to the matter, his successor, Hamilton, beginning in the period 1909-1911, consistently required both averages to penetrate their lines before attaching importance to the signal. Rhea places great emphasis on the necessity of confirmation, and Collins, likewise, adheres steadfastly to the rule.

Among the outstanding students of the Dow Theory, Samuel Moment alone discards the confirmation idea in connection with lines. In his second study,¹⁹ 108 of his 167 paper commitments (65 per cent) were made on the basis of line signals. Trading only in the Industrials and disregarding confirmatory indications in the Rails, his profit from 1897 to 1933 averaged 15 per cent per year on the capital used. In this study, Moment did not make a second test in which confirmation was required, hence we are unable to compare the relative profits made when the Dow Theory rule was adhered to and when it was dropped.

The author's position on the question of confirmation of line signals is the same as that expressed in the discussion of confirmation of successive highs and lows. Until thorough tests have been made, he prefers to follow the orthodox Dow Theory, requiring both averages to break through the limits of their line before attaching significance to the signal.

What Causes a "Line"

Hamilton used to say that a line represented a period of *distribution* (sale of stock by strong interests to weak interests) or *accumulation* (purchase of stock by strong interests from weak holders). Following a line formation, said Hamilton, one of two things must happen. Either the buying power is greater than the selling power, and stocks seek higher levels before the demand is satisfied, or the market takes all the stock it can absorb at the level of the line, and *then* seeks lower levels before buyers can handle the oversupply pressing on the market. Hamilton had an apt analogy for this latter situation. He always said, "The cloud has reached saturation point and the natural consequence is a precipitation of rain." (W.S.J. August 25, 1921). Until a line was broken, said Hamilton, the nature of the activity in its formation was unknown. An upside penetration indicated that accumulation had occurred, and a downside penetration, distribution. Rhea agrees with Hamilton.

This explanation of a line as being a period of accumulation or distribution by strong interests is too narrow, in the author's judgment. A more likely explanation is that a line represents either a period of economic stability or speculative indecision, which is finally brought to an end by changing business conditions or clarification of the economic or political picture in the minds of speculators. Volume, it will be observed, tends to dry up when a "line" is being formed, which suggests waning interest and gradual withdrawal of operators from the market, rather than aggressive campaigns of distribution or accumulation. In the line at the bottom of the bear market in 1932 (see Chart 15), for example, volume was at a very low ebb, but picked up perceptibly when the uptrend commenced. (Similar situations may be seen in the "lines" during December 1933 - January 1934; October -November 1934; and June - July 1935.) Probably accumulation by important market operators was largely accomplished on this first upturn rather than in the line itself, for the number of shares traded while the market was forming its horizontal pattern was so small that no large amount of accumulation could have taken place.

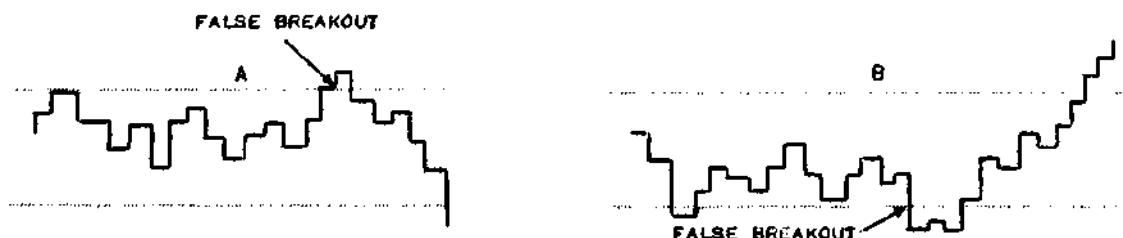
The author would freely grant that some accumulation or distribution may occur in lines, but he believes that a more comprehensive explanation of this phenomenon is the one given above. Collins' view appears to parallel that of the author, for in an editorial in the Wall Street Journal (May 1, 1933) he said, "... lines are assumed to represent a pause by the market during which some one or more pending developments of a highly influential nature, pro or con, upon stock prices, are being weighed as to their probable outcome and effect."

"Lines" in the Primary and Secondary Trends

"Lines" often prove to be continuation or reversal signals in both the primary and secondary trends.

¹⁹ "THE SECONDARY TBEND BAROMETER"

Figure 14



Hamilton sometimes observed these horizontal formations at the end of long declines or advances and predicted the reversal of the market on the direction of the break-out. Another point at which he was in the habit of looking for line formations was following a swift decline. After such a movement, said Hamilton, prices usually rally quickly, then often form a line during which the absorption powers of the market are tested. If the break-out is downside, followed by penetration of old lows, the picture is bearish. An upside penetration, followed by breaking of previous highs, is bullish.

In Chart 15, the situation from D to G (1932) came close to following this pattern. A sharp sell-off occurred from D to E, followed by a strong rally to F. Here the averages almost succeeded in making a line, but the selling pressure was so great that the formation turned into a sub-minor successive high and low pattern which was followed by a sharp decline. If the student will analyze this formation by the principle of rising tops and bottoms and confirmation, he will secure a vivid impression of the value of these sub-minor movements at important turning points.

Bhea follows Hamilton in the interpretation of lines in the two trends, attaching importance to line signals as indicative of primary reversals—the line at the bottom of the 1932 bear market for example—and also looking for them in secondary reactions.

"Lines" in the Minor Trend

Heretofore, the Dow Theory line has been largely useless as a working tool for minor trend trading, because it has been defined in terms of daily averages, and has required a duration of from two to three weeks. With the development of less-than-daily indexes, however, this principle may be applied to minor trend work. Chart 11, showing the Dow Jones hourly averages, reveals many line formations (see particularly the Utility average) which were broken at the inception of minor movements. Chart 13 of the 15 stock aggregate also shows some rather good examples of sub-minor Dow Theory "lines".

The reader is warned that making commitments on break-outs from sub-minor "lines" requires great agility and skill, and should not be attempted unless one is watching the market every minute. For most students, the safest use of minor trend studies, as indicated in Chapter VI, is to observe the finer detail.

of the *intermediate* trend, especially at reversal points.

Dependability of "Line" Signals

Fake signals may develop from line formations as well as from every other technical pattern. The breakout, for example, may be on the upside, and the subsequent move be a decline, as in Case A, Figure 14. Again, the breakout may be on the downside with an ensuing uptrend, as in Case B, Figure 14. This situation was exemplified by the false break-out in the Rails at G, Chart 15, November 1934. When the trader is caught by a false signal from a line formation, he should limit his loss and stand by until the technical picture gives a clear indication of the trend.

Excerpts culled from Rhea's "Dow Theory Comment" in the past year or two, give us some finer interpretations of Dow Theory "lines". For example, on March 17, 1934, he said:

The longer a line, and the narrower its range, the greater becomes its forecasting weight.

Both averages need not break out of a line the same day, although Hamilton conceded greater authority to movements in which the confirmation was simultaneous. (See Figure 16.) Speaking of the position of "lines" in a "reaction" (corrective phase of an intermediate cycle), also on March 17, 1934, Rhea said:

Lines seldom form at the bottom of a reaction, except in the case of the termination of bear markets.

Lines are generally formed in the middle two-thirds of reactions, either while prices are on the way down, or after the low point has been passed ... If we divide a reaction into six equal parts, then lines are seldom found in the upper or lower 1/6, but tend to occur in the area of the middle 4/6 (or 2/3).

It has always seemed to this writer (Rhea) that the breaking of a line in the conceded primary direction carried much more authority than a downside penetration.

To better illustrate Rhea's point, we have included Figure 15, which shows the idea graphically.

In a more recent writing, concerning the "line" which formed in June-July, 1935, written (at Point A, Figure 16) before the upside break from the "line" had taken place in the Rail index to confirm the Industrial penetration, Rhea pointed out that if the Rails sold anywhere above the line, the prediction of the averages would be for better prices. He further said that:

Figure 15

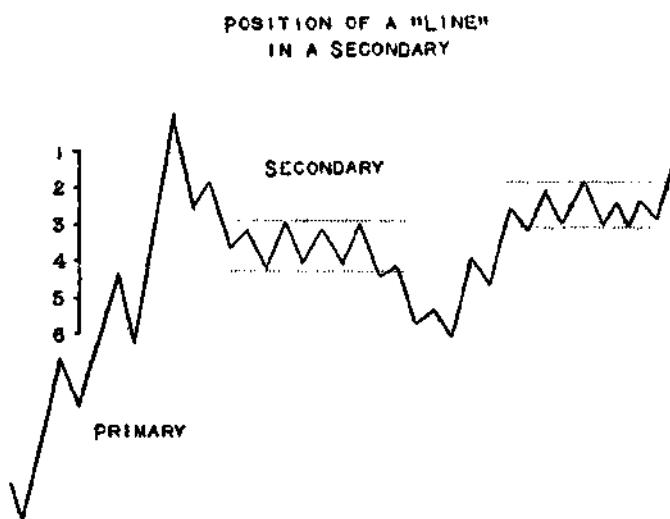
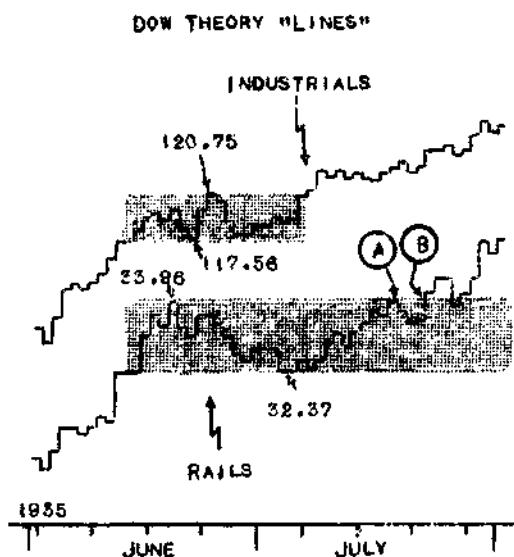


Figure 16



This would be true even though the Industrial average should, at the time, be below its more recent high, or even back below 120.75. (Within the area of the Industrial "line".) As the market developed, as shown in Figure 16, when the Rails penetrated the top side of the "line", at B, the Industrials were merrily on their way upward. In the same letter, dated July 17, 1935, Rhea again emphasized the importance of a penetration of a line in the direction of the primary trend, by saying, in the negative, the following:

It does not seem, however, that a downside penetration in a recognized bull trend should not be taken as affording as much bearish authority as would a similar structure in a bear period, and the converse would, of course, apply in bear trends.

Duration of "Line" and Extent of Move

It is generally held by Dow Theorists that the longer the duration of a line, the more important the subsequent move. In Chapter XVI, we will see that figure chart students place great emphasis on this Dow Theory principle.

Volume

Dow frequently referred to volume as indicative of the trend. "In a bull trend," he wrote, "dullness is generally followed by advance; in a bear market by decline." (W.S.J. - March 7, 1902). Again, "There is a relation between the volume of business and the movement of prices. Great activity means great movements whenever the normal balance between buyers and sellers is violently disturbed." (W.S.J. May 29, 1901).

Hamilton, as we have seen, was curiously inconsistent in his views about volume. Up to 1910, he frequently used the old market axiom that volume on rallies means strength, and volume on declines means

weakness. However, in 1910, he argued that the averages, i.e., the price structure, discounted the volume of trading along with other factors. From that time on he was on both sides of the fence, saying at various times: "We prefer to neglect volume in these studies," and at other times: "The activity on the rise is a bullish indication."

Probably Hamilton's most famous comment on volume was: "One of the platitudes most constantly quoted in Wall Street is to the effect that one should never sell a dull market short. That advice is probably right oftener than it is wrong, but it is always wrong in an extended bear swing. In such a swing, the tendency is to become dull on rallies and active on declines." (W.S.J. - May 21, 1909). We well know the truth of this statement.

Rhea observes volume characteristics constantly and this factor is fundamental in his Dow Theory analysis. He uses volume in three different situations:

1. In a trend: Strength is indicated by dullness on declines and activity on rallies. Weakness is revealed by dullness on rallies and activity on declines.
2. At the turns: Bull markets, Rhea observes, terminate in heavy volume and bear markets terminate in light volume, though in some instances activity has occurred at bear market lows. Dullness at the end of secondary (intermediate) corrections in both bull and bear markets usually presages a turn.
3. Penetration: When the averages approach a critical resistance point such as the high of the previous rally, the low of the previous decline or the limits of a line, Rhea feels more assured if these points are crossed

with pronounced activity, buying for the rise, or selling for the decline. This, says Rhea, gives a decisiveness to the signal, helping to confirm the trend. However, he warns, "Frequently, activity diminishes at critical points, only to increase when these points are penetrated." (Dow Theory Comment, Mailing No. 38)

Collins discusses volume in practically every market letter, seeing strength in volume on the rise and weakness in volume on the decline.

Moment, in his two studies on the Theory, ignored volume characteristics in making his commitments.

The author is of the opinion that volume cannot be omitted from any sound trend analysis. Further, it is probably no exaggeration to say that volume is one of the best single indicators of trend. (See Chapter XIV)

Amplitude and Duration of Movements

When the Dow Theorist has determined, to some degree of satisfaction, that a reversal has occurred and a trend is indicated by the sequence of successive highs and lows, his natural thought is, "How far will this trend carry in amplitude (extent) and how long will it last in point of duration (time)?"

In looking to the exponents of the Theory for an answer, we find varying opinions. In Chapters IV, V and VI, we have examined the data available as to expectancy of amplitude and duration in the three movements: Primary (Major), Secondary (Intermediate) and Tertiary (Minor).

Primary Movements: Amplitude

Dow does not appear to have discussed the amplitude of primary movements. *Hamilton* occasionally compared the price levels of one primary movement with those of another, but laid little stress on the point. *Rhea* does not emphasize the idea in his writings. *Collins*, in a recent study of bear markets, included a table showing amplitude of the major bear swings from 1897 to date.

At this point the reader might review pages 173-174 of Chapter VI.

Primary Movements: Duration

The chief Dow Theorists have paid more attention to the duration of primary movements than to the amplitude of these swings.

Dow, as we have already seen (page 174), stated that primary trends were at least four years in length, apparently basing his view, not upon his fifteen years' observation of the averages, but upon the fact that since 1815 business has prospered and fallen into dull times in six to twelve year cycles. Dow apparently reasoned that approximately half the business cycle was represented by falling prices for stocks and the other half by rising prices.

Hamilton, in his early writings, said that primary movements extend "over a period of years". Later, in 1910, he wrote more definitely on the subject, stating that bull markets generally run upward of two years, while bear markets do not often exceed twelve months. In 1922 he pointed out that the six bull markets in the preceding 25 years had lasted from 21 to 39 months, with an average duration of 25 months. His duration figure for bear markets was 17 months.

Rhea, in "The Story of the Averages", warns that "...All too many financial writers dogmatize concerning average durations of bull (or bear) markets." He feels that, although something is to be gained by the duration and amplitude of previous major markets, conclusions must be tempered with an understanding of the "extreme deviations", which are disclosed in the tabulations (see page 183, "The Story of the Averages").

Collins, in an article which appeared in *Bartons*, also recognized that many major markets ran from 18 months to 3 years.

Primary Movements: Amplitude and Duration Summary

The tables on amplitude and duration of primary movements show that in the majority of bear markets, the price structure has been deflated from one-quarter to one-half, while in bull markets, prices have been inflated all the way from 28 to 345 per cent. The duration for both bear and bull markets is shown to have been about two years in the majority of cases. These precedents should be used by the student to gain historical perspective, but it is a mistake, as *Hamilton* discovered to his great embarrassment (see pages 174-175) to bank too heavily on their precise recurrence. At most, such precedents should serve to put the student on guard, but after that his decisions should be based on the more dependable working tools in his technical kit.

Amplitude and Duration Secondary Movements

While Dow Theory exponents have given attention to duration of primary movements, and less to their amplitude, interest has centered more on the amplitude and duration characteristics of secondary swings, particularly those of the corrective phase.

Dow said that corrections as a rule retrace three-eighths to one-half of the preceding "primary" movement (major phase) but that in some cases the retracement ran further. The duration of secondary corrections, he said, ranged from 10 to 60 days, with the average falling between 30 and 40 days.

Hamilton described the amplitude of secondary corrections variously in different editorials, but, for the most part, he assigned them a retracement range of from 30 to 60 per cent. His time period varied from two or three weeks to two or three months. He was inclined to place more importance on amplitude than

on duration, writing in the Wall Street Journal of March 8, 1926, that in market studies, "time is not the most essential factor". A secondary movement, he said, "is equally convincing if it takes two weeks or ten".

The Record of Secondary (Intermediate) Movements
Without discussing further the varying opinions of Dow Theorists on the subject, let us turn to the systematic classification of intermediate movements made by Robert Rhea. In his volume, *The Dow Theory* (pages 65-66)²⁰, Rhea has given the date of the beginning and ending of every intermediate swing, including both major (Rhea calls these "primary" swings) and corrective phases from 1897 to 1931. For all major phases and their corrections, he gives the number of days required for completion, and for the corrections, the percentage of the previous "primary" movement (major phase) retraced. We will not discuss here the question of his criteria in selecting these cases. Suffice it to say that in the opinion of this outstandingly competent student, these were the important intermediate movements. These data, brought up to date, are appended in Tables to Chapter V. At this point the reader might review pages 118 to 128, Chapter V.

The reader must remember that the chief reason we study the subject of amplitude and duration is because they furnish a *concrete* background of precedent with which current market situations can be compared.

Let us assume that we have identified an up-move as a major phase in a bull market. It has run 60 days and the average which we are observing has appreciated about 12 per cent measured from the beginning of the advance. We look at Tables I and IX (Appendix, Chapter V) and find that three-fourths of the preceding major advances have run further both in amplitude and point of time. The move continues, and at the 100th day, we find that prices have appreciated 22 per cent. Our tables show us that a little more than half of the preceding major phases have ended before this point. We keep a sharp watch for signs of a turn. The move runs on to the 150th day and our average is 45 per cent above the level from which the advance started. Our tables tell us that this is an extreme case, since more than three-fourths of previous major phases in bull markets have ended before this point. A reversal is probably not far away, and when our other working tools offer corroboratory evidence of a top, we are ready to act. The tables may be similarly employed for any phase of an intermediate swing. This working tool of precedent is, of course, crude, but it has distinct value in giving the student historical sense, thus adding to the technician's kit one more instrument to assist in making sound market decisions.

²⁰ AN EVEN MORE COMPLETE EXPOSITION APPEARS
THROUGHOUT THE PAGES OF "THE STORY OF THE
AVERAGES".

A Second Advantage

Let us illustrate further the practical use of these amplitude and duration tables. In technical work there is a much used rule that secondary corrections normally retrace a certain percentage of the previous major phase. Hamilton, it will be recalled, set this figure variously at from 30 to 60 per cent. Rhea, in *The Dow Theory* (page 52), says that this retracement is generally from 33 to 66 per cent. Among traders the flat estimate of 50 per cent as the normal retracement is commonly heard. What do the tabulations say on this point?

Table IV reveals that in bear markets over two-thirds of the secondary corrections (22 out of 30) retraced from one-third to two-thirds of the previous advance, while Table II shows that in bull markets *a little less than half* the cases (19 out of 43) retraced from one-third to two-thirds of the previous advance. The rule, therefore, seems to work better in bear than in bull markets.

The median secondary correction in bear markets is about 52 per cent and in bull markets 56 per cent. Thus, the flat estimate of normal retracement as 50 per cent has some basis in fact, *but this axiom should never be interpreted to mean that corrections stop at the 50 per cent mark for the amplitude of retracement for individual cases, as has been shown, are quite widely scattered about their medians.*

A Third Advantage

It will be observed that bear market major phases average about 77 calendar days, whereas their corrections average 46 days. The major phases in bull markets average 92 days and their corrections 37 days. Corrections, therefore, usually run their course much faster than major phases. This is a helpful principle in judging both the continuation and reversal of the primary trend. If a secondary correction, for example, is prolonged beyond the time period ascribed to secondaries by precedent, and other corroboratory signs are present, a clue to reversal is given. Again, if following a secondary reaction the price trend reverses and moves at a more leisurely pace, other signals confirming, evidence is at hand of the beginning of a new major phase in the primary trend.

A Word of Qualification

The reader should remember that the amplitude and duration experience for secondary (intermediate) movements described in the preceding pages, is predicated on the classification made by one man, Robert Rhea. Other students might classify secondaries differently, and if so, the figures on amplitude and duration might change. Had Hamilton made up such a table, for example, the average time span and extent of price change would have been shortened for, as we have seen, he distinguished many movements as secondary which Rhea classified as minor.

Amplitude and Duration of Minor Movements

Dow Theorists have not found the study of the amplitude and duration of minor movements of much practical value. Robert Rhea, in "The Story of the Averages", provides considerable data which might be useful in making such a study. The author has set down what he believes to be the useful facts concerning the subject in pages 156 to 158 inclusive, of Chapter VI.

The Dow Theory in a Nutshell

The Dow Theory, as it was originally conceived by the founder, and as interpreted subsequently by its chief exponents, has been set forth in detail in the preceding pages. It remains now to bring the threads of the story together in order that the reader may be left with a compact impression of the Theory as a whole.

The Averages Are Their Own Barometer

Dow's Theory starts with the basic principle that the best source of information as to the future of stock prices is the averages themselves. The Theory counsels the student resolutely to close his ears to tips and rumors, and consign to the background even such business fundamentals as earnings reports and news of political and economic events which affect business. Anything and everything bearing on earnings, the Theory holds, is discounted in the marketplace, and the student should concentrate his attention at that point, plotting his course by constant study of the averages. (The outstanding contemporary Dow Theorists, however, may be said to be careful students of fundamental economic affairs.)

The Three Market Movements

In the analysis of the averages, the first problem, according to Dow's Theory, is to determine what trends the market is in. Stock prices move in waves, surging forward, then receding, moving forward again and once more receding, ceaselessly. These waves are of three types. There is a big wave, or tide as Hamilton called it, which is known as the primary movement. This primary movement is made up of secondary waves of lesser amplitude and duration, and, similarly, the secondary is made up of minor waves of still smaller proportions. Since it is by *literally riding the wave* that profits are made, the first task of the student, the Theory holds, is to determine:

1. Which way the main tide is flowing,
2. What stage of development the secondary is in, and
3. The direction of the minor ripple.

When the situation is thus appraised, the student is in much less danger of capsizing his skiff by trying to buck the tide.

Accomplishing the Objective

The goal of the trader being to profit by going

along with the price trend, the second problem is to time his commitment in order that a position be taken near the beginning of the movement and closed out near the end. The Dow Theory offers several working tools to achieve this purpose.

1. Successive Highs and Lows

When a decline stops short of a previous bottom and the price movement reverses and breaks a previous top, the signal is bullish, indicating a reversal from a downtrend to an uptrend, or if the underlying movement is already up, pointing to a continuation of that movement. On the other hand, when a rally stops short of a previous high then reverses and penetrates a previous low, the signal is bearish, indicating a reversal from an uptrend to a downtrend; if the movement is already down, it signals a continuation of the trend.

These zigzag formations are of varying significance in the three trends. Sub-minor rising and declining tops and bottoms (see Chart 13) which appear from day to day, or perhaps from hour to hour, if the index is further refined, indicate minor trends. They are often deceptive since they are subject to quick reversals, but they are extremely useful in furnishing the first notice of a change of trend at crucial turning points. Minor rising or declining tops and bottoms indicate secondary movements. These patterns also change quickly, hence may prove to be deceptive, especially in the corrective phase of intermediate cycles, but they are valuable in giving early indications in the secondary trends. Secondary rising tops and bottoms signal the direction of the major trend and are, of course, the most significant indications of all, though the trader operating under the Dow Theory does not usually wait for these signals before making commitments.

2. "Lines"

A second working tool, which the Dow Theory advances to assist the trader in taking positions near the beginning of movements and closing them out near the end, is the principle of lines. When a horizontal trading area forms in the averages, the break-out from the limits of this area indicates the direction of the move. These patterns may form in a trend or at the end of a trend, hence they provide signals of both continuation and reversal of the price movement. The longer the trading area, the Theory holds, the more important is the subsequent move. Remember that prices never stand still for very long.

3. Confirmation

Encompassing both working tools of lines and successive highs and lows is a third principle that of confirmation. A signal, according to the Dow Theory, must occur in both the Railroad and Industrial averages before it is considered

valid. The logic behind this idea is that a movement broad enough to appear in both averages is likely to be more significant than a movement appearing in one average alone. While this rule may at times cost the trader a potential profit because of delay in confirmation of one average by the other, the Theory holds that the principle works to the trader's advantage more often than not.

4. Volume

Behavior of volume is a fourth working tool offered by the Dow Theory to help solve the problem of timing commitments. In general, according to the Theory, the market is strong if it reveals dullness on the decline and activity on the advance. It is weak if it shows dullness on the advance and activity on the decline. At important resistance points the signal gains in significance if penetration is made on volume. At the primary turns volume usually is high at the end of bull markets and low at the end of bear markets. At the intermediate reversals volume is usually high at the end of the major phase and low at the end of the corrective phase.

5. Amplitude and Duration of Market Movements

A fifth tool included in the Dow Theory is the amplitude and duration of market movements. The figures on these will not be recapitulated here. The important points to remember are that after a major intermediate phase, a certain percentage of this movement is retraced, that the retracements are usually shorter in point of time than the preceding movements which they are designed to correct, a characteristic which is helpful in judging primary reversals, and, finally that while these precedents offer a crude table of expectancy as to amplitude and duration of future movements, the student can not be too insistent that the market follow precisely the pattern of the past.

This is the Dow Theory in a nutshell.

Conclusion

By this time, the reader will have fully grasped the truth of the statement made on the second page of this Chapter, namely; that *Dow's Theory includes principles which are absolutely fundamental in the price movement.*

THE IDEA THAT THE AVERAGES TELL THEIR OWN STORY IS THE POINT FROM WHICH ALL TECHNICAL STUDIES BEGIN.

THE CLASSIFICATION OF THE THREE MARKET MOVEMENTS IS BASIC IN ANY STUDY OF STOCK PRICES.

THE PRINCIPLE OF SUCCESSIVE HIGHS AND LOWS IS INHERENT IN THE VERY NATURE OF MARKET ACTION.

Dow THEORY "LINES" OR TRADING AREAS ARE CONTINUALLY OBSERVABLE IN THE AVERAGES, AND WHEN THE DIAGONAL TREND IS RESUMED OR REVERSED, THE MOVE-

MENT MECHANICALLY BREAKS OUT EITHER TOP SIDE OR DOWN.

THE FUNDAMENTAL NATURE OF CONFIRMATION IN TECHNICAL MARKET ACTION IS NOT SO SIMPLY DEMONSTRATED, BUT IS BASED NEVERTHELESS ON SOUND MARKET LOGIC AND IS CONSIDERED IMPORTANT.

THE IDEA OF NORMAL AMPLITUDE AND DURATION OF SWINGS IS PERHAPS THE WEAKEST PRINCIPLE OF ALL BUT HAS SOME BASIS IN FACT.

To have formulated all or some of these principles was truly a great contribution to the study of stock price trends, and Charles H. Dow will go down in history of stock market analysis as the first great theorist to appear in the field.

It is a mistake, however, to suppose that the Dow Theory as we now know it, sprang full blown from the brain of the founder, or that the principles included in the Theory represent all knowledge in the field of technical analysis. Dow, it is true, laid down the main tenets, with the possible exception of the principle of confirmation, but he never arrived at a clean-cut and incisive statement of his theory.

Hamilton, in his 26 years of editorial writing on the price movement for the Wall Street Journal, applied Dow's Theory to many and varied market situations and brought it to a higher stage of development. As already indicated, circumstantial evidence suggests that Hamilton contributed the idea of confirmation.

Bhea, coming along after Hamilton, has still further clarified and integrated the Theory. He has, for example, taken a definite stand in favor of the use of volume characteristics in judging the market, where Hamilton inconsistently employed them in one editorial and repudiated them in the next. Also Rhea has classified intermediate movements systematically and has defined a line in his own terms. Although Bhea has striven to keep within the precepts of his teacher, he has achieved a systematic conception of the Dow Theory which is undoubtedly superior to that attained by Hamilton.

Collins, likewise, has succeeded in formulating a compact summary of the Theory.

No doubt this process of integration, clarification and adaptation will continue as long as Dow Theorists study the market, and their results will still be called the Dow Theory in honor of the man who first formulated the germinal ideas. In this evolution of the Theory, the test should be one of workability, not one of tradition. If, for example, students of the market find Dow Theory indications in less-than-daily indexes, they should be developed for what they are worth even though Dow said nothing about them. Moreover, if students like Samuel Moment prove beyond question that confirmation is not necessary, this idea should be abandoned, orthodox Dow Theory to the contrary notwithstanding. This is the way all scientific theories grow, and it is the only way truth can be preserved.

The second point is that, however, fundamental in market analysis are the tenets of the Dow Theory, they

do not comprise the whole of technical market knowledge. Dow's Theory, for example, says nothing about such helpful formations as triangles; it says nothing about gaps; it says nothing about moving averages all useful tools in the technician's kit. *Finally, the Dow Theory concerns itself solely with the question of when, not what, to buy or sell, though the latter, as all competent students of the market agree, is not of secondary importance.*

Charts Needed for Study of Dow's Theories

Finally, before leaving the Dow Theory, it might be well to say something about the charts necessary for its study. One chart each, such as Charts 11 and 15, requiring less than five minutes a day to keep up to date,²¹ are ample for a practical working (and trading) study of the tenets of the Dow Theory. This does not mean that the Theory can be learned by a few days' casual perusal of the averages. On the contrary, the average reader will find many hours of study are needed before he can hang up a record of several consecutive years of profitable trading based upon the Dow Theory.

But the task is not, by any means, impossible; and the earnest market student, it is believed, will consider the hours which he devotes to the subject as profitable ones. For those interested, the author suggests that they take a copy of Rhea's *Graphic Charts*, of the Dow Jones daily stock price averages, and observe the action of the market in the light of Hamilton's editorials, which appeared in the Wall Street Journal, and which may be found as appendix to Rhea's book, *The Dow Theory*. An excellent study of more recent years (1932 to date) can be made, if copies of Rhea's fortnightly letters, which are called "Dow Theory Comment", and Collins' weekly letters, entitled, "Investment Letters", can be obtained. (Some of the larger libraries have them on file, also some of the universities; some readers may find that local banks or Stock Exchange houses have copies.)

Chart 15 should be very useful in connection with such a study,²² as most of the important reversals have been keyed with the same letters as are used in "Dow Theory Comment". The annotations on this chart are a fairly complete study of the more important Dow Theory implications in the past several years. An hour studying it will be well spent. A 3 per cent swing chart such as Chart 10 is also useful in studying the Dow Theory.

Before proceeding to a discussion of the other working tools used in studying the "When" question, which are included in Chapters VIII to XV, inclusive, some readers may be interested in the following brief

²¹ THE NECESSARY DATA CAN BE FOUND IN GARTLEY'S STOCK MARKET DATA, SECTIONS I AND 3 APPENDIX I, CHAPTER II.

²² COPIES OF CHART 15, 28" x 72", WHICH CAN BE CARRIED FORWARD INDEFINITELY, ARE AVAILABLE, AT \$12.50 EACH.

discussions of various questions which arise in studying the Dow Theory. Those readers interested in gaining a general knowledge of technical studies quickly, might immediately skip forward to Chapter VIII, and return here later.

Can the Dow Theory Be Applied to a Composite Average?

Some students have asked, 'Why study the Industrials and Rails separately would it not be better to apply the Dow Theory to a composite average, such as the Standard 90?' It is not easy to answer this question.

The problem boils down to whether a composite average does not take the place of confirmation of one average by the other (the Industrials and Rails).

The answer seems to be, NO.

Although it is true that the composite takes into consideration the movement of both the Industrials and Rails, as well as the Utilities, it is likely to produce decidedly false signals. Take, for example, the situation from July 1933 to March 1935. Using Chart 8, compared with Chart 15, we find that prices trended downward, as measured by the Standard 90, throughout this period, showing both lower tops and bottoms. Had we been following the principle of lower tops and bottoms exclusively, there is no question that we would have sold all major trend long commitments in the July 1934 break, because in the Standard 90 stock index (Chart 8), this decline decisively penetrated the October 1933 low, following the February 1934 high, which failed to exceed the top established in July 1933.

On the other hand, if we had adhered to the principle of confirmation as applied to the Industrials and Rails individually, we find (Chart 15) that although the Rails declined to new low ground in February of 1935, below the approximate double bottoms established in October 1933 and July and September 1934 (there was a slight penetration in August and September), the Industrials established higher bottoms in both July 1934 and March 1935, and thus stubbornly refused to confirm the bearishness indicated in the Rails.

A similar case may arise in coming months, on the opposite side of the market. As this is written, the Standard 90 stock average is again at its February 6, 1934 high closing point (see Chart 6), and less than three points under its extreme high closing of July 18, 1933. A move of five or six points would decisively penetrate the previous intermediate high point in July, 1933, and Dow Theorywise, would produce another confirmation of the upward primary trend, and indicate a further extended move, without more than minor interruptions. To produce a similar bullish signal, under the Dow Theory tenet of confirmation, using the Dow Jones averages, it will be necessary for the Rail average to rise from, let us say, the 38 area to exceed 56.53, the high closing of July 7, 1933. This would be an advance of more than 48 per cent (as compared with 6-8 per cent in the Standard 90).

Thus, it seems quite possible that the Standard 90 stock index could easily show a primary trend bull signal, which would be equally false to that outlined above, which developed in July of 1934.

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Can the Dow Theory Be Applied to Other Averages?

The next question frequently discussed is whether the Dow Theory may be applied to other averages, for example, to the Standard 50 Industrials and 20 Rails?

The answer is decidedly, YES.

Although we have not the long research background, such as in the case of the Dow Jones averages, the principles of the Dow Theory apply equally well to other averages, providing such averages are approximately as representative of the market. The Dow Theory is not something which applies just to the Dow Jones averages. Its principal tenets appear to apply to the movement of both Commodity prices, and the indexes of trade and industry.²³ In the "Pickell-Daniel Extension Course of Grain Market Analysis" (Lesson 2), the tenets of the Dow Theory are applied to grains, by using Wheat in place of the Industrials, and Corn in place of the Rails.²⁴

Can the Dow Theory Be Applied to the Minor Trend?

This author has given the problem considerable study. The answer, it is felt, depends upon the accumulation of several years more data of hourly movements of the averages. At present, we have only approximately three years' material to work with. When we have more of a background, a better answer to the question will be possible. However, at present our studies seem to show rather conclusively that if the tenets of the Dow Theory are applied to the minor trend, as portrayed by the hourly averages (with the exception of the principle of confirmation), fairly satisfactory results can be obtained. At least, minor trend traders can materially improve their outlook of the market. After several years of careful study of the writings of Robert Rhea, the author is distinctly of the feeling that Rhea places entirely too much emphasis on the idea that the Dow Theory is of little value as applied to the minor trend. Study, for example, Charts 11 and 15. There does not seem to be such a great difference in the patterns which develop on these two charts. Upward or downward zigzags, the importance of "lines", the penetration of previous tops or bottoms,

²³ READERS WHO CAN GET HOLD OF A COPY OF "STOCK MARKET TACTICS", WHICH WAS WRITTEN BY MAJOR L. L. B. ANGAS IN THE FALL OF 1931, WILL BE INTERESTED TO SEE, ON PAGE L8, UNDER THE PARAGRAPH ENTITLED, "THE ART OF READING A GRAPH", A BRIEF OUTLINE OF SOME OF THE PRINCIPLES OF THE Dow THEORY, ARRIVED AT BY MAJOR ANGAS IN A STUDY OF THE PRICE MOVEMENTS OF BRITISH SHARES. IN A PERSONAL CONVERSATION, MAJOR ANGAS TOLD THE WRITER THAT, AT THE TIME THIS PAMPHLET WAS PUBLISHED, HE HAD NO KNOWLEDGE OF THE SO-CALLED "DOW THEORY".

²⁴ PICKELL-DANIEL, INC., 176 WEST ADAMS STREET, CHICAGO,

all seem to take on the same significance.

But a proper warning must be sounded. *The application of the Dow Theory to the minor trend finds its chief use in making more timely intermediate trend commitments.* All the Dow Theorists, including Rhea and Collins, constantly observe the minor trend for this purpose. Take, for example, the situation in March of 1935. The upward zigzag M-N and N-O were decidedly a minor movement; yet shortly after this occurred, it was construed by Rhea as a strong argument in favor of an extended upward trend. The same thing was true about the situation in July of 1932, concerning the zigzag C-C1-C2. Unfortunately, some market students have tried to apply certain tenets of the Dow Theory, in a very inexperienced way, to the sub-minor trend, as reflected, for example, on Chart 13. The results were disastrous. How could they be otherwise?

Rhea contends that no one ever made any consistent profits trying to apply the Dow Theory to the minor trend. He points out that Hamilton endlessly sounded warnings against the procedure. This writer concedes the probability that no one has made money applying the Dow Theory to the minor trend. But it should be obvious to anyone who makes a study of the writings of Hamilton, Rhea or Collins, that all give careful consideration to the tenets of the Dow Theory applied to the minor trend, as they affect the larger movements. The author's specific contention on the subject is only that, if the minor trend is to be used in the study of the larger movements, why not use a more magnified picture of it, such as is shown by the hourly averages?

Briefly, it is contended that Chart 11 is a natural supplement to Chart 15.

Above, we have said, "...with the exception of the principle of confirmation". Careful tests for the three years beginning October 1932 rather clearly show that if confirmation of the Industrials by the Rails is awaited, in judging a minor trend, in the cases of both penetration of a high or low, or the breakaway of a line, the signals are apt to be so late that they are almost useless.

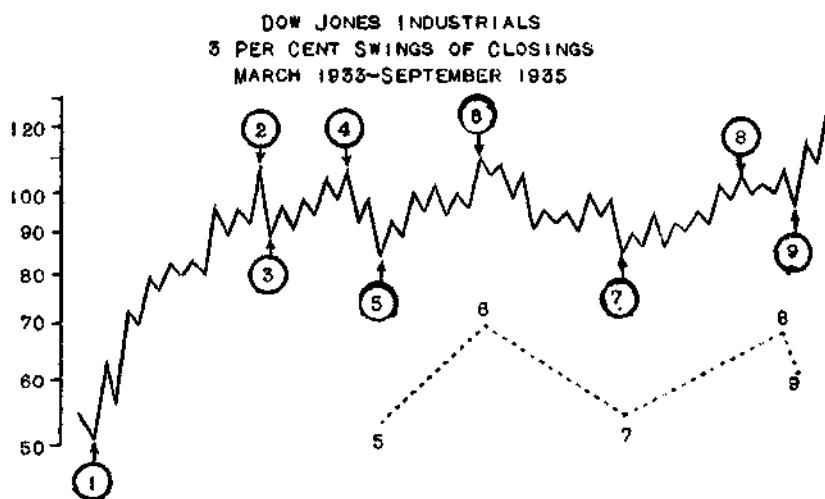
When is a Secondary?

The last two years have presented some real problems to interpreters of Dow's theories. Only a financial writer can completely appreciate Robert Rhea's statement about this period, when, on August 17, 1935, he said:

From February, 1934 until March of this year (1935), the price movement was the most perplexing ever encountered in the forty-year record of the Dow Jones compositions.

Figure 17 reveals one of the chief problems. The advance from the Bank Holiday low (1) to the July high (2) was conceded to be a primary advance, during which the major upward trend had a confirmation in May 1933 (see Chart 15). The decline from 2 to 5, to the October 1933 low, was conceded to be a

Figure 17



normal secondary correcting this unusually sharp advance. Then for 17 months, the averages vacillated without reconfirming the bull market, or producing a bear market signal.

As the advance from the October lows got under way, with a "strong upward zigzag", Dow Theorists assumed the probability that the advance 5-6 was a new primary, and awaited confirmation by means of a joint penetration of point 2.

When, in February of 1934, this advance culminated at 6, with a fractional penetration in the Industrials, while the Rails fell short by a substantial margin, the question then arose as to whether a new bear market had begun, after a one-year advance from the July 1932 lows, to the July 1933 highs. Although this was recognized as a possibility, further evidence, in the form of a joint downside penetration of the October lows, was awaited.

About a year later, in February 1935, the Rails, which had "gotten out of gear" by not penetrating the February 1934 top, decisively declined below the October 1933 low (5); but shortly thereafter, at the March 1935 lows, a strong advance, with both averages in gear, got under way.

Assuming for the moment that a new primary was initiated from the March 1935 lows, that in the future will be confirmed by a joint penetration of the July 1933 highs (the Industrials are already decisively above them, of course), the question then arises, "What do we call the fluctuations from 5 to 9?" (emphasized by the dotted line in Figure 17).

The advances 5-6 and 7-8 were not primaries, because they failed jointly to penetrate the July highs (2). The declines 6-7 and 8-9 were not secondaries, because the decline 2-5 was the normal secondary, and neither of these later declines jointly penetrated 5. What then were these movements between 5 and 9, while President Franklin Delano Roosevelt was using our nation as a sociological laboratory?

Collins, at one point, mentions them as "intermediate movements". We have seen nothing in Rhea's writings specifically treating upon the problem. Although it is to be admitted that the market movements during this period were unusual, there is no reason why they cannot occur again; and it is for this reason that the author has chosen to give recognition to the unusual pattern, which was discussed from the angle of Intermediate cycles, on pages 116 to 118 of Chapter V.

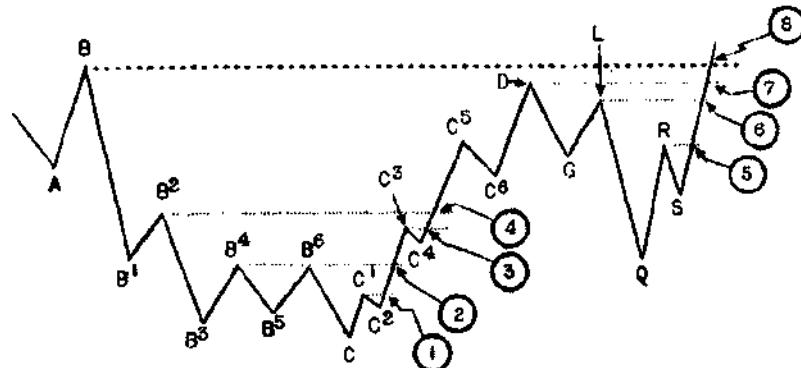
When is a Major Reversal?

As a market student, in pursuing the study of the Dow Theory, becomes more conscious of its finer points, he comes to realize that its interpretation, as Robert Rhea has pointed out numerous times, is more of an art than a science. He also finds that there is a broad chasm between dogmatic interpretation, and practical interpretation which will make consistent profits. It is in failing to comprehend this difference that inexperienced critics of the Dow Theory go wrong.

Let us take, as an example, *the problem of buying stocks when the first Dow Theory primary trend bullish signal develops, versus buying them near the bottom of a bull market*. As an example, let us use the situation of the major turn in 1932, applying the Dow Theory principle, among others, of "the penetration of successive highs". Let us use the sketch in Figure 18, covering the period from middle April 1932 to the end of May 1933, supporting the study with observations of the same period, on Chart 15.

Dow Theory critics pride themselves in pointing out that, although the major trend turned up on July 8, 1932, at approximately the 40 level, Dow Jones Industrial average, it was not until May 24, 1933, when the Rails penetrated their September 3, 1932 high, and the Industrials had advanced 104.5 per cent, to a closing level of 84.29, that a primary Dow Theory

Figure 18



signal developed. Thus, they point out, Dow Theory students who adhered strictly to the theory of the penetration of successive highs, lost a golden opportunity to make substantial profits.

From an academic viewpoint, the criticism applied to this particular case stands. But from an historical, as well as a practical viewpoint, it doesn't hold water, because —

First, the majority of cases in history show no such long period of time, or such great amplitude of fluctuation, before a primary signal develops. We may not see another case like the 1932-1933 for years.

Secondly, and of much greater importance, in practical operation, Dow Theorists do not stand patiently on the sidelines for a year, while prices rise 100 per cent, awaiting a "primary signal".

Actually, in the 1932 case, the prominent Dow Theorists (according to their written records) were buyers of stocks between points 1 and 3 (Figure 18), or between C₂ and C₅, Chart 15. Now the critic will ask, How could a Dow Theorist, following the Dow Theory tenet of buying on the upside penetration of intermediate highs, make purchases in the advance C-D, and adhere to the Theory? The answer, although not simple, is logical, and the best proof of whether it is rational interpretation of the Dow Theory, is the fact that it made a profit.

Now for the answer. Let us first quote Robert Rhea, from a memorandum²⁵ issued July 25, 1932 in which he said:

The declines of both rail and industrial averages between early March and mid-summer were without precedent. (See Chart 15) The thirty-five year record of the averages shows a fairly uniform recovery after every major primary action, and such recoveries average around 50 per cent of the ground lost on the decline; are seldom less than a third, and more than two-thirds." Such recovery periods tend to run to about 40 days, but are sometimes only three weeks and occasionally three months.

The time element is in favor of a normal reaction (advance) at this time because the slide off

was normal (the normal time interval of major declines being about 100 days).

The market gave the unusual picture of hovering near the lows for more than seven weeks, and might be said to have made a 'line' during the latter weeks of that period.

Because of all these things, and because the volume tended to diminish on recessions and increase on rallies during the ten days preceding July 21, *almost any one trading on the Dow Theory would have bought the stocks on July 19th. Those who did not, had a clean cut signal again on the 21st.* Since that date the implications of the averages have been uniformly bullish, and it is reasonable to expect that a normal secondary will be completed even though the primary trend may not have changed to 'bull'. So much for the speculative viewpoint

However, the investor asks, 'Have we seen the lows for the bear market?' According to strict construction of Dow Theory, we cannot yet tell. Surely we have many things which might lead us to believe this to be true — we have surely had a considerable period of accumulation, but these periods frequently preface secondary reactions, or occur at some intermediate point in a secondary. Should this secondary reach normal limits with respect to recovery and duration, and a decline of some weeks follow, and this decline did not break the bear market lows, after which a recovery set in which carried above the high point of the secondary now in the making, it would seem reasonable to suppose that the lows had been passed. And should the secondary now forming develop a sideways drag beneath normal expected recovery points, making a clearly defined 'line', and should such line be broken topside with some healthy advances, it would be a splendid buying signal.

Here, you see, he employed (as may be deduced from the underlined phrases above) the application of the principle of the penetration of successive highs, as applied to the minor trend, in making purchases near the 1932 bottom. Thus, the penetration of the intermediate high of September 1932, later in May 1933, in confirming the primary upward trend, merely provided assurance that the positions taken in middle

²⁵ BEFORE THE DAYS OF "DOW THEORY COMMENT"

1932 were right, and should yield further handsome profits.

Now let us go back to Figure 18, which shows the more important swings bearing upon the problem of penetration of successive highs. During the period from the July 1932 low at C, to the penetration of the September 1932 high at 8 (see also Chart 15), there were, in all, seven joint (Industrials and Rails) upside penetrations which provided useful Dow Theory confirmations of an uptrend. Discussing these in the order of their appearance, it is interesting to note that penetration 1 was minor, and formed a valid upward zigzag, which, following the irregular "line", provided the first bullish signal of reversal. A few days later, penetration 2 added strong bullish evidence when the stubborn highs of May and June were left behind. Penetration 3, which followed a one-day sharp correction (particularly in the Rails), was another minor development of importance.

When penetration 4 occurred, and exceeded the early May high, there was little question left that the July-August advance was no ordinary secondary (corrective phase) of a bear market cycle. The rapid expansion of volume was a factor of considerable weight.

It is the writer's opinion that during this period many shrewd stock traders, who had been out of the market for months, sensed the major reversal, and although they still held reservations as to the certainty of it, they were willing to back up their convictions by purchasing stocks; and they had the courage to pay up sharply when they found the supply of shares very limited. Some of the larger investment trusts made some well-timed purchases in this rise.

After the secondary from the September high to the October low, and the sidewise movement to the Bank Holiday, the next upside penetration of importance was that at 5, in the second primary swing, when the minor high at R, which developed the day after the Stock Exchange re-opened, was penetrated. By the next day, the November 1932 joint high was broken at penetration 6, and within three weeks the averages had provided another penetration signal, by exceeding the September 1932 highs, which, of course, provided the primary confirmation signal.

Thus we see the Dow Theorists applying the principle of making commitments upon penetration of successive highs or lows, to the minor trend, in making longer term commitments. This principle is expounded time and again in Chapter V. Note that in the above quotation, Rhea freely admits that he suggested (and made) commitments in 1932, because he thought he saw a good rise in sight, not because he was certain that a bear market bottom had taken place. Thus, we see a Dow Theorist letting the averages show him the way. And so we see the difference between the practical (and profitable) art, and the academic theory, in the use of the "penetration of successive highs", as suggested by Charles H. Dow.

Some readers, in studying Chart 15, during the

period under discussion, may ask why penetration 4A, in the movement K-L, was not noted above. They will ask,

Why wasn't it at the time just as important as penetration 5 at a later time, for example? How did we know that the advance from G (which at the time might have been considered the termination of an orthodox secondary) was not a new primary?

The answer is, We didn't.

But there was a fly in the bullish ointment, which provided a clue. Note that in the Industrials, the low K was under that at G, while in the Rails it was bullishly above. Thus, although the minor advance K-L jointly penetrated both previous minor highs at H and J, there was reason to regard the advance cautiously, and later, when the decline L-M penetrated K, it was evident that the uncertainties in the political and banking pictures were to continue as a bearish influence on stock prices (probably until March 4, because Roosevelt showed no disposition to act with Hoover). (Take a look at the curve of bank failures during this period, and in retrospect you will wonder why stocks did not tumble back to the July 1932 lows, and under.) In this respect, the advance from S was vastly different from that from K, because the banking picture had been cleaned up.

Are Penetrations of Successive High or Low Points in a Current Trend More Important Than Penetrations of High or Low Points in a Previous Counter Trend?

The above discussion of penetration may bring to the minds of some readers a question which has often bothered market students. They frequently ask, "Which penetrations are more important those of a previous high in the same trend (such as 1, 3 and 5), or those wherein high points of a previous counter trend are exceeded (such as 2, 6, 7 and 8)?" Thus far, the writer has seen no written opinion of the better known Dow Theorists on the subject.

The answer is that both types of penetration have their proper place in the interpretation of the price movement. Although the penetrations of high or low points in a previous counter trend unquestionably confirm the force of a current trend, *it seems logical to lay the greatest emphasis on successive penetrations of the high or low points in the trend under consideration.* There is always a question as to the importance of supply or demand areas in a previous trend, whereas there can be little question about the fact that an advance or decline which consistently pushes through nearby highs or lows in the current trend must be recognized as important.

The logic behind this contention is simple. In thinking it out, consider for example (let us choose the decline B-C, and the advance C-D in 1932, Chart 15, for our consideration), the fact that the forces which make an advance are different from those which make a decline. Thus, in turn, the developments which cause a series of lower tops in a decline are quite different from those which cause successively higher tops in the ensuing advance. We cannot logically

weigh the force of a barrier in a previous downtrend as equal to a barrier in an ensuing uptrend (in appraising penetrations), when it must be conceded in the beginning that, from the time of the reversal, an entirely new market is under development.

What is "Divergence", and of What Importance is It?

In considering this subject, several mechanical details must be kept in mind. First, the Dow Theorist considers closing levels only; secondly, divergence is apparent when the Industrial and Rail averages fail to close the day with a net change in the same direction, that is, both with a gain, or both with a loss; thirdly, divergence of one or two days is of little importance, and fourthly, divergence can arise from two specific causes, namely, (a) the different direction of net changes from day to day, and (b) the greater amplitude of minor movements in one direction. For example, on Chart 15, at top V in 1933, we find at the point indicated by the small arrows that for a period of several days the Industrials closed with a plus sign, while the Rails closed with a minus sign. This is an example of the first case (a).

In the decline from J to M, in 1935, the second case (b) is exemplified, wherein the Industrials moved side-wise, while the Rails declined. In analyzing the minute movements during this period, it will be found that, except for several one-day divergences, the closings of the averages were usually in line, yet the Rails dropped precipitately, because the amplitude of the minor declines in the rails was substantially greater than in the comparable moves in the Industrials.

"Divergence" is put to two practical uses by the Dow Theorist. First, let us take the case of the July 1933 top (Chart 15). Note that in the final days of June, there was an extremely sharp markup in the Rails. Although the Industrials also advanced, they moved up with less explosiveness. On July 6 and 7, both averages reached a new high. Then, after a three-day reaction, the Industrials pushed forward, while the Rails made two lower minor tops, thus creating an excellent example of "divergence". *When this occurs after an extended advance or decline, particularly during a primary movement (major phase of an intermediate cycle), the Dow Theorist assumes that it is a valid sign of a reversal, in that one of the averages is saying, "I am all done".*

Now let us take the case of January-March 1935. Here, divergence began to show itself when the Rails were very sluggish in the advance G-H. In this rise, the Industrials were easily able to advance through the previous minor highs at both F and B, and also exceeded tops V and X; while the Rails, although they got by F by a fraction, encountered an impenetrable barrier at B. Note that by this time we could see that the angle of incidence of the advance C-H was decidedly less in the Rails than in the Industrials.

Two weeks later, the Rails again showed their weakness, when, in the advance I-J, they could not confirm the Industrials in rising through the previous

minor high H. It was at top / that their *real weakness* showed itself, and it was not long before divergence, caused by greater amplitude of minor declines, showed itself in earnest, in the decline J-M. *In practice, when the Dow Theorist sees a picture like that in the movement C-J, he arranges his speculative operations so that he entirely avoids stocks in the weaker index, until it has shown signs of recovering from its disease.*

"The Theory Is Not Infallible" - So What?

The great value of the Dow Theory lies in the fact that if it is properly understood, and skillfully employed, it will produce profitable gains far more often than it will throw its users for a loss. Like any other art which depends upon human relations, it goes wrong every once in a while. But it has the great advantage of righting itself before it sinks its users.

Let us take the case of March 1935.²⁶ Going back a little, we find that in early December 1934, the averages had been moving upward from July in the Industrials, and from September in the Rails, thus engendering bullishness. But in failing to get through the August high (B), at H, the Rails provided reason to temper that bullishness. Then for two months, to late February 1935, the averages showed divergence, and in declining, the Rails bearishly penetrated (decisively) both their October 1933 and August and September 1934 low points. (Primary trend bear signal)

During this period, the Industrials moved sidewise for nearly three months while the 104-108 area (H-J-L) appeared to offer an impenetrable barrier. But at the same time, buyers were apparently willing to take stocks approximately at the 100 level (I and K), so that the bearishness of the Rails remained unconfirmed by the Industrials.

Remember that the Industrials had a fairly substantial rise of 25 per cent, from approximately the 86 to the 107 level. At the end of February, Dow Theorists who had been bullish after the upward zigzag C-D-E-F-G-H had developed in the Fall of 1934, began to be concerned about the uptrend, and were intently watching to see either a right-about-face in the Rails, and an upside penetration of the barrier H-J-L, to re-confirm bullishness, or a downside penetration of I and K in the Industrials, confirming the bearishness of the Rails, and signalling a decline of some importance.

The second possibility depended upon the downside penetration of K, the February 6 low closing, at 100.23.

Although the Rails, by declining through their October 1933 lows, after forming a lower high point in

²⁶ THE ARGUMENT PRESENTED HERE MAY BE CONTESTED BY THE MORE NOTED DOW THEORISTS (OF WHICH THE AUTHOR DOES NOT PRESUME TO BE ONE). BUT IF SO, AT LEAST THEIR CONFUTATION WILL PROVIDE MANY TECHNICAL STUDENTS WITH SOME NEEDED UNDERSTANDING OF DOW'S THEORIES.

February 1934, under the July 1933 top, had produced one leg on a primary bear signal, Dow Theorists had no thought that a penetration of I would confirm a major downtrend. To accomplish this, it would have been necessary for the Industrials to decline down through the July low, at Y, which was 85.51. All that a Dow Theorist expected, if K was broken decisively, was a further important decline which might have tested Y, but not necessarily broken it. Of course, students of Dow's Theory had in mind that if Y was broken, thus producing a primary downtrend signal, it would have been greatly to their advantage to have sold all, or part, of their long holdings around K, at approximately the 100 level, instead of below Y, in the neighborhood of the 83 level, let us say.

On March 2, 1935, when the Industrials closed at 103.22, and the Rails at 30.91, before K had been broken in the decline I-M, Rhea said:

The secondary trend will be bearish if the Industrials decline below 100.23. A few days later, on March 13, 1935, when the Industrial average had declined to 98.02 and the Rails to 27.60, thus decisively penetrating the 100.23 low of February 6 (which he considered the critical point), he said:

Thus, after four months of indecisive movements, the averages last week established definitely bearish secondary indications; moreover, the movement was 'in gear' one average being responsive to strength or weakness in the other and this orthodox action may prove to be of unusual significance.

While not making pleasant reading for those of us who see profits shrinking on retained equities, recent action is a typical example of the futility of expecting a bull market to develop in one department without being confirmed in direction (at least) by the companion indicator.

The secondary trend is downward, as is the minor indicator. Nothing in the averages indicates an end of the decline, and those who anticipate nearby higher prices, other than as may develop in short rallies, are probably letting their hopes sponsor their thoughts.

Several days later, on March 23, 1935, when the Industrials, after declining to a low of 96.71 on March 14 (which proved to be the turning point), again stood at 99.84, and the Rails, after declining to a low of 27.31 on March 12, again stood at 28.69, he said:

The secondary trend became bearish when the Industrials recently sold below critical points, but failure of pronounced downside activity to develop thereafter affords some justification for the belief that the worst may be over. The secondary trend, in the opinion of this observer, will become upward if a recession of a day or two terminates above (M), and prices again rally to new highs (since M).

The failure of the market to develop excessive downside activity subsequent to the Industrial penetration of the year's low prices certainly denotes a pretty thoroughly liquidated speculative account.

Two weeks later, on April 3, when the Industrial average stood at 100.39, and the Rail average at 27.85,

after the minor zigzag M-N-O had developed, at point 01, Rhea said:

If the decline which started yesterday halts above O, and a subsequent rally carries both indicators above N, better markets should be seen and quickly. Two weeks after this, on April 13, when the

Industrial average stood at 105.42, and the Rail average at 30.80, as the persistent advance M-P was proceeding, Rhea said:

. . . the Rail average has confirmed the Industrial penetration of N. This action, following the decline to O, which halted above M, should prove to be indicative of a continuation of the recent advance . . .

Both the secondary and minor trends are pointing upward.

If the public should begin buying stocks, then this advance could easily attain considerable velocity. The upswing since O has been healthy.

It has apparently consolidated its gains by frequent recessions, and considerably higher prices should be seen during the next few weeks.

Rather than take a theoretical case, to demonstrate the point that "the Dow Theory is not infallible", the writer has chosen to take this specific case of the "false signal" produced by the decline I-M in March 1935, using the specific conclusions of Robert Rhea, who is recognized as the leading Dow Theorist.

Now let us review the situation. It seems quite evident that Dow Theorists had specific reasons to sell their long stock at not more than two or three points above the March bottom at M, let us say between the 98 and 96 levels, only several days before this important low was established. *Thus, here is a case where the Dow Theory proved to be "failable". But within three weeks, while stock prices were still near the March low, Dow Theorists had specific reasons to repurchase long commitments between, let us say, the 105 and 108 levels.* It is, of course, true that some 10 per cent in the way of real or paper profits, was lost in this failure of the Theory. But certainly, with the averages at 135 and 37 respectively, this loss can be written off, and still the Dow Theory will have turned in a mighty good record.

Thus, we see a specific example of the Dow Theory going wrong practically at a bottom, and then quickly righting itself in the early part of an important advance.

NOW LET US PROCEED TO CHAPTER VIII, AND THERE BEGIN THE DISCUSSION OF VARIOUS OTHER WORKING TOOLS, OUTLINED IN CHAPTERS VIII TO XV INCLUSIVE, WHICH ARE ALSO EMPLOYED IN STUDYING THE "WHEN" QUESTION.

CHAPTER VIII

TOPS AND BOTTOMS

SUPPLY AND DEMAND AREAS

REVERSALS

REFERENCES

"Stock Market Theory and Practice"
(pages 559-692)
"Technical Analysis and Market Profits"
"Stock Market Profits" "The Truth of the
Stock Tape" "Methods of Dealing in Stocks"
"Stock Market Science and Technique"

R. W. Schabacker

R. W. Schabacker R. W.
Schabacker W. D.
Gann J. H. Kerr R. D.
Wyckoff

real value.

With this in mind, we will divide the discussion in this Chapter into three parts:

1. A brief narrative of the theoretical aspects of the supply of and demand for shares.
2. A resume of reversal patterns as they appear at tops and bottoms, and
3. A brief summary of the practical use of tops and bottoms, and supply and demand areas.

How Reversals Develop

When a diagonal uptrend is under way, we can safely say that it develops because the demand for shares is larger than the supply of shares; while, when a downtrend is in progress, the supply of shares is greater than the demand for them. When an uptrend turns to a downtrend, it is because, at some point in the reversal, a preponderance of supply came into the market.

When a preponderance of supply of shares causes an uptrend to turn down, we call the reversal level a "supply area"; and conversely, when a preponderance of demand causes a downtrend to reverse to the upside, we call the turning point a "demand area".

Every so often in the course of stock price fluctuations, a period of uncertainty will develop wherein, during an advance or decline, the forces of supply and demand are about equally matched. In these periods, which usually do not last for very long, supply and demand are so equally balanced that prices move side-wise. These zones are called "trading areas".

As the course of stock prices, singly and collectively, is plotted on graphs, we find that those periods when supply predominates, and an uptrend reverses to a downtrend, appear as "tops", while those which show the reversal of a downtrend to an uptrend, caused by the preponderance of demand, appear as "bottoms". Also, those periods wherein supply and demand are

Discussion Will Be in Three Parts

When the trend of stock prices reverses, it is because there has been a change in the relation of the demand for, and the supply of shares, notwithstanding the fact that the primary causes of important reversals are likely to be greatly different, in successive cases. Many turning points appear to resemble each other. A systematic study of the periods when trends change aids the technical student in knowing a reversal when he sees one. A knowledge of reversal patterns, as the shapes of the turning points are called, is therefore of

about equal appear as sidewise movements, which are the trading areas (sometimes Dow Theory "lines").

Terms in General Use Are Confusing

The various terms generally applied to supply and demand areas are loosely used, and confusing to the new student. The word "resistance" is applied to various patterns. Frequently, resistance to a downtrend is called support. "Accumulation area" and "distribution area" usually mean support and resistance, respectively. For our purpose, we will use a different classification and definition.

Best Classified According to Basic Nature

The vital difference between the two basic types of resistance areas lies in the fact that one retards or culminates an advance by furnishing supply, while the other checks or terminates a decline by furnishing demand.

Original Cause May Be Obscure

Considerable research might fail to disclose whether a given supply area was started by a decrease in bids or an increase in offerings. Obviously, however, resistance to a trend is caused by a reversal of the preponderance of supply or demand. Hence, it seems logical to designate resistance to an advance as a *supply* area, and resistance to a decline as a *demand* area.

Supply or Demand at Reversals

Classification in Trends

Supply and demand areas occur at reversals in all three trends, and may be classified conveniently as follows:

1. Major supply or demand areas at culminations of bull markets and terminations of bear markets respectively. (See Chart 16)
2. Intermediate supply or demand areas at reversals of major or corrective phases in intermediate cycles. (See Charts 6 and 16)
3. Minor supply or demand areas at reversals in the minor trend. (See Charts 11, 12, 13 and 14)

Classified According to Position in Trend

Supply and demand areas occur at three points in a trend:

1. At tops these naturally are supply areas.
2. At interruptions to a trend supply and demand areas (trading areas).
3. At bottoms demand areas.

Trading Areas

Where a supply area and a demand area occur more or less parallel to each other, and fairly close together, restricting fluctuations to a narrow range relative to the previous movement, the pattern is classified as a trading area. These may be said to occur in all three trends:

1. Major (see Chart 4),
2. Intermediate (see Charts 7 and 8), and
3. Minor (see Charts 11, 12, 13).

The most important trading areas appear as horizontal zones. However, occasionally a well-defined pattern will develop which is inclined upward or downward (see Chart 16).

Trading areas develop at tops, at bottoms, and as patterns within a trend. Thus, they may be classified as both reversal and continuation formations.

Classification of Patterns

Outstanding supply and demand formations may be divided into the following categories:

1. *Supply formations*, which develop at the culminations of advances, classified as reversals. These are enumerated on page 207.
2. *Supply and demand formations*, which develop during interruptions in both advances and declines. These are termed "continuation" patterns, with the following subdivisions:
 - A. TRADING AREAS, USUALLY HORIZONTAL, BUT UPON OCCASIONS INCLINED SLIGHTLY UPWARD OR DOWNWARD. IF THE HORIZONTAL PATTERNS ARE WITHIN A NARROW RANGE, THEY ARE FREQUENTLY DESIGNATED AS DOW THEORY "LINES".
 - B. TRIANGLES, ABOUT WHICH WE WILL LEARN MORE IN CHAPTER IX, AND
 - C. GAPS, WHICH ARE THE SUBJECT OF CHAPTER XII.
3. *Demand formations*, which develop at the terminations of declines, also classified as reversals. These are also enumerated on page 207.

Sequence of Supply and Demand Areas in a Trend

Almost always there is a definite sequence of supply and demand areas in a given trend (see Charts 8 and 15). Beginning at the bottom of a bear market, a major demand area develops which causes a major reversal (see Chart 4, 1921 and 1932). From this, the major (upward) phase of the first intermediate cycle proceeds, often interrupted by minor trading areas of two to eight days' duration, until the first intermediate supply area is encountered. This causes an intermediate reversal and the corrective (downward) phase of the first cycle begins, in which minor trading areas are apt to develop following the first sharp decline. The correction continues to the first intermediate demand area where it terminates. The intermediate trend reverses upward, and the second bull market cycle is under way.

Generally, the corrective phases of intermediate movements are usually fairly well defined patterns of either the triangle or trading area types (see Chart 8, July-September 1931, and October 1932-February 1933). This sequence repeats until the advance culminates when the major supply area is reached and the major trend reverses (Chart 7, September 1929). The sequence then occurs in about the same way, in reverse

order, in the succeeding bear market.

Duration of Supply and Demand Areas

Supply and demand areas vary greatly as to duration. Since 1900, major reversals at bear market bottoms have been from one to five months in length. Major supply areas at bull market tops, on the other hand, have been somewhat shorter, lasting from one to three months.

Intermediate demand areas have run from ten days to seven months. Intermediate supply areas, at the tops of corrective rallies, in the 1929-1932 bear market, lasted only a few days, as a rule. An exception was the top of the corrective phase of the first bear cycle in March and April, 1930 (see Chart 7). On the other hand, supply areas in the 1923-1929 bull market were frequently of relatively long duration (see Chart 16).

In general, supply and demand areas in bull markets, and supply areas in bear markets, tend to be of longer duration than demand areas in bear markets, which are frequently of short duration because they are of the selling-climax, or V-type of reversal (see page 208). The shortness of bear market demand areas may be attributed to the force of liquidation. In a bull market, few buyers, if any, *must* buy stocks, or borrow funds on pledged securities. But in bear markets, many sellers *are forced* to sell, and their number increases as falling prices cause demands for additional collateral, which if unanswered, result in further selling. This vicious circle persisted from 1929 to 1932.

In line with the discussion of "long" and "short" intermediate cycles, it is interesting to note the vast difference between the demand areas at the end of corrective phases in the bull market 1923-1929, as compared with the bull market of 1932 to date. Note first that the amplitude of the swings in the latter bull market are proportionately much larger than those in the former case. This is vividly shown on Chart 16. It is a good example of the efficiency of semi-logarithmic charts for comparisons, which we will learn more about in Chapter XVII.

In the 1923-1929 bull market, the corrective phases were sharp and quick, and were soon over, with the result that most of the intermediate bottoms were of short duration; while in the current bull market, the corrective phases have been long-drawn-out affairs, while the market had to deal with President Roosevelt, rather than President Coolidge.

The duration of minor supply and demand areas, as shown, for example, on Charts 11-14 inclusive, vary widely, according to the ebb and flow of market interest, which is constantly changing, frequently several times in a single day.

Relation of Supply and Demand Areas in One Trend to Those in the Previous Trend

Although intermediate and minor supply and demand areas often occur at approximately the same level as a similar area in a previous trend, the fre-

quency is not sufficient to be a reliable means of forecasting where a future reversal may develop.

For example, in the bear market 1929-1932, as shown on Chart 16, only the second and fifth intermediate bottoms developed in the neighborhood of intermediate bottoms in the bull markets of 1921-1922, and 1923-1929. The other intermediate bottoms, it will be noted, formed at levels which were during the course of diagonal upward movements, in these previous markets. In the opinion of this writer, it is more or less of a coincidence if, in a given major trend, an intermediate turning point happens to occur in the neighborhood of an intermediate turning point at a similar level in the previous major trend.

The dotted lines on Chart 16 enable the reader to check the cases in the past 15 years.

However, it is true that minor reversal points more frequently occur in the neighborhood of reversals at similar levels in previous minor trends. The plausible explanation of such occurrences during a primary uptrend, for example, is that disappointed buyers in a previous minor upswing become ready sellers as soon as comparable prices again have been reached, and they are able "to get out even".

Supply and Demand Areas Not Necessarily Caused by Open Orders

The superficial view, that these areas are generally and primarily caused by open orders, is subject to serious question. New York Stock Exchange specialists know by experience that the open orders on their books are not accurate indicators of future supply and demand areas. Rather, these areas may be said to develop, in spite of the open orders (which change rapidly when a strong diagonal trend gets under way), their causes being the broad economic factors, specific conditions affecting a given company's shares, and manipulation (legitimate or otherwise).

Short Interest Usually Steady During Supply and Demand Areas

Studies of the short position indicate that most substantial increases or decreases therein have occurred during diagonal trends, rather than during supply and demand areas, either in a trend, or at tops and bottoms.

LET US NOW PROCEED TO THE RESUME OF TOP AND BOTTOM PATTERNS.

Reversals Frequently Develop in Well-Defined Patterns

Many years of study, by a number of market students, seem to indicate that these tops and bottoms appear to develop and recur in a series of a few types, or patterns, which may be discerned shortly after they develop, or sometimes during the last stages of their development.

A knowledge of these patterns occasionally enables the technical student who studies charts to know a reversal, whereas otherwise he might not be conscious

of it.

The horizontal movements, which express uncertainty, although they also recur frequently in the course of years, have fewer well-defined types, and are more general in nature. We will first discuss Tops and Bottoms, or Reversal pictures, and then proceed to a consideration of Trading Areas, which are often termed continuation patterns.

To Be of Greatest Value Patterns Must Be Fairly Exact in Detail

In beginning the study of the chart patterns, which are designated as the cardinal types of reversals, it must be clearly understood that their forecasting value largely depends upon how perfect is the pattern, according to its type. A pattern which, in nearly every respect, closely resembles the accepted formation of a given type, is more likely to indicate the reversal of a trend accurately, than one where the observer must stretch his imagination to make it conform to a model pattern.

One of the chief problems in using patterns to determine reversals, is that so few perfect examples develop.

Major, Intermediate and Minor Reversals

Before proceeding to a detailed discussion of price trend reversals, we must also understand that tops and bottoms may be classified according to the three trends, as detailed in Chapters IV to VI, inclusive. Thus, there are major tops and bottoms, intermediate tops and bottoms, and minor tops and bottoms. In the course of stock market trends, one develops into the other. For example, at the end of a bull swing, a minor top will develop into an intermediate top, and finally into a major top. The same is true at bear market bottoms.

At the end of each intermediate major or corrective phase, a minor top or bottom develops into an intermediate turning point. In the same way, the turns in the minor cycles are marked by minor reversals, which develop from minute sub-minor changes.

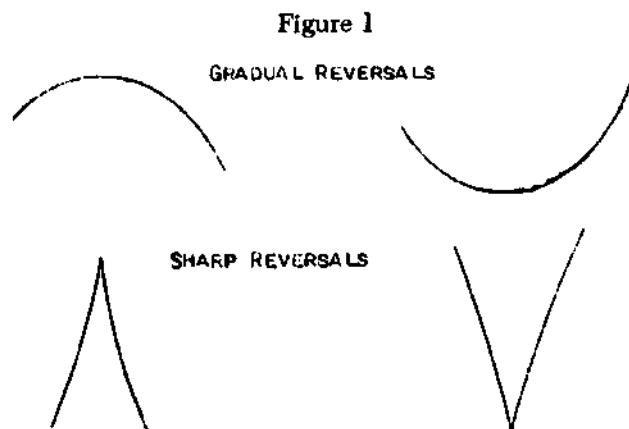
Reversals Are of Two Types

Before listing the seven cardinal reversal types, it is important to understand that all reversal patterns must first be divided into two primary categories, namely:

1. The gradual reversal, which, broadly speaking, appears semi-circular in form (Figure 1), and
2. The sharp reversal, which appears V-shaped in form (Figure 1).

As applied to intermediate trends, the gradual reversal, in some variation or other, appears at both intermediate tops and bottoms in bull markets, and at intermediate tops in bear markets. The sharp reversal, of the V-type, is characteristic of the selling climaxes of intermediate bottoms in bear markets. Major reversals, as shown on monthly charts, are more likely to be of the V-type. Minor reversals of both types appear in-

discriminately.



A Broad Definition of Tops and Bottoms

In discussing the patterns of tops and bottoms, it may be of some assistance if we first present a broad definition of a top or bottom, as visualized on a chart. A study of Charts 7 and 8 shows that, when plotted by the daily price movements, uptrends develop by means of a series of quick advances, which are called markups, separated by periods of hesitation; while downtrends develop as the result of a series of quick declines, which are called mark-downs. An intermediate top or bottom is one of these periods of hesitation, during which the trend reverses. Thus it is preceded, if it is a top, by a mark-up, and followed by a mark-down. Or, if it is a bottom, it is preceded by a mark-down, and followed by a mark-up.

Thus, we may define a top or bottom as the area separated by these sharp movements (see Charts 7 and 8).

Duration of Intermediate Reversal Patterns

Defined in this manner, bull market intermediate tops form in from 15 to 80 days, averaging about 40 days, while bull market intermediate bottoms spread over from 10 to 40 days, averaging about 20 days. Thus, bull market intermediate tops occur in about double the time of bottoms.

Bear market intermediate tops occur in from 10 to 40 days, averaging about 24 days, while bear market intermediate bottoms occur in from 10 to 60 days. Although the average of the latter is about 23 days, the majority of cases are near the minimum.

Intermediate Patterns As Examples

The illustrations which we will use in discussing the reversal patterns which appear most frequently, at tops and bottoms, may be classified as intermediate patterns. They have been taken from daily charts of individual stocks, and are formations which have occurred in 1934 and 1935. Daily charts for periods as far back as 1900 have been examined, and similar patterns have been found to recur again and again, in the past 35 years.

After a discussion of these intermediate trend pat-

terns, we will look into similar minor trend patterns. Although like patterns develop on the longer trend charts, such as monthly high-low charts, their value is largely academic, because we see the same patterns in studying intermediate reversals, at an earlier time, and with greater detail.

The same patterns occur on the charts of the averages. Those which occur in the averages are considered of greater importance because they reflect the market as a whole. As a matter of fact, at any given intermediate reversal, all of the different cardinal patterns will be found on charts of the individual stocks; and the one which predominates, if any, often shows itself in the averages.

The Cardinal Reversal Patterns

Now for the cardinal patterns, which are seven in number, and which were first suggested publicly by Schabacker.¹ Six of the seven fall into the category of gradual reversals, while one (descending bottoms and ascending tops) is in the category of sharp reversals.

The Seven At Reversal Patterns At

Tops	¹ Bottoms
T-i HEAD-AND-SHOULDERS	HEAD-AND-SHOULDERS
T- DOUBLE	B-2 DOUBLE
T- ROUNDING	B-3 ROUNDING
T- ASCENDING	B-4 DESCENDING
T- TRIANGLE	B-5 TRIANGLE
T- BROADENING	B-6 BROADENING
T- COMPLEX	B-7 COMPLEX

In annotating various charts, we have used the above key letters to designate the various patterns.

First, let us discuss briefly the top patterns which have frequently developed at the termination of an advance.

T-1 Head and Shoulders Top (Figure 2)

The Head-and-Shoulders Top appears to reflect, in the left shoulder, a meeting of supply, followed by a moderate reaction; then a thrust through the supply to a new, higher and more pressing supply level; then a reaction to the demand level of the previous moderate reaction; then a second advance to the supply level which caused the left shoulder, and now causes the right shoulder. A substantial decline usually follows the penetration of the demand area which formed the armpits. The head-and-shoulders pattern gives one of the strongest reversal indications. It is a form of triple top. L.S. is the left shoulder; H. is the head (which in this particular pattern happens also to be a minor Head-and-Shoulders formation 1, 2, and 3); R.S. is the right shoulder; while A.P. designates the two armpits of the pattern.

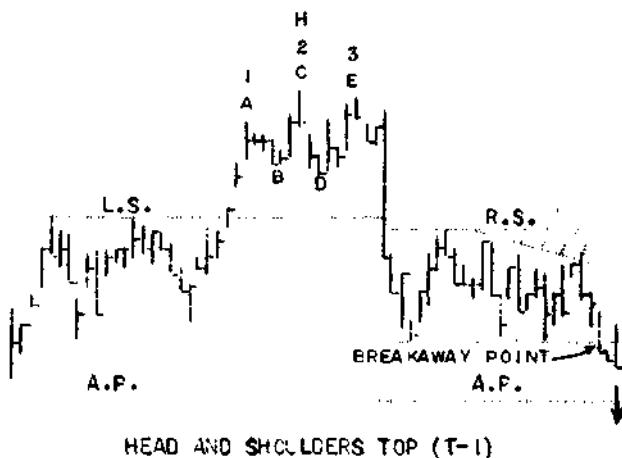
T-2 Double Top (Figure 3)

The Double Top represents two unsuccessful attempts to penetrate a supply area, with the resultant disappointment preceding and contributing to an important subsequent decline. Occasionally the pattern will form in the shape of the capital letter M. The patterns of greatest perfection, of course, are those where the two successive tops are at the same level, or only fractionally apart.

T-3 Rounding Top (Figure 4)

The Rounding Top rather definitely indicates a gradual appearance of supply, with first the sellers slowly giving ground, then a period when both buyers and sellers are apparently well matched, and finally a period when the buyers stubbornly resist a decline, but are gradually overcome. Perfect examples of this pattern occur only infrequently, are easy to discover because of their slow development, and are usually quite accurate in forecasting a move of consequence. One of the best examples in history was the April-May top of 1930 (see Chart 7).

Figure 2



HEAD AND SHOULDERS TOP (T-1)

Figure 3

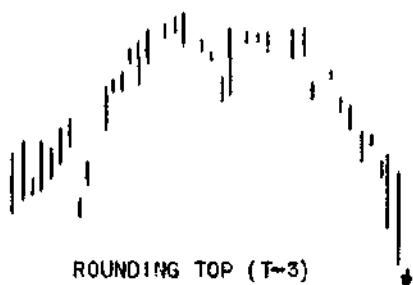
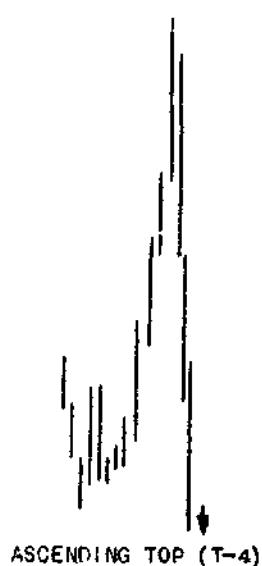
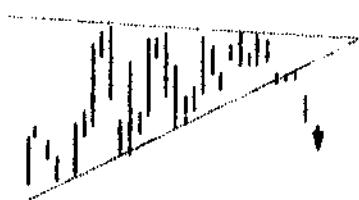
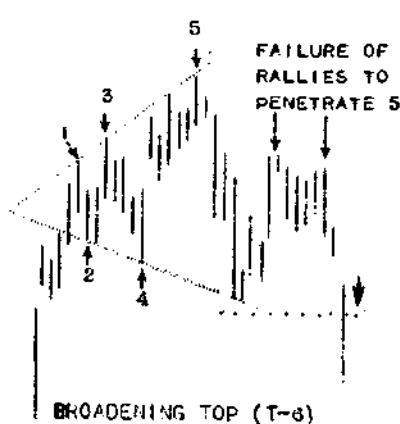


DOUBLE TOP (T-2)

T-4 Ascending Top (Figure 5)

The Ascending Top is the pattern of the V-type, and usually develops as the result of an extremely sharp markup, frequently attributed to manipulation, and probably often caused by urgent, but very temporary

¹ AFTER CAREFUL RESEARCH, WITH THOUSANDS OF FORMATIONS, THE AUTHOR CHOOSES TO DIFFERENTIATE SOMEWHAT IN CLASSIFYING REVERSAL PATTERNS. READERS WHO HAVE STUDIED SCHABACKER'S "STOCK MARKET THEORY AND PRACTICE" (PAGE 656) WILL FIND THAT WE USE THE TERMS "ASCENDING" AND "DESCENDING" WITH DIFFERENT MEANINGS.

Figure 4**Figure 5****Figure 6****Figure 7**

buying, which, when completed, leaves a vacuum under the high price, with the result that the explosive rise is followed by a precipitant drop. Patterns of this kind frequently follow a persistent, although not spectacular advance. One of the best examples in history was the June 1933 high in American Commercial Alcohol. A "V"-type of reversal.

T-5 Triangle Top (Figure 6)

The Triangle Top is simply a case of a triangle (see Chapter IX) which appears at the culmination of an advance, with the subsequent trend breaking downside from the apex. As we will learn later, the triangle pattern represents a period of indecision, wherein the price trend works steadily into a narrow range.

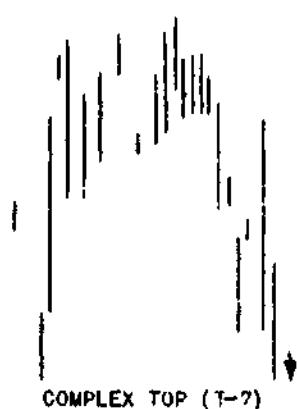
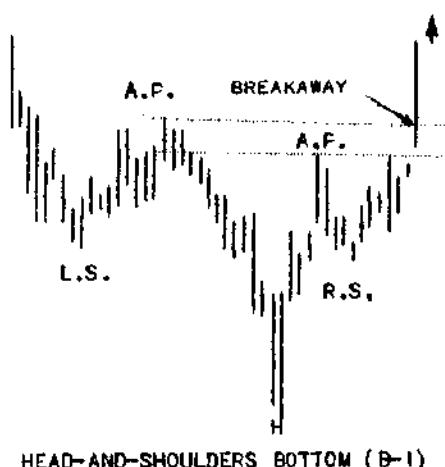
T-6 Broadening Top (Figure 7)

The broadening (Reverse Triangle) Top is rare in occurrence. The formation would appear to arise from extremely "high voltage" existing in an advance which has reached the "whoopee" state. Fluctuations grow increasingly sharp as profit-glutted speculators grow more reckless in pushing their favorites. Quite possibly, well informed selling is completed chiefly in the early part of the broadening formation, and the later stages find traders (probably the less experienced) trading their favorites in wide swings which attract decreasing demand. The succession of sharp tops and bottoms indicates the artificial nature of the market at the time, and the ultimate decline is not surprising.

The theory of the broadening top is that five minor reversals are followed by a substantial decline which makes the pattern of an intermediate reversal. The first of these five minor reversals results from a minor down-trend counter to the then intermediate upward trend. The second is parallel, the third counter, the fourth parallel, and the fifth counter. Often there is a sixth reversal, followed by an advance which fails to exceed the top of the fifth reversal, with the result that a lower high is established which, in itself, indicates the probable reversal of the trend. In the classic pattern of the broadening top, reversals 3 and 5 occur at successively higher points than reversal 1, and reversal 4 occurs at a lower point than reversal 2. This was the characteristic pattern in many individual stocks in the third quarter of 1929, preceded the 1929-1932 bear market. Schabacker credits A. W. Wetzel as first mentioning the pattern.

T-7 Complex Top (Figure 8)

The Complex Top would appear to reflect relatively strong demand, with fairly heavy and increasingly persistent supply at varying, but relatively close levels. Such a formation is apt to occur in a period of ostensibly favorable news, with an increasing group of interested persons becoming aware that various bearish factors are developing. In the group designated as complex tops, are the majority of patterns which are too irregular to be well-defined examples of the other types. This group might be termed the "miscellaneous others of little

Figure 8**Figure 9****Figure 10**

value".

There are a number of other, less important patterns, which appear on rare occasions. Their value is more or less academic. They will be discussed at a later point.

Now let us get on to a brief discussion of the seven cardinal patterns of bottoms, which are diametrically opposite to top patterns.

B-1 Head and Shoulders Bottom (Figure 9)

The Head-and-Shoulders Bottom reflects a situation wherein, after a decline, demand appears at the left shoulder (L.S.), and a rally ensues which is stubbornly met with supply at the first armpit. This is followed by a decline (often sharp) which goes to new low ground, when the reversal occurs at the lowermost point, designated as the head (H). A second rally then occurs, which again meets supply at about the same area; but the ensuing reaction stops considerably short of the head, and the right shoulder (R.S.) forms, from which the upward trend is resumed, often producing a typical Dow Theory zigzag. When this third rally penetrates the supply area, as represented by the armpits (A.P.), the bottom pattern is considered to be complete and an ensuing rise is expected.

B-2 Double Bottom (Figure 10)

The Double Bottom represents two attempts to penetrate a demand area. Both being unsuccessful, the trend reverses. Often the pattern forms in the shape of a capital W. The patterns of greatest perfection, of course, are those wherein the two low points forming the bottom are at approximately the same level.

In the past 39 years, 6 of the 10 bear market bottoms have been double bottoms (see Robert Rhea's *The Dow Theory*, page 42).

B-3 Rounding Bottom (Figure 11)

The Rounding Bottom shows the appearance of demand, gradually coming into the market as the discouragement of the preceding decline abates, and as confidence in a new advance arises. Usually part of the bottom is a sidewise movement, with ascending minor bottoms. When the minor tops are decisively penetrated, a buying signal is usually provided. The Rounding Bottom, although slow in formation, is frequently followed by a rather sharp advance.

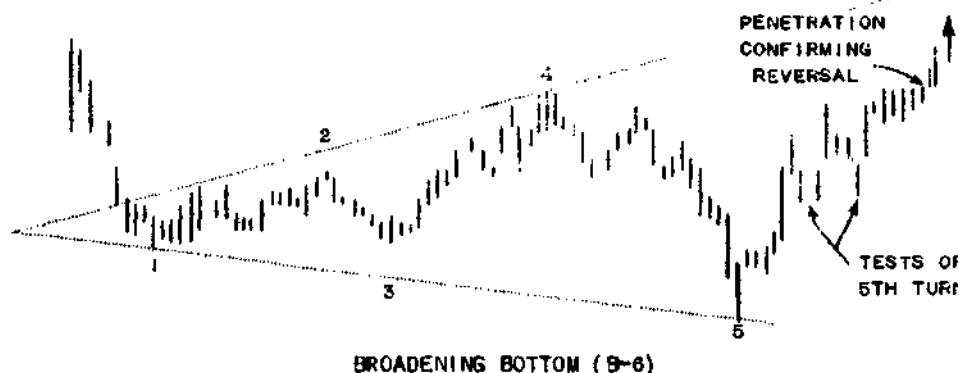
Figure 11**ROUNDING BOTTOM (B-3)**

Figure 12**DESCENDING BOTTOM (B-4)****Figure 15****COMPLEX BOTTOM (B-7)****Figure 13****TRIANGLE BOTTOM (B-5)**

narrow range, from which it has an explosive upward movement. When the trend which breaks out from the apex exceeds the highest point in the triangle, a Dow Theory zigzag has usually developed.

B-6 Broadening Bottom (Figure 14)

The Broadening Bottom is also rare, and appears to reflect rapid changes in sentiment, a growing oversold condition, and a growing demand as sharp declines quickly reverse into equally sharp advances. Forced

Figure 14**BROADENING BOTTOM (B-6)**

B-4 Descending Bottom (Figure 12)

The Descending Bottom is the pattern of the V-type, and usually develops as the result of an extremely sharp and panicky decline. It is a Selling Climax, about which we will hear more later. The first recovery is usually as sharp as the preceding drastic decline. It is typical of the terminations of major phases of intermediate cycles in bear markets (see Chapter V). A "V"-type of reversal.

B-5 Triangle Bottom (Figure 13)

The Triangle Bottom is more frequent than the Triangle Top. It usually represents a period of indecision, wherein the price trend works steadily into a

liquidation and powerful bargain buying undoubtedly contribute to the widening swings. The theory of the Broadening Bottom is similar to that of the Broadening Top, except in reverse order.

B-7 Complex Bottom (Figure 15)

The Complex Bottom reflects relatively strong supply, with varying, but persistent demand with a close range. Turns of this land frequently develop when liquidation has run its course, but no reason as yet developed for an upward movement. In this category are thrown the majority of patterns which are too irregular to be well-defined patterns of the other types.

This group includes the "miscellaneous others of questionable forecasting value".

The above are the more important patterns which appear to occur when trends turn about. There are probably a hundred or two other patterns which recur often enough so that their similarity can be noticed in a minute study of a large number of stocks over a long period. Schabacker, in his instruction course entitled "Technical Analysis and Market Profits", which is devoted largely to this subject, mentions some of the more important of these less frequent reversal types.

Head-and-Shoulders Pattern Important

Of the seven cardinal patterns, the Head-and-Shoulders type is listed first, because it appears to recur more frequently, and secondly because it has forecasting value, about which we will learn at a later point (see pages 214-217). As this pattern is of considerable importance in this branch of study, we will look into several variations suggested by Schabacker.

Several Patterns in One

Before proceeding to a discussion of the several patterns of lesser importance, it is probably important to note that frequently a given particular reversal may be construed as an example of several of the cardinal patterns. For example, a Head-and-Shoulders top or bottom may also develop as a Triangle top or bottom, just as a Broadening top or bottom may appear to be also a Head-and-Shoulders type. Many a Double bottom appears to the eye also as a Rounding bottom.

The Less Important Reversal Patterns

Now let us proceed to a very brief discussion of the less frequent reversals. The first four patterns shown, including Figures 16 to 19 inclusive, are variations of the Head-and-Shoulders reversal. From Figure 2, on page 209, it will be noted that the two sidewise movements, or the shoulders, are about the same length, and appear at approximately the same level. A study of many hundreds of patterns indicates that very few Head-and-Shoulders reversals will be as regular as the one shown in Figure 2. In the vast majority of instances, the individual shoulders are of different duration, and are not always exactly in the same general area on the price scale.

Usually, technical students assume that if a top head-and-shoulders pattern has a relatively long left shoulder, followed by an orthodox head, and then a relatively short right shoulder, with its highest level somewhat under the highest level of the left shoulder, the pattern denotes considerable weakness; the theory being that the long left shoulder represented the really formidable supply area. In this case, the head is considered a false movement, perhaps caused by manipulation, or feverish buying by the public; and the right shoulder, being very short, is then believed to indicate that, distribution having taken place at the left shoulder, the decline is ready to proceed rapidly.

Frequently, the head-and-shoulder patterns have

smaller patterns within them. For example, either shoulder or the head might, in itself, be a minute case of one of the cardinal reversals. Occasionally, the shoulders of a head-and-shoulders formation will be slightly inclined, rather than well-marked sidewise areas. At other times, the right shoulders will droop downward, as confidence in the bullish side of the market ebbs away. At times, a head-and-shoulders pattern will be separated from the preceding and ensuing trends by gaps (see Chapter XII), such as in the case of Figure 19.

The following cases are fairly good illustrations of the more important variations.

Head-and-Shoulders Top (Figure 16) (Uneven Shoulders)

Here is a case where the left shoulder was of short duration, taking only 9 days, with a head formation of 14 days, and a long right shoulder, taking 31 days. Note that this right shoulder was a small triangular pattern, with two distinctly lower tops, showing considerable weakness; while at the same time the situation was uncertain as the shoulder developed, as is shown by the rising bottom. Note the extreme weakness at the top, where there were two successive downward gaps, as the head was completed.

Head-and-Shoulders Top (Figure 17) (Triple Head)

Here we have a pattern with a very poorly defined left shoulder, a very strong head, which shows that the real distribution took place right across the head, in three well-separated tops at approximately the same level. The rising bottoms during the head might have been confusing, and interpreted as indicating strength. Had the pattern carried on for several days, before the break came completing the head, there might have been an ascending triangle (see Chapter IX). But the sharp break from the head provided a good clue that the pattern might work out to a head-and-shoulders formation. Note that the right shoulder was longer than the left shoulder, and in forming at a lower level, denoted weakness. For a time this shoulder led to some confusion, in that its bottom appeared to be rounding, and might have presaged a resumption of the advance which preceded the head. But when the low of the shoulder was decisively broken, there was no further question about the decline.

Head-and-Shoulders Top (Figure 18) (Multiple Head)

In this case, we have a pattern wherein the head is irregular, but rounding in type, with the emphasis on the downside. The shoulders, instead of being of approximately similar amplitude, varied greatly. The left shoulder was a small consolidation, almost triangular in form; while the right shoulder followed a minor V-type bottom just before the break came completing the pattern. Upward zigzag in form, it was

misleadingly bullish. The sharp decline, with a downside gap, however, quickly cancelled this implication.

Figure 16



Figure 17



Figure 18



Figure 19

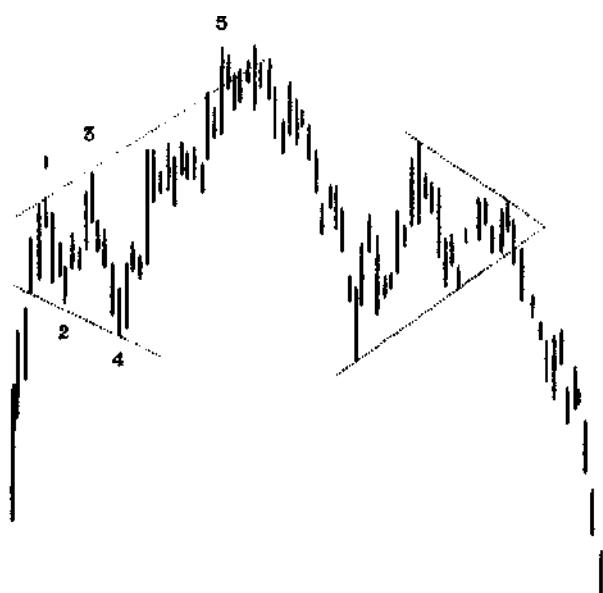


Figure 20



Head and Shoulders Top (Figure 19)
(Multiple Shoulders)

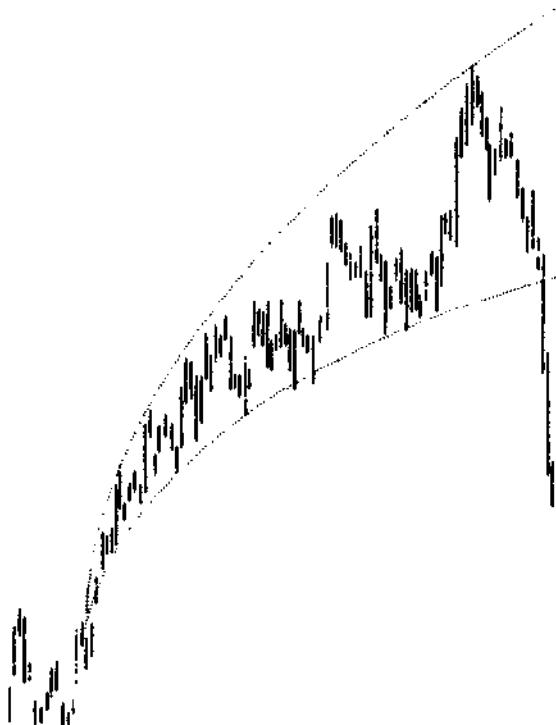
In this pattern, the shoulders consisted of several minor rallies and declines. Note that here the left shoulder was a broadening reversal in itself, and the right shoulder was a good case of a small symmetrical triangle. The whole pattern was separated by gaps.

Circular Top (Figure 20)

Occasionally, a top or bottom pattern will form, wherein the principal supply area appears to fall within a circle. It is a variety of a rounding top, and occasionally also appears as a head-and-shoulders top.

Square Top (Figure 21)

At other times, the eye will discern that a top or bottom will fail within a well-marked square. These are frequently variations of a double top.

Figure 21**Figure 22****Figure 23****Rectangular Bottom (Figure 22)**

Sometimes, when a trading area forms at a reversal point, the top or bottom appears in a rectangular pattern. This may also be a double or triple top or

bottom.

Reverse Horn Top (Figure 23)

Upon rare occasions, an advance will show expanding fluctuations, which appear in the form of a horn. Schabacker notes that the pattern may be either a reversal or a continuation formation, the angles of the horn usually indicating which. In Figure 23, the horn is turning to a horizontal, rather than to a vertical, to indicate an ensuing decline.

**Figure 24**

Island Reversal (Figure 24)

The minor pattern, which appears as a development of a larger reversal formation, is extremely useful to the technical student, in that it frequently shows a clear-cut reversal.

It consists of one or two days of fluctuation, which are entirely separated from the previous and subsequent patterns by gaps. For example, in Figure 24, note how the top at A was a one day advance to new high ground, followed by a much lower opening the next day. On the other hand, at the bottom B, there was a two-day pattern, wherein prices approached the previous low, then immediately reversed, with very strong buying at the opening and during the day following the second low point. The pattern gets its name from the fact that the gaps which precede and follow it isolate it from the rest of the formation.

Islands may be expected to develop in nearly any of the seven cardinal reversal patterns. In the illustration in Figure 24, the island top A appeared in the complex reversal, while island bottom B appeared in a fairly well-marked rounding reversal, which was also a double bottom. Frequently, the island reversal, when it occurs at a top, will be a one-day advance into new high ground, with a closing near the low of the day, which, of course, is followed by a gap the next morning. The opposite is true when it occurs at a bottom.

Frequently a new low is established in the early part of the day of a downside gap, and a closing near the top of the day, with an upside gap the next morning.

Also Develop at Bottoms

Most of the above discussions of the less frequent reversal patterns have been concerning tops. Similar patterns may be expected to develop at both bottoms and tops.

Now let us turn to a few illustrations of the cardinal patterns, as they occur in the minor trend, as reflected by daily bar charts. Charts 11 and 13 show some of these cardinal patterns as they occur on a line chart of the intra-day fluctuations.

Minor Trend Cardinal Patterns

There is an infinite variety of patterns, of several days each, which appear at minor reversal points. We have selected nine of these, which appear to recur most frequently. Seven of them are minute counterparts of the cardinal reversals. The remaining two (T-8 and T-9) are more characteristically minor reversals.

T-1 Head-and-Shoulders Top

Usually, the typical minor head-and-shoulders top is a three-day pattern, with the center day showing a high price, and the third day with a lower top. The right shoulder is often under the left shoulder.

T-2 Double Top

The most important minor double tops are usually several days apart. Good examples are those wherein the two high points are not more than 1/8 apart, if not at the same level. If, as in the illustration, intervening days are sidewise movements, the downside penetration of the lower side of the valley between the tops, provides a selling signal (A).

T-3 Rounding Top

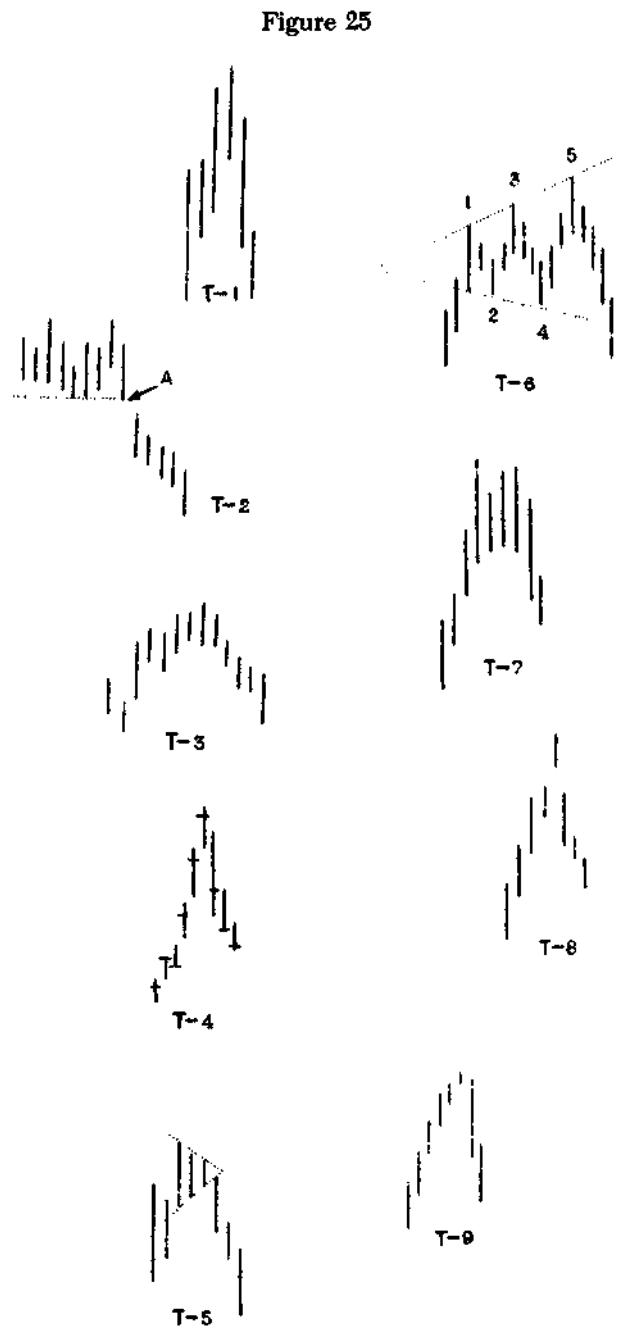
The minor rounding top is a pattern which occurs very frequently. It is quite often misleading, because, after one or two days of decline, following the actual high, an uptrend is resumed. The only defense is to make new purchases when the top level has been exceeded.

T-4 Ascending Top

The ascending top occurs quite frequently, and often appears as a head-and-shoulders top. Frequently, the closing of the topmost day is misleadingly near the high. Following the top day, a sharp decline occurs, with a closing near the lows. The ascending minor top is probably caused by a rush to buy, based on some temporary news. When the rush orders are filled, the market again falls back.

T-5 Triangle Top

The triangle top of the minor variety is almost



always what technicians call a "dynamite" triangle (see Chapter IX). It usually lasts two or three days, and the second and third days are within the range of the first and second days. The fourth day is a sharp break. The day before this break, the trading is within a narrow range, with volume small.

T-6 Broadening Top

This pattern, although less frequent than the others, is of considerable value in technical studies, because when a good example of it develops, it usually presages a reversal of some importance, even in the minor trend. Like the pattern of the larger variety, it consists of five minute reversals, and tops 3 and 5 are successively higher, while bottom 4 is under bottom 2. The breaking of bottom 4 is the signal to sell.

T-7 Complex Top

The complex top is merely a category wherein we group the patterns which do not seem to be of the other varieties. In the illustration shown, the top was of the triple variety.

T-8 Island Top

As described previously, the island top is a minor pattern which frequently forms as part of an intermediate top, and is of considerable significance, in that it shows an emphatic right-about-turn in price trend. There are not many island reversals which prove to be false signals. But, if, after a sharp move up with a gap, there is a downside gap the next morning, and selling is steady during the first two hours, it is usually a good signal for minor trend traders to sell stocks.

T-9 Contracting Top

We give this pattern its name because it represents a rise which is persistent, but during which the daily ranges narrow and saucer out to the horizontal, although successive highs are made. Then suddenly, from a narrow day, frequently when turnover is fairly high, a sudden collapse occurs.

Now let us review some similar patterns at minor bottoms.

B-1 Head-and-Shoulders Bottom

This pattern, like its counterpart at a top, is frequently a three-day formation. Greater strength in the ensuing advance is indicated if the right shoulder is moderately above the left shoulder. This pattern is a minute selling-climax, and is frequently seen in the early stages of a corrective phase of an upward intermediate cycle (see Chart 8, July 1933).

B-2 Double Bottom

Quite frequently, the double bottom is a three-day pattern also, spaced with a narrow inside day. In the early part of the third day, which establishes the second low, the market looks as if it is going to continue down, but suddenly reverses, and by noontime a good rise is under way, leaving final levels near the top. (It is shown distinctly on the 20-minute charts.)

B-3 Rounding Bottom

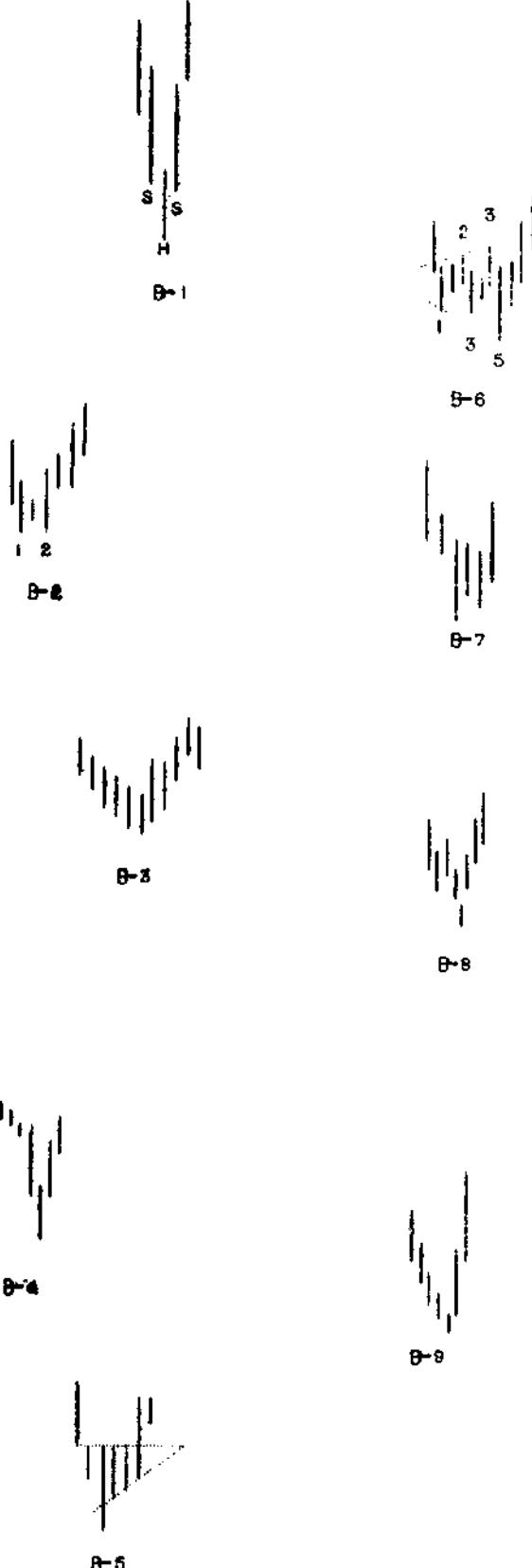
The rounding bottom is of more than ordinary significance, in that it has appeared at the turning points of corrective phases in upward cycles, an excellent example being the March 1935 reversal (see Chart 8). It sometimes has from six to ten days of gradually declining, then gradually advancing prices, with the range relatively narrow, with the tops irregular, and with bottoms showing a well-marked circular turn.

B-4 Descending Bottom

This reversal is preceded by a slow downward

Figure 26

MINOR BOTTOMS



movement, which accelerates rapidly, and reaches climactic proportions in the course of two or three days. The ensuing rally is equally dynamic. It often

appears in the form of a minor head-and-shoulders bottom. Occasionally, it will also appear as an island reversal, as well. It is typical of what is called the minor "shake-out" preceding a rise of some importance, and will frequently follow the penetration of a previous low. It is the selling climax of an intermediate reversal.

B-5 Triangle Bottom

This pattern, more often than not, is of the ascending triangle type, with two successive days when the range is of smaller amplitude. Often the pattern shows several days' highs at the same eighth. The upward breakout is sharp, and often begins from dullness.

B-6 Broadening Bottom

The broadening bottom at times appears as a land of rounding turn. It is, of course, the reverse triangle, comprised of five minute movements with three successively lower bottoms, separated by two tops, the second of which is higher than the first. Penetration of the second of these tops is the signal that an advance is under way.

The March 1935 turning point in the hourly Industrial average (Dow Jones) appeared in the pattern of a broadening bottom (see Chart 11).

B-7 Complex Bottom

The patterns classified under this name are chiefly those which do not seem to be the other more well-defined patterns.

B-8 Island Bottom

This pattern is frequently part of a larger reversal. It is an important technical factor in any pattern in which it occurs, because it indicates a quick rightabout-face in trading sentiment. It often occurs as a previous bottom is being tested. A downside gap through, or to a point near the previous minor low produces despair in the trading fraternity; but the price of shares refuses to decline very much, and before the end of the day, a recovery leaves closings at about the best levels, although under the previous day's low. Then suddenly, on the next day, prices open with an upside gap, volume increases, and the test of the previous low has been completed, although this fact is not seen for a week or two later.

B-9 Contracting Bottom

We give this pattern its name because it consists of several days of gradually narrowing fluctuations which saucer out, nevertheless establishing successively lower points. Then, unexpectedly, a sharp upward turn develops, and before the advance is completed, all of the previous steady decline is retraced.

3 Per Cent Reversal Chart Shows Cardinal Patterns

By a study of Chart 10, it will be noted that the

cardinal patterns frequently show up in the 3 per cent swing plottings. It will be seen that the majority of major reversals, and many of the intermediate reversals, assume one or the other of the cardinal patterns.

Every Sale Charts

Those readers interested particularly in the minor trend will frequently discern the cardinal patterns developing on charts showing every sale of an individual stock. Note, for example, the head-and-shoulders top which appeared in Figure 4, of Chapter VI. Here a minute case of the head-and-shoulders top developed, in the course of two days' trading, and presaged a drop of several points in Chrysler. When observed on the geometric chart showing every sale, the cardinal patterns are often widely spread out, because of the numerous transactions which are plotted on the chart.

Selling Climaxes

One of the most important technical phenomena studied by market students, is the selling climax, which occurs most frequently at the termination of major phases of bear market intermediate cycles. From Chart 7, it will be noted that six of the seven intermediate bottoms in the bear market from 1929 to 1932 were of this pattern.

As noted on page 212, the selling climax may be classified as a descending bottom (B-4 see Figure 12). It is a pattern which denotes panic. The selling climax is usually the termination of one to three months of precipitate decline. In itself, it encompasses only 5 to 15 days of trading; but during this short period, prices move over a wide range.

After the major phase of a bear market intermediate cycle has proceeded for some time, the velocity of descent and trading activity tend to show a substantial increase. In many stocks, the market becomes "very thin", and often leading issues break full points between sales, while there are few bids for the more inactive issues.

In selling climaxes, the tape reader has some advantage over the technical student who is in the habit of studying the market at the end of the day. It is during the selling climax that the average trader finds it greatly to his advantage to be closely in contact with the stock tape. In the opinion of this writer, it is about the only time that the average person interested in the stock market has any reason to be very near a broker's office.

The sequence of events in a selling climax is fairly consistent, as follows:

1. After the market has declined for some time, it closes at the bottom of a given day with ample evidence that the decline is not over. The news is preponderantly bearish, things look badly and appear to be getting worse, the "Street" is blue, customers' men know many specific reasons why prices should go lower.
2. On the next morning, there is a gap on the downside, substantial selling, prices fading

away, thin bids, specialists with little on the "buy" side of their books.

3. On the tape 5,000 shares of this leader and that possibly at substantial concessions, but often at only small concessions from previous prices. Frequently, reports come up from the floor indicating that one or more leading stocks, such as Steel, Can, Telephone or du Pont "are offered for a bid".
4. Then practically without warning, large blocks of the same stock are very much in demand, advancing half and full points, sometimes two points, between sales.
5. This advance often carries to the close, with no important setbacks, and with heavy volume on the upside, quite contrary to its behavior in the preceding decline.
6. At the end of the day a study of the day's trading almost always shows an unmistakable sequence that confirms the intra-day phenomena (see Chapter XV, "Selling Climaxes").

These are the marks of a selling climax, one of the "surest things" the trader can find in stock price phenomena. *When these conditions prevail, shrewd technical students buy stocks*, put stops at or slightly under the selling climax lows, and set their sails for better weather.

During the 1929-1932 bear market, each of the selling climaxes was accompanied by a fairly regular series of statistics concerning Breadth of the Market. These are described in detail in Chapter XV. The market broadens as many normally inactive issues appear; the number of stocks which reach new lows in the day rises sharply; and the vast majority of stocks close with small losses for the day.

Although the selling climax represents one of the most outstanding opportunities to make money available to the technical student, there is a practical difficulty which frequently stands in the way of making the potential profits which seem to be available. This difficulty is that, at the actual lows of the selling climax, there are only a few hundred shares traded. Frequently, an active issue will establish a low on a 100-share trade, and the next sale is as much as two or three points up. It is only mere luck, if the trader happens to catch the low prices in a selling climax. More often than not, the best procedure is to place open orders substantially under the market, in the hope that some of them will be filled during the panic of the selling climax.

Activity is frequently so great during a selling climax, that it is almost impossible to get useful bid and asked quotations, because by the time they are obtained, the market has made a radical change. When a market order is placed during a selling climax, the trader never knows whether he is going to get the stock two points under the last sale, or three points above it. But he can be safe in believing that, in the course of two or three weeks, prices are likely to be considerably higher, and show fair profits, even on what he feels to

be "poor execution". (See the discussion of this in Chapter XIV.)

Although selling climaxes are characteristic of bear markets, they also appear in bull markets. For example, selling climaxes in bull markets were seen at the end of March in 1926, early in December 1928, late in March 1929, and in more modern cases, early in September 1932, in middle July 1933, and the last one of importance appeared in the July 1934 low (see Charts 16 and 7).

In the current bull market, two of the three cases have appeared in the early part of the corrective phase, or secondary movement; while the third (the July 1934 case) appeared at the absolute end of the correction. Note, for example, the selling climax patterns on Chart 8, which terminated the first sharp crack of the corrective phases in September 1932, and July 1933. (The famous William Peter Hamilton, without calling it by the name we use selling climax noted that the phenomenon presented one of the best opportunities available to the stock trader. He pointed out that a "mopping-up rebound" was almost certain to appear.) Usually the rebound from a bull market selling climax which appears in the first stage of a corrective phase, cancels about one-half of the decline almost as quickly as it occurs. When activity shows a definite tendency to decrease after such a rebound, traders are justified in taking short positions, with stops at the previous intermediate top, because, more often than not, a subsequent decline carries prices to a lower level than the first climax bottom before the correction is completed, and a new major phase begins. This has been particularly true in recent bull markets.

Buying Climaxes

There appears to be no exact counterpart of the selling climax, on the bull side of the market. At least, the past 40 years' history does not seem to show any tops, either major or intermediate, which compare closely to the selling climaxes in either bull or bear markets. This is true, at least, of the price trend. If we want to consider activity, it is, of course, a fact that many bull market tops are accompanied by what might be called buying climax volume. By the time an intermediate top of a major upward phase in a bull market is reached, the market is usually broad (a large number of issues are being traded); prices are substantially higher than they were several months previously; and the public, who are predominantly bullish, are widely interested in the market. Values, as measured by earning ratios, and dividend yields, are too high to attract large scale buying. Unlike the force of liquidation, there is no strong pressure which is making people buy stocks, as is present in a decline, when the force of liquidation frequently makes them sell stocks (to cover loans).

The result seems to be that buying climaxes are absent in any exact counterpart of selling climaxes. Although there are final sharp spurts in individual

issues, which resemble the reverse of the panic decline, the market as a whole tends to flatten out, and round off, at tops. The pattern of the ascending top, which is the nearest thing to the selling climax, in reverse, may be seen in the minor trend; but it seldom develops in the intermediate trend, except in individual issues. A good example of this latter was the June top in American Commercial Alcohol, in 1933, which ended the hectic pool operations in this stock, and in turn had no small part in hurrying along the investigation of the Stock Exchange, which finally resulted in the Securities Exchange Act of 1934.

Before proceeding to the third part of our discussion, as suggested on page 205, wherein we will attempt to summarize the practical use of a knowledge of supply and demand areas, and tops and bottoms, let us consider briefly the best charts for the purpose of studying these phenomena.

Charts for Studying Reversal Patterns

The following outline may be helpful in suggesting the types of charts which appear to be most useful in the study of reversal patterns. We will divide them in the categories of the three trends.

1. Major Reversals.
 - a. Monthly charts (see Charts 1 and 2)
 - b. Weekly charts (see Chart 5)
 - c. Daily charts (see Charts 7 and 8)
2. Intermediate Reversals.
 - a. Weekly charts
 - b. Daily charts
 - c. Hourly charts (see Charts 11 and 12)
3. Minor Reversals.
 - a. Daily charts
 - b. Hourly charts
 - c. Less-than-hourly, and every-sale charts (see Charts 13 and 14, and Figure 4, page 160, Chapter VI).

Figure Charts Very Valuable in the Study of Reversals

As we will find in Chapter XVI, figure charts, which, unlike bar and line charts, eliminate the time element, will be found to be very useful in the study of supply and demand areas. Many of the cardinal patterns also appear on figure charts. However, the vast majority of research, from which the bulk of the material presented in this Chapter has been prepared, is based upon the study of line or bar charts.

The great advantage of the figure chart is that, in condensing a large number of small moves, it emphasizes the more important accumulation and distribution areas. Figure charts involve an entirely different technique, which will be explained in detail in Chapter XVI.

Arithmetic Versus Semi-Logarithmic Charts in Pattern Studies

For years, there has been a controversy among technical students, wherein one group prefer arithmetic charts, taking the stand that semi-logarithmic

charts tend to obscure the study of reversal patterns, because they contract the appearance of price fluctuations at higher levels, and expand them at low levels.

The other group contend that, if a market student is familiar with the characteristics of semi-logarithmic charts, and understands in the beginning that reversal patterns are compressed in the upper register, and expanded in the lower register, it is possible to discern patterns without any material difficulty, on semi-logarithmic charts.

The argument of both groups is worthy of consideration, for it is true first, that, for example, in 1929, when practically all prices were at very high levels, semi-logarithmic charts tended to compress fluctuations so that patterns, such as the cardinal ones which have been described earlier in the Chapter, were certainly less easy to see on semi-logarithmic charts than on arithmetic charts.

But, secondly, in the past several years, since the bottom of the bear market in 1932, prices have been ranging within an area which has made it possible for a technical student, familiar with semi-logarithmic charts, to discern price patterns at reversal points, clearly enough to make use of them.

Perhaps the ideal situation would be to have a series of both arithmetic and semi-logarithmic charts, the former to be used in studying price patterns, the latter to be used in making the very necessary comparisons which are suggested in Chapter XVII.

The differences in various patterns on arithmetic and semi-logarithmic scales are portrayed in several of the figures used to illustrate Chart Making, in Chapter II.

The author leans very definitely toward the opinion that the value of semi-logarithmic charts is so important in comparative studies of individual and group movements, that to sacrifice the advantages in this field, in order to discern more clearly reversal patterns, is a decidedly shortsighted procedure.

On the other hand, students primarily interested in patterns of price reversals undoubtedly would do well to confine their interest to arithmetic charts.

Conversely, the more advanced technical students will probably prefer semi-logarithmic charts because they consider the study of price patterns a more or less secondary procedure in the general plan of technical studies. This is the view of the author.

Now let us proceed to the third point in our program, suggested on page 205.

Summarizing the Practical Use of the Study of Reversal Areas

In making practical use of the contents of this Chapter, the reader should keep in mind that:

When the charts formation of a reversal pattern is fully visible on the charts, the high or low point is usually well past, and the current trend is under way. This is the shortcoming of this and some other branches of technical study. However, in the more important intermediate

reversals, the top and bottom patterns are fairly complete by the time that from one-fourth to one-third of the trend which follows the pattern has occurred. Thus, if a trader acts wholly upon the implication of such patterns in his trading operations, two thirds of practically every movement would be consumed in awaiting the development of successive reversal patterns; and there would be many trends which were so short that they would offer little to no opportunity for profits.

This naturally brings us to the question of "Well, if this is so, of what value is the study of these top and bottom patterns?"

The answer is It contributes to a better understanding of price movements. In itself, the study of top and bottom patterns, it is not believed, will yield consistent or worthwhile profits. But as a general aid in acquiring a better "feel of the market", the study provides an additional avenue of observation worth the work involved. It takes very little time, in glancing through a portfolio of charts, for the eye is quick in seeing the really important reversal patterns.

Patterns Must Be Used in Conjunction With Other Technical Working Tools

The study of tops and bottoms, to be of greatest value, must be combined, and used in conjunction with the study of other working tools, such as Trend Lines, Moving Averages, Caps, and particularly Volume, as well as the Dow Theory and the general market phenomena which we call "Breadth-of-the-Market" studies. Frequently, before a top or bottom pattern may be considered as completed, these other working tools come into play, and provide confirmation of the probability that a reversal is taking place.

In making the most of a study of reversal patterns, the market student or trader should try to relate the development of the cardinal patterns to the fundamental picture at the time. For example, in Chapters V and VI, we found that many major trends turned about in the Fall and Winter. Thus, if what appears to be a cardinal reversal pattern is developing, during this period, it might well be considered of greater importance than if it were appearing in the Spring or Summer.

In the same general way, if the amplitude and duration of an intermediate cyclical movement are sufficient to make it probable that a top or bottom might be expected, then the development of a reversal pattern may be regarded with greater conviction.

"One of the Best Trading Opportunities"

In the life of those who dabble in Wall Street, at some time or other there comes a yearning "just to buy them right, once, if never again". For those who have patience, the study of top and bottom patterns will provide such an opportunity every now and then, the chance does not arise every day, but

when it does, a worthwhile opportunity, with small risk, becomes available. Let us look at Figure 27 (A). When, after an intermediate decline in either a bull or a bear market, such as A-B in the diagram, has proceeded for some time, and activity has shown a definite tendency to dry up, indication that liquidation is terminating, a minor rally like B-C sets in, with volume expanding on the upside. And when a minor decline, after cancelling a third to a half of the preceding minor advance (B-C) comes to a halt, with volume drying up again, a real opportunity is presented to buy stocks, with a stop under the previous low.

In eight out of ten cases wherein each of these specific conditions occurs, a rally, which will provide a worthwhile profit, ensues. In the other two cases, only small losses have to be taken. In trading this formation, the observer is depending upon the probability that either a head-and-shoulders, or double bottom, which are the two reversal patterns which occur most frequently, is developing.

The art in conducting an operation of this kind lies in:

- a. Having the patience to wait until a decline of substantial proportions has developed;
- b. Observing that all conditions laid down are present;
- c. Having the courage to buy just as soon as the minor reaction which tests the bottom shows signs of terminating; and
- d. Having the courage to get out with a fair profit (10-20 per cent), or at least protect it with stops.

Hourly charts of the averages, available for guiding the operation, repay the market student for all the efforts he puts into keeping them day after day, when they are of less practical use.

Similar opportunities occasionally develop for that small part of the trading fraternity which has the intestinal fortitude and temperament to sell stocks short. The case in reverse is laid out in Section B, of Figure 27.

An excellent case in point on the bull side appeared at the March 1935 bottom (see Charts 7, 8 and particularly Chart 11).

"Shall We Buy or Sell When a Previous Top or Bottom is Penetrated?"

The answer to this question has both its pros and its cons. We may argue that, if we wait until a previous top is penetrated, a substantial part of that movement is past, perhaps more than half of it. Comparatively speaking, there remains only a limited opportunity, and we run the risk that possibly a double top, with a slightly higher point, may form, and we will find that we have bought stocks very near the top. Dow Theorists will argue that, if both the averages confirm in breaking a previous high, a further advance of sufficient amplitude to be worthwhile, will probably ensue, and the signal is worth following.

On the other hand, we may argue that, if we are

Figure 27



considering intermediate movements, upon a decisive penetration of the previous top, whether or not it is confirmed by both the important major groups (Industrials and Rails), according to experience we may expect an advance of from 10 to 20 per cent above the previous high point.² This is considered worth shooting for. A study of the past thirty years' market movements seems to indicate that, in about 7 cases out of 10, a *decisive penetration* of the previous top presages a movement worth trying for.

In the past several years, when the Industrials have been the leaders, this has been a worthwhile signal. In two out of the last three cases, a real opportunity would have been lost if stocks had not been bought when a decisive penetration of the previous intermediate top developed. For example (see Chart 15), when the September 1932 top was decisively broken upside in May of 1933, at the 82.48 level, there was a further advance of 31.8 per cent before the top in July 1933 developed.

In the next case, when, in February 1934 the Industrial average modestly penetrated the July 1933 high, the price trend reversed, shortly thereafter, and failed to provide an opportunity for profits.

But in the third case, when in May, 1935, the Industrial average exceeded both the July 1933 and February 1934 highs, a worthwhile further advance ensued.

If the minor trend trader, using an hourly chart of the averages, attempts to follow every penetration of a previous top, he will soon find that he is frequently whipsawed; but, if he applies the theory to only the movements of several weeks or more, it will aid in piling up profits.

What has been said concerning tops applies to bottoms in the reverse order.

The reader familiar with the Dow Theory knows, of course, that the penetration of a previous top or bottom is one of the most important tenets of the theory.

In the opinion of this writer, the most practical use of the phenomenon of penetration of a previous top (or bottom) is in increasing commitments in the direction of the trend, with a belief that the current advance or decline will be extended far enough to provide a fur-

ther worthwhile profit.

It is assumed that many other working tools will be used in making the bulk of commitments, long before a current trend penetrates a previous top or bottom. This eliminates some of the risk of making a 100 per cent commitment near a top (or short commitments at a bottom) in the event the penetration of a previous high or low point proves to be false, and is quickly followed by a reversal.

It will be noted that we have stressed the idea of "decisive" penetration. This is the essential in using penetrations of previous turning points, in making new or additional commitments, without which the trader runs a much greater risk of buying at a top, or selling short at a bottom.

Take, for example, the situation from January 30 to February 5, 1934 (see N, Chart 15), when the Industrial average, for a period of six trading days, exceeded the July 18, 1933 top by a matter of 2.07 points. This penetration definitely lacked "decisiveness", not because of the amount of the penetration, but because of the conditions which attended it. Compare it, for example, with the period between May 11 and June 1, 1933, when the September 1932 top was exceeded, in the advance between S and T. Note that the sharpness of the rise in the earlier case was much greater than in the 1934 case. See also how the similar upside penetration, in May 1935, occurred as a result of a sharp minor rise.

Let us, therefore, define a "decisive penetration", eliminating for the moment the idea of the tenet of "confirmation" as laid down in the Dow Theory, as an advance or decline which:

1. EXCEEDS THE PREVIOUS TOP OR BOTTOM BY AT LEAST ONE POINT OR MORE,
2. IS A SHARP MINOR MOVEMENT OF FROM ONE TO THREE DAYS,
3. MUST BE ACCOMPANIED BY EXPANDING VOLUME,
4. THE STRONGEST PENETRATIONS WILL HAVE A MINOR REACTION (ADVANCE OR DECLINE ACCORDING TO THE TREND) WHICH TERMINATES ABOVE THE PENETRATION POINT; OR IN THE CASE OF A DECLINE, CULMINATES BELOW THE PENETRATION POINT, AND
5. THE PREVIOUS MINOR MOVEMENT (ONE TO THREE WEEKS) SHOULD BE PERSISTENTLY IN THE DI-

2 SEE CHAPTER V, PAGE 124.

SECTION OF THE TREND.

The ideal place to enter commitments which are based on penetration is during the first minor reaction, just subsequent to the decisive penetration. For example, in May 1933, there was a small sidewise movement following the penetration. In this case, as soon as the top of this sidewise movement was exceeded, it was the right time to buy.

What Are the Most Important Reversal Patterns?

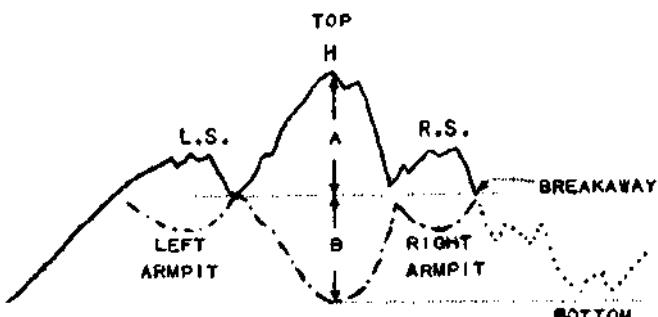
Of all the patterns which have been discussed in the previous pages of this Chapter, the four which are most outstanding, and of the greatest value, are the following:

1. The *head-and-shoulders* reversal,
2. The *double* reversal,
3. The *rounding* reversal, and
4. The *broadening* reversal.

The *head-and-shoulders* reversal (we will take a top to illustrate the point) appears to be of the greatest value, because:

- a. The pattern occurs most frequently at intermediate turning points,
- b. It often indicates the extent of the counter movement, and
- c. When the low established by the two reactions which form the armpits of the pattern is penetrated, a decisive decline of several days almost always occurs.

Figure 28
HEAD-AND-SHOULDERS TOP



For illustration, let us look at Figure 28.

A study of a large number of these patterns shows that the extent of the decline from the top of the pattern to the next bottom is approximately A plus B, or double the amplitude between the armpits (whichever is lower) and the head. Thus, when the breakaway occurs, following the rally which produces the right shoulder, we have a means of measuring the extent of the further decline, which often terminates at a point such as shown in Figure 28. The decline, illustrated by the dotted line, is likely to be sharp, and last only from two to six or seven trading days. Thus, if short sales are made quickly, as soon as the right armpit is broken, and commitments are covered as soon as the sharp decline seems to be terminating, some worthwhile minor trend profits may be made.

The *double* top (or bottom) is useful because it shows rather definitely that supply or demand is still formidable at a particular level; and until this is absorbed, a continuation of the previous trend is not to be expected.

The *rounding* top (or bottom) is chiefly valuable because it is easy to discern, and shows rather clearly that the force which caused the previous trend is abating. When the market cannot continue in the direction it is moving, a move in the opposite direction may be expected. This is a fact as old as the hills, and although very simple, is often disregarded by the trader.

The greatest value of the *broadening* reversal is the fact that it can be discerned more or less mechanically. It is a matter of 1, 2, 3, 4 5 and then a turn-about in the price trend.

Is There Any Defense Against Selling Out or Buying In Prematurely?

When one attempts to use the theory of reversal patterns in practical trading, there is always the hazard that what appears to be a top will form, and be followed by an important resumption of the previous trend. Let us take, as an example, the situation late in May 1935, when the sharp decline from May 28 to June 1 occurred (see Chart 11). After a good rebound during the week ending June 8, volume dried up, and the market observer had sound reason to wonder whether an extended decline from the May top was to occur.

Let us assume that commitments were sold either in the May 28-June 1 decline, or on June 7 or 8. What defense should have been used in order to avoid "being out of the market" in the ensuing important rise? The answer is Have the courage to re-enter the market when the previous top is decisively penetrated. In carrying the argument through, let us assume we got out of the market at about the 115 level, in the week ending June 8. Then the decisive rise in the first week of June would have been reason to re-enter the market, let us say at the 118-120 level, with stops under the minor lows made in the week ending June 8, at about the 113 level. Occasionally, this procedure will cause a whipsaw; but in the majority of cases, a close study of past movements shows definitely that it is more often than not a profitable procedure.

NOW LET US PROCEED TO CHAPTER IX, WHERE WE WILL DISCUSS ANOTHER IMPORTANT WORKING TOOL, DESIGNATED AS TRIANGLES. THESE ARE ALSO PRICE PATTERNS, BUT AS THEY OCCUR MOST FREQUENTLY WITHIN TRENDS, AS WELL AS AT TOPS AND BOTTOMS, THEY FALL INTO THE CLASSIFICATIONS OF BEING BOTH REVERSAL AND CONTINUATION FORMATIONS.

CHAPTER IX

TRIANGLES

REFERENCES

"Stock Market Theory and Practice"
 (pages 622-635) "Technical Analysis
 and Market Profits"
 (pages 84-104; 159-169; 182-199)

Following the discussion of Supply and Demand Areas, in the previous Chapter, let us now proceed to a systematic examination of one branch of this particular phenomenon, which merits special attention. Every so often, in the course of stock price trends, fluctuations narrow down so that, when they are viewed on charts, lines projected across a series of tops and bottoms appear to converge.

A study of these chart patterns provides the technical student with another working tool of importance, which assists him in diagnosing market movements. For the most part, the phenomenon is employed in the study of the "When" question. However, as applied to individual stocks, there are frequently occasions where it is useful in determining the "What" question.

One of our chief reasons for studying triangle patterns is because experience has shown that they are followed by sharp advances or declines, which can thus be anticipated.

Triangles Defined

The Triangle pattern, which Schabacker frequently referred to as a "coil", is really an angle, rather than a triangle, in that it has no exact third side; the third side, which completes the pattern, occurs as the result of a sharp advance or decline in the price.

The most common patterns develop from left to right on the charts, beginning with a markup or markdown, followed by gradually narrowing fluctuations, and ending in small price changes which form an apex. In the more common types of triangles, a quick movement of considerable amplitude follows the period of inertia marked by the apex of the pattern.

In the development of most triangle patterns, there are from two to four contacts on each of the upper and lower lines, which define the picture to the eye. Very occasionally, a well-formed pattern will have a single irregularity, wherein a top or bottom temporarily exceeds the limits of the pattern.

In the vast majority of cases, all of the contacts are not exactly to the lines which mark the top and bottom of the pattern.

In Figure 1, we see a very simple illustration.

R. W. Schabacker R. W.
 Schabacker

Naturally, the development of a triangle depends upon at least four points of contact, although some of the longer and more complex patterns may have from six to ten on either line.

Converging Supply and Demand Areas Cause Triangular Patterns

Theoretically, the triangle pattern is caused by a supply area on the upper side, and a demand area on the lower side. In the formation of triangles, these supply and demand areas, it will be found, may be either ascending, descending, or horizontal; but, in any event, to form the triangle pattern, one or the other must be inclined toward the second so that, as price fluctuations narrow down, the areas converge.

The reasons behind a triangle phenomenon are a subject of considerable debate. The most logical explanation appears to be that the period of formation of a triangle reflects an uncertain state of mind and a re-appraisal of the situation. During this time, all buyers and sellers are gradually influenced, by economic and statistical factors, to withdraw from the market. As a result, fluctuations narrow down and volume of trading diminishes until a new impetus affects the market. Prices often move out of this state of equilibrium as a result of news which is interpreted as important marketwise. Occasionally, such news appears a considerable time after the apex of the triangle.

As was pointed out in the previous Chapter, triangles appear as continuation patterns, as well as reversal patterns. They develop on the charts of the averages, the minor groups, and individual stocks. By the nature of their pattern, they are closely connected with Trend Lines, which will be discussed in the next Chapter.

"Preliminary Formations" Contrasted With "Final Formations"

Study of price changes, with an eye to possible triangular formations, must be pursued with the realization that several preliminary patterns may form before the true and final one develops. The observer must be alert to new developments, lest he concentrate on a preliminary formation which is really part of a larger picture. Hence, all triangles noted tentatively as

Figure 1

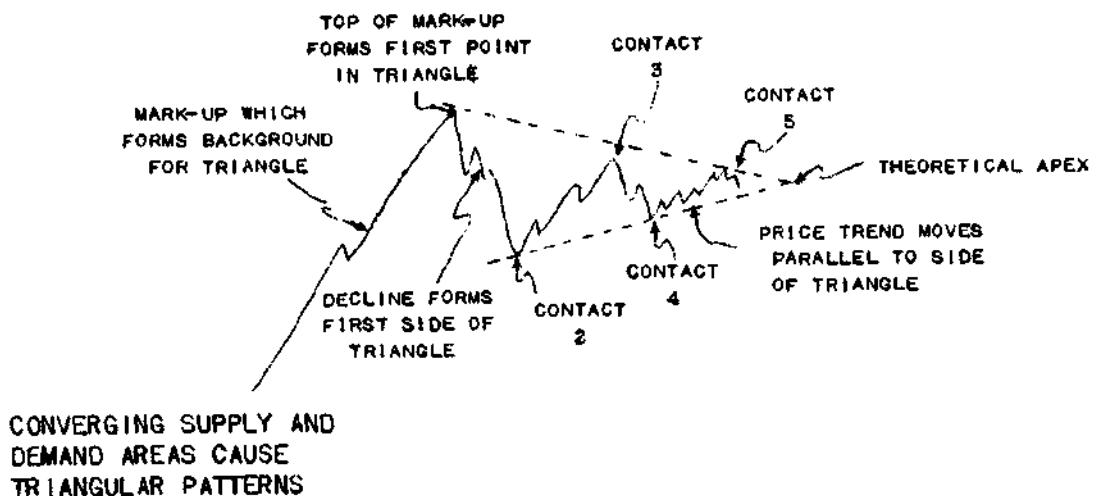
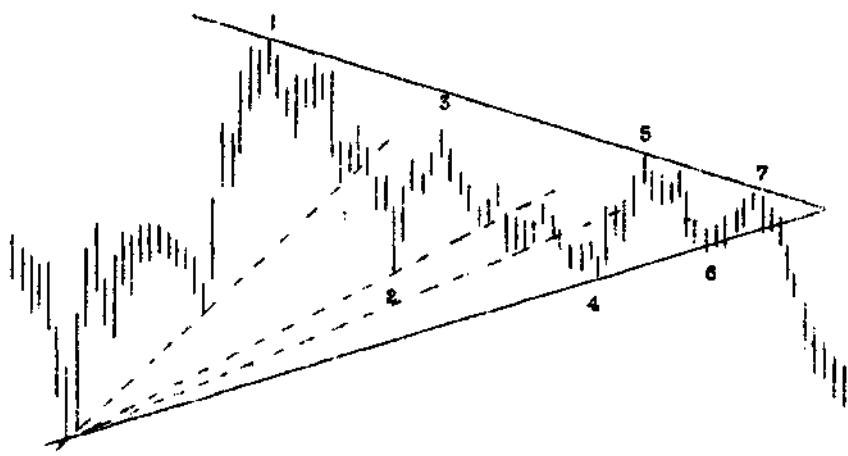


Figure 2



they develop must be considered preliminary, because as a matter of fact, the succeeding breakaway must be fairly well under way before any triangle can be labelled "final".

Note, for example, the June-September triangle in 1931, on Chart 8, which is one of the finest examples in history. The dotted lines indicate the preliminary patterns, while the solid lines clearly show the final pattern. See how, in this triangle, the second and third contact points failed to touch the trend lines. For easy observation, the pattern is repeated in Figure 2, above.

As another example, see Figure 7, showing the daily closing fluctuations in Montgomery Ward, from September 1933 through September 1935. Note that three preliminary triangles formed in the course of this period. The third contact on the large triangle failed to decline to the final line, which could not be projected until after contact five.

Volume Characteristics of Triangles

Volume characteristics follow a rather definite sequence when a triangle is forming, as is shown in

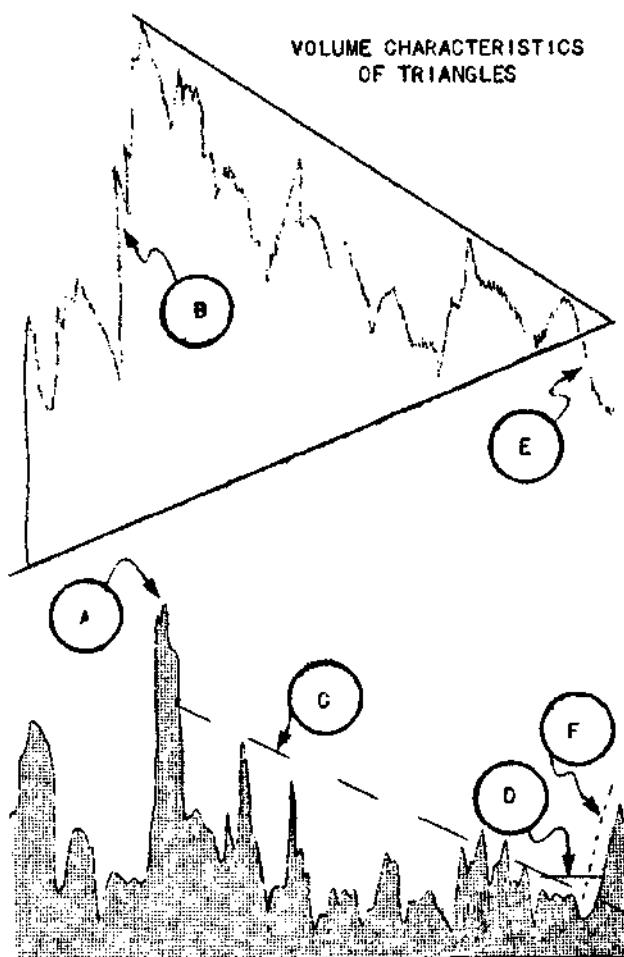
Figure 3. The initial sharp advance or decline, which forms the third (left) side of the triangle, is accompanied by a rapid gain in volume to a peak (A). Such increases in volume are characteristic of markups and markdowns. In this period, prices fluctuate rapidly, up and down, on the hourly charts, in unusually wide arcs (B).

From this volume peak, activity usually shows a clearly discernible downtrend, tending to dry up (C) as the triangle develops toward its apex. In the neighborhood of the apex, supply and demand seem to reach a point of equilibrium, with buyers and sellers withdrawn from the market to await a new impetus (D). As a normal, true breakaway from the apex occurs (E), volume increases sharply (F), giving one of the most dependable indications of the coming trend.

Triangles Occur in All Three Trends

Like most technical phenomena which are dependable enough to be used as working tools, triangles develop in all three trends:

1. Major Trend Triangles These often require a period of years, usually three to five, for their

Figure 3

development. Notable examples may be seen on Chart 1, during the periods 1908-1914, and 1919-1924. These are largely Academic, occur very infrequently, and are merely interesting in connection with a broad viewpoint of the longer term trend.

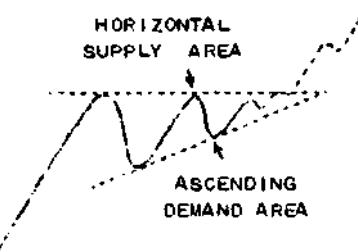
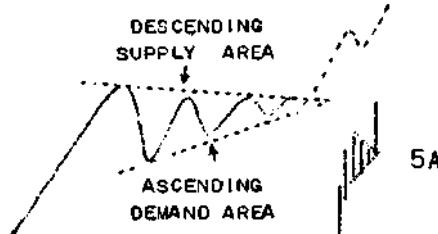
2. Intermediate Trend Triangles Usually form over a period of 30 to 120 trading days. Examples have been noted on Charts 7 and 8. (Probably one of the best specimens of this phenomenon appeared in the summer of 1931, in connection with the Hoover Moratorium rally, and preceding the time when Great Britain abandoned the gold standard.) These are of great importance. They do not occur frequently, that is, they are not always developing, but when the pattern does appear it is one of the most useful working tools in the technician's kit. Very occasionally triangles in individual stocks are extended broadly, so that they include several intermediate movements. These will be discussed at a later point.
3. Minor Trend Triangles Develop in a period of from 3 to 15 days (sometimes longer). Minute triangles appear on the Hourly, and Less-Than-Hourly charts, in as short a time as 3 to 10

trading hours. Some of these are termed "dynamite" triangles, because of the explosive movement from their apex, which is usually relatively much greater in amplitude than the dimensions of the pattern. Minor trend triangles are useful to the minor trend trader, and assist those interested in the intermediate trend, in judging the minor swings. Various examples have been noted on Charts 11 and 13.

Three General Triangle Patterns

In the main, triangle formations are of three types:

1. Ascending (Flat-Topped) Triangles (Figure 4) Formed where buyers predominate during the development of the pattern, resulting in an ascending demand area, but where sellers are sufficiently persistent at a given price level, to cause a horizontal supply area.
2. Symmetrical Triangles (Figure 5) Formed where the influences of buyers and sellers are about equal, resulting in a descending supply area, which converges with an ascending demand area. Dynamite triangles are usually of this variety, consisting of two "inside" days, following one of a broad range (Figure 5-A).
3. Descending (Flat Bottomed) Triangles (Figure 6) Formed where sellers predominate, causing a descending supply area, but where buyers are sufficiently persistent at a given price level, to cause a horizontal demand area. Other less important types of triangles will be discussed later.

Figure 4**Figure 5**

Appear in Both Bull and Bear Markets

All of the three principal types of triangles develop in both bull and bear markets, and in both major and corrective phases of intermediate cycles. Occasionally,

an intermediate triangle will appear as almost all of the corrective phase of an intermediate cycle. See, for example, the period between December 1930 and February 1931, on Chart 7.

At other times, the pattern of a triangle will include parts of several cycles, as, for example, the situation in 1931 (see Chart 7). In this case, the advance which formed the background of the triangle was a corrective phase of a bear market cycle, while the remaining part of the triangle was part of the next major phase. Another good example of this is shown in Figure 7, wherein the entire major phase in 1933-1934, and the long corrective phase during 1934-1935, of the second cycle of the current bull market, in Montgomery Ward, developed as a huge triangle preceding the advance which began from the March 1935 low.

Still a third example, shown in Figure 8, shows a case where a large symmetrical triangle in Goodyear, over a period of practically two years, encompassed 2 1/2 intermediate cycles (see Chart 10), and presaged the advance from an apex at 30 to the bull market high above 152.

Figure 6

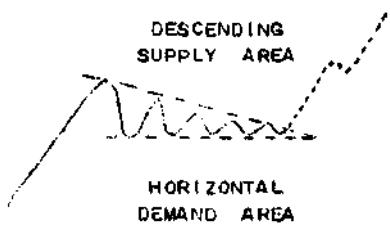
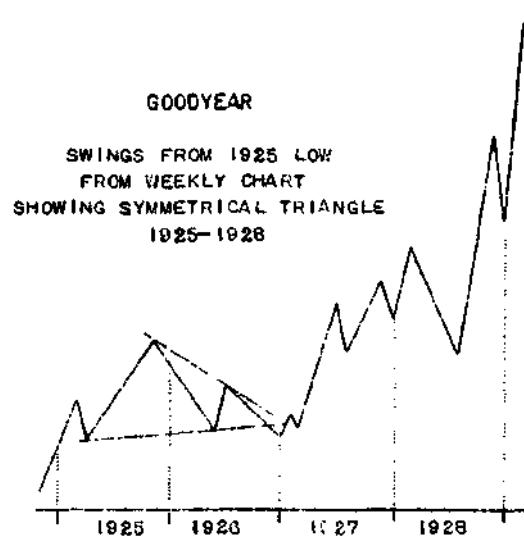


Figure 8

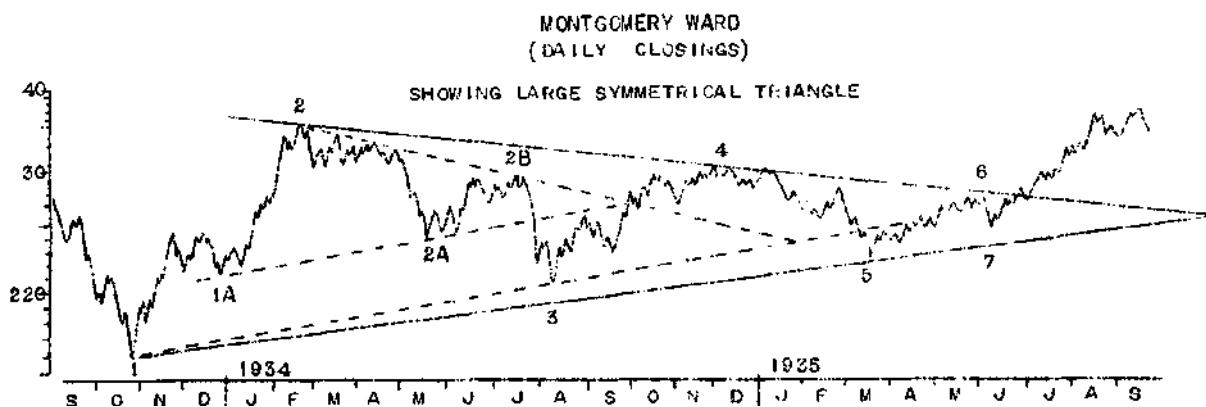


offers no tangible proof of this viewpoint. On the contrary, in about 50 percent of the cases, both ascending and descending triangles have appeared at reversal points, and the movements from their apexes have been in the counter direction to the ascendancy or descendancy of the pattern.

On the other hand, a preponderance of symmetrical triangles are followed by movements wherein the trend which preceded the development of the pattern is resumed. As noted previously, triangle patterns are both reversal and continuation formations.

To demonstrate some of the disproof (that

Figure 7



Type of Triangle Does Not Necessarily Forecast Subsequent Trend

In his writings concerning triangles, Schabacker emphasized that an ascending triangle almost always indicated a coming advance, a descending triangle a decline, and a symmetrical triangle, uncertainty. A careful study of many hundreds of cases, on both daily and weekly charts, covering sample periods in the past 30 years, in both bull and bear markets, and in both major and corrective phases of intermediate cycles,

ascending and descending triangles are followed by movements in the direction of the patterns), let us examine the interesting case of the Hoover Moratorium triangle, in the Summer of 1931. Referring to Chart 7, it will be noted that the Herald-Tribune composite average of 100 stocks showed the pattern of a symmetrical triangle. Chart 17 shows a breakdown of the nine principal groups which make up this

composite. Note that only one of these groups, namely the Rails appeared as a descending triangle. Two others, the Oils and Stores, had ascending patterns; while the remaining six were of the symmetrical type. Theoretically, following Schabacker's contention, the weight of evidence was thus in favor of a rise. The Rail group alone correctly indicated the ensuing decline by developing a descending pattern.

Position in Trend More Important

In forecasting the probable direction of a movement away from the apex of a triangle, the position of the triangle in a trend provides some assistance. However, as yet the author has seen no technique which forecasts accurately the direction of subsequent moves from triangles with any useful frequency.

Business Reports Also Helpful

In the problem of the Hoover Moratorium Rally triangle, which approached its apex just after Labor Day, in 1931, a consideration of its position in the trend, and the outlook for Fall business, greatly assisted the author in forecasting that the subsequent movement from its apex would be downward. At that time, it was reasoned that the June-July advance in connection with the announcement of the Hoover Moratorium, was the correction (corrective phase) of the fourth intermediate cycle in the bear market 1929-1932. Thus, the decline from early July to Labor Day appeared possibly as the resumption of the major downtrend. As the triangle pattern developed, and reached its apex at the end of August, the trend of Fall business was closely watched for a clue verifying the contention that the major downward trend would be resumed, and that the break from the triangle would be toward lower prices. The business reports for the last three weeks of August were clearly pessimistic. The state of foreign affairs was also adverse. Thus, the conclusion was correctly reached that the break from the triangle would be downward.

Knowledge of Duration and Amplitude Sometimes Assists

Upon some occasions, a knowledge of the usual duration and amplitude of intermediate movements provides a little aid in suggesting the direction of the reak from a triangle apex. (See Chapter V, pages 118-124.) Let us take the case on Chart 8 of the small descending triangle which developed late in September and early in October, in 1932, as part of the corrective phase of the first intermediate cycle of the bull market which began in 1932. This pattern developed following a six-day drastic crack, succeeded by a four-day trading area, and was initiated by a sharp overnight advance which retraced about two-thirds of the previous drastic crack. Then, for a period of 11 days, a well-formed descending triangle appeared, with a horizontal demand area just above a gap in the advance. As the apex of the pattern was

approached, there was the question of whether the six-day sharp crack from September 8 to September 15 was the entire correction, and the major trend was to be resumed; or was there to be a further decline to complete the corrective phase of this most unusual advance from the July low to the September high?

A knowledge of the duration of corrective phases was mighty helpful in this case, in forecasting the correct alternative, in that the vast majority of corrective phases, history indicates, run for several weeks. If this triangle was merely a continuation of the advance which began from the low, after the sharp six-day crack, then the correction would have been of extremely short duration, considering the amplitude and duration of the previous major phase. Thus, the conclusion was correctly reached at the time, that the break was to be downside. As the picture finally developed, the corrective phase ran for nearly seven months, to the lows which were established just prior to the Bank Holiday, in February 1933.

Amplitude is also sometimes helpful in judging whether a break from a triangle will be up or down. For instance, let us take the situation in the Rubber group (Figure 9), when the symmetrical triangle of May-August 1935 developed. The market as a whole was in a strong bullish position. The Rubber group had risen only very modestly from the lows in March. Thus, the group could not be considered as "overbought". And so the amplitude of the swing from the March lows was a prime consideration in correctly forecasting the advance in the Rubbers.

Less Common Triangle Patterns

Before proceeding to a discussion of the practical use of triangle patterns, let us examine briefly some of the less common, and, with one exception,¹ must less important and almost academic triangle patterns, suggested by Schabacker.

Reversed Symmetrical Triangle (Figure 10)

This is the famous "five-point reversal", or broadening top or bottom, suggested by Wetzel, and which is discussed in the previous Chapter.¹ It's peculiarity is that it develops beginning from an apex, as fluctuations widen, rather than with narrowing fluctuations to an apex. The theory is that the fifth reversal will mark the change in trend.

Reversed Ascending Triangle (Figure 11)

This pattern is nothing more than an upward zigzag from a triple, and in some cases a quadruple, flat bottom. It is rare.

Reversed Descending Triangle (Figure 12)

Here we find the opposite of the previous pattern, with a well-marked horizontal supply area, from

which fluctuations widen out and finally turn into a decline, ultimately forming a downward zigzag. This is also rare.

Double Triangle (Diabola) (Figure 14)

This is the counterpart, in reverse, of the Diamond reversal, consisting of first a symmetrical triangle, and

Figure 9

MAY-AUGUST, 1935, TRIANGLE
IN THE RUBBER GROUP

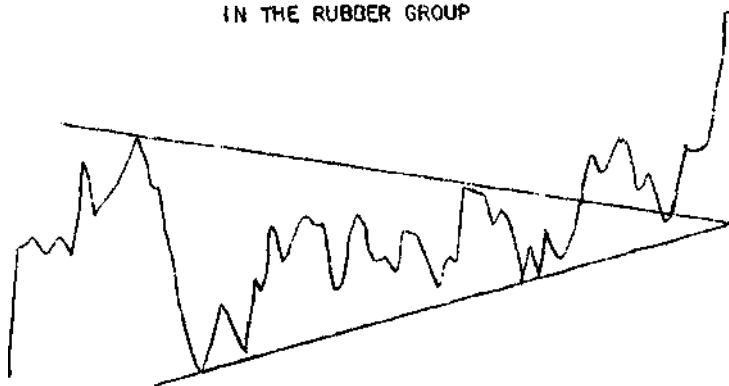


Figure 10

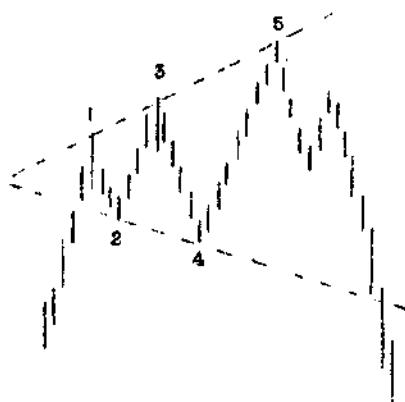


Figure 11



Double Triangle (Diamond) (Figure 13)

This pattern, which develops very occasionally, is a type of head-and-shoulders reversal, with an unusual central movement, and consisting of a five-point (broadening) reversal, followed by an ordinary symmetrical triangle. It marks a very confused point in the price trend.

then a broadening reverse triangle, from a common apex. The pattern, when completed, produces a double top or bottom.

These four patterns are typically reversals. There are two other triangle patterns which occur most frequently as continuation formations. They are:

Downward Pennant (Figure 15)

The Downward Pennant, which occurs in an uptrend, is a triangle inclined downward, which customarily is followed by a resumption of the advance. It is a pattern characteristic of advances, and is also rarely to be found. Sometimes it is the corrective phase of an intermediate cycle.

Upward Pennant (Figure 16)

The upward Pennant, which occurs in a downtrend, is a triangle inclined upward, which customarily is followed by a resumption of the decline. It is a pattern characteristic of declines, and is also rare.

Figure 12

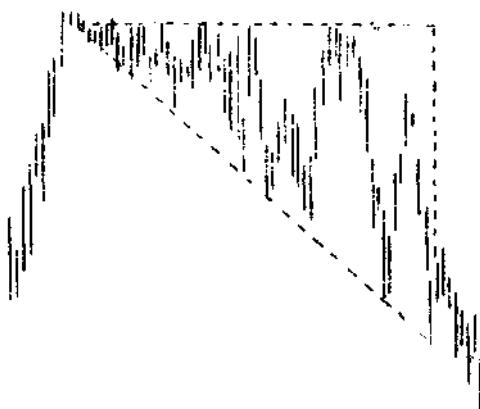
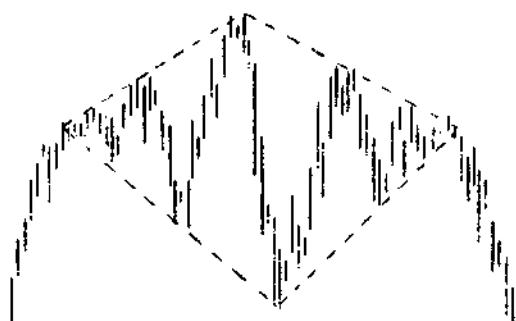
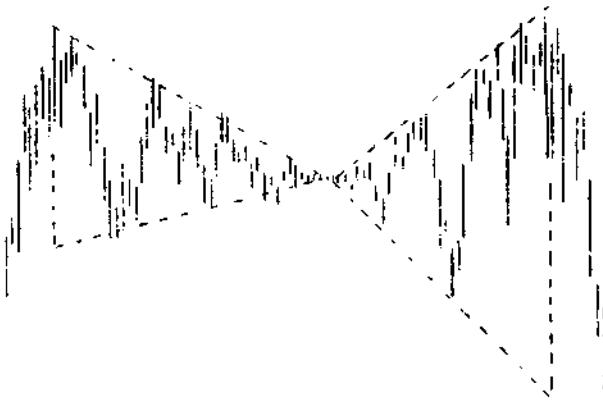


Figure 13**Figure 16****Figure 14****Figure 15**

"Spearhead" Triangles

In a study of the Dow Jones hourly Industrials averages,² it was noted that frequently a kind of triangle pattern developed as the result of converging trend lines, both of which were pointed in the direction of the then current trend. These have been termed "spearhead" triangles. When these patterns are of only a few days' duration, a penetration of the lower line in an advance, and the upper line in a decline frequently signals a reversal of the minor trend quite close to the turning point. Figure 17 shows a few of these examples. It will be noted that, in many cases, the penetrations occur long before the theoretical apex is reached. In a study of several hundred such patterns, it was found that in more than 85 per cent of the cases, minor reversals developed when the penetrations occurred. In rare instances, a movement will continue in the direction of these triangles, but in the vast majority of instances, they forecast a reversal. Occasionally, the pattern may be applied to longer term studies, but in these it does not seem to be reliable, or at least equally so as in the case of minor trend studies. For example, on Chart 11, a pattern of this type developed following the June 1935 low. When the theoretical apex was reached, instead of reversing, the trend continued substantially up.

"Dynamite" Triangles

We have spoken of this pattern on previous pages. It occurs quite frequently in the course of a pronounced decline, marking liquidation, or during a sharp markup following a period of accumulation. Usually, the pattern takes the form of the minute symmetrical type, as in A. Figure 18.

But there are also many occasions where it assumes the descending or ascending type, such as in B. and C. Occasionally it will appear as a reversal pattern,

² SEVERAL MONTHS AGO, MR. RICHARD DOUGLAS, WHO HAS ATTENDED MANY LECTURES CONDUCTED BY THE AUTHOR, CONTRIBUTED THIS USEFUL STUDY, WHICH HE HAS EMPLOYED UPON FREQUENT OCCASIONS, IN FORECASTING MINOR REVERSALS.

Figure 17

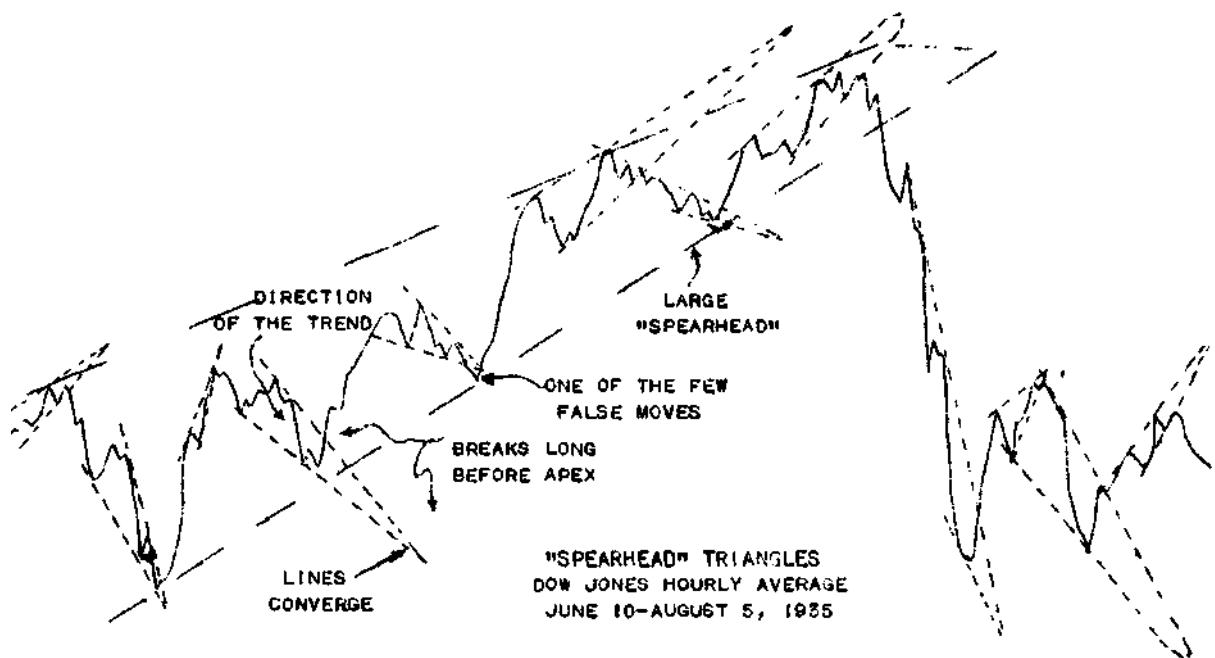


Figure 18



although most frequently it will be followed by a continuation of the previous trend. An actual case may be seen on Chart 18.

In many instances, the dynamite triangle is followed by a sharp movement of from two to eight days, which is from three to four times the amplitude of the pattern itself.

A Series of Triangles

Occasionally, there will appear, on the chart of an individual stock, or one of the minor groups, a series of triangles (of all three types) which appear persistently to interrupt a long diagonal trend. Observation of a large number of stocks for many years, indicates that the phenomenon is seen more often in downtrends. Thus, it is believed that it may be a phenomenon closely connected with liquidation which continues in a series of waves, for a considerable period of time. Take, for example, the case of People's Gas (a former Insull property) as shown on Chart 18, during the first five months of 1932, preceding the bear market bottom. In middle January, the stock was selling at 120. On the first of June, it was selling well below 50. In the course of this period, five moderate sized, and one dynamite triangle appeared. Each was followed by a sharp drop, beginning close to the theoretical

apexes of the patterns.

Another series of such triangles will be noted on Chart 19, which shows the decline in the Public Utility Holding Company group for the year preceding the March 1935 low, during the period when President Roosevelt's punitive attacks were deflating the shares of the industry. Note that, in this case, four pronounced triangles appeared closely together.

Two interesting triangular phenomena appeared on this chart, which should be particularly noted. The second triangle was followed by a sharp false rally preceding a precipitate drop. This will be mentioned again later. Also, the third triangle was followed by a precipitate drop, a rapid recovery to just under the apex, and from this point the decline was resumed. Frequently, when a downside break comes from the apex of a triangle, the subsequent rally will meet formidable supply as soon as the level of the apex has been reached, if liquidation is to continue. Thus, if the subsequent rally advances through the apex, above the last minor supply area in the triangle, it is usually sound evidence that a reversal of importance has occurred.

The Triangle Is Often a Measure of the Subsequent Move

In more than 60 per cent of the cases of well-defined triangles (of all three types, notably of the symmetrical type), the phenomenon appears to provide a fairly accurate and valuable means of estimating or measuring the inevitable subsequent move. Because of this, the triangle is a technical phenomenon which enables the market student to make and close out a trade at a profit, on almost a mechanical basis. Let us again look at Chart 19 for a few moments. Although this portrays a group average, the principle about to be described has its greatest

practical application to individual stocks. Where very well defined cases of triangles appear in the averages, it also applies to them. Briefly, it is this:

THE AMPLITUDE OF THE THIRD SIDE OF THE TRIANGLE, REPRESENTED BY THE SHARP ADVANCE OR DECLINE WHICH FORMS THE BACKGROUND OF THE TRIANGLE, IS APPROXIMATELY EQUIVALENT TO THE DECLINE OR ADVANCE FROM THE APEX OF THE PATTERN.

Take our first case on Chart 19. A marks the amplitude of the decline in Triangle 1. Note how this was almost exactly equivalent to B, which followed the pattern. The same was true in Triangle 3, where again B was practically equivalent to A. In the case of Triangle 4, the final decline to the March 1935 low substantially exceeded B, the estimate based on A.

In the vast majority of cases, B will be equivalent to, or exceed, A. It is only in the minority that B is less than A. The same principle applies to both advances and declines. If the trader takes a position as soon as the lower line of the triangle has been decisively penetrated, he may expect to make a profit in the movement B, equivalent to approximately A.

In estimating the movements, by projecting B from A, experience has indicated that it is better to make the estimate on an angle of the advance or decline, rather than estimate it by a vertical measurement. The principle has been studied on both arithmetic and semi-logarithmic charts, and appears to apply to either. Estimates made on arithmetic charts, however, should not be applied to semi-logarithmic ones, and vice versa.

Now let us return a moment to Triangle 2, on Chart 19. This was followed by a sharp false rally, counter to the direction of the liquidation which produced the downtrend. But it is interesting to note that the dimension X which, it should be noted carefully, is applied to the advance, approximately measured the false rally Y. Note also, in Triangle 4, that the measurement A was taken from the intersection point in the previous downtrend, rather than the advance X-Y. Note that just prior to the final break, which ended in a selling climax in March, a minute dynamite triangle appeared. Note also how the first triangle was preceded by a period of steady selling, which certainly looks a bit like manipulation, wherein offerings were applied carefully, so that the price trend might not suffer too badly.

Carrying further this principle of estimating a movement from the apex of a triangle, relative to its third side, we naturally have the conclusion that the importance of a triangle is in direct proportion to its size. Although not always, a small triangle may be expected to be followed by a movement of relatively small proportions; while a triangle of long duration, and substantial amplitude, may be expected to be followed by an advance or decline of relatively large proportions. Take, for example, the case of Montgomery Ward, shown in Figure 7. The move from 16 to above 35, which formed the background of the triangle, suggested an advance, once the triangle was broken upside, from, let us say, 28, to possibly 45.

Although the price estimates are astonishingly accurate, as stock market estimates go, the duration of the estimated movement is a matter of great uncertainty. It may be accomplished in a week or two, or in several months.

Triangles Should Be Interpreted in Connection With Other Technical Factors

In using triangles as an aid in technical study, it is essential that the market student consider them as *one of several working tools, to be used in conjunction* one with the other. They are a Trend Line phenomenon. They must be considered at times as Reversal patterns. Caps occur frequently at their apex, and in many cases, when a decisive breakaway at an apex appears, it is confirmed by the penetration of a moving average. When subsequent Chapters concerning the phenomena have been reviewed, the logic and utility of this inter-relation will become more apparent.

Triangles Present a Problem to Dow Theorists

The common and reverse triangle represent a "headache" to the Dow Theory student, in that they represent periods of uncertainty, during which it is not unusual to see previous highs or lows penetrated, with the trend turning back very shortly thereafter. The difficulty is well illustrated in Figures 4 and 5, of Chapter VII, page 179.

Triangle Is Useful in Both "When" and "What" Questions

We have said that triangles form in the composite averages, such as shown on Charts 7 and 8, the minor group averages, such as shown on Charts 18, 40 and 41.

Because of the fact that there are many occasions when the fluctuations in an individual stock, or minor group, will assume the shape of a triangle, which is entirely absent in the major averages or the composite averages, the triangle phenomenon becomes a useful tool in suggesting opportunities in individual stocks and minor groups, which may not be at all apparent in the majority of stocks, or in the market as a whole, as represented by the averages. Sometimes such triangles will provide an early signal to purchase or sell an individual stock, before other technical factors indicate that the market as a whole is a sale or purchase. Other times, the triangle pattern is useful (to the trader who has a number of charts) in selecting an individual issue just prior to a sharp move, as the breakaway from a triangle occurs.

When a well-defined triangle shows itself in the composite averages, or one of the major group averages it naturally has its greatest value as a "When" question working tool. However, when the pattern develops in one of the major averages, such as, for example, the triangle which appeared in the Rail group, which reached an apex in February 1934 (see Chart 15), it is forecasting a sharp movement in a whole section of the market. Thus, it again takes on the aspects

of a "What" question working tool.

False Moves A Suggested Defense

It will be remembered that one of the primary reasons why we study triangles is because they are customarily followed by important advances or declines, as soon as a break from their apex occurs.

No discussion of triangles would be complete without some attention to the problem of "false moves". As in the case of all other technical phenomena, there are many instances where the faithful following of a triangle pattern will cause losses as the result of a false move. If these false moves occur as a temporary decline from the apex of a triangle, which is followed by the real move upward, they are called "shakeouts". There appears to be a slight preponderance of false moves before advances, as compared with false moves before declines. Possibly the "pressure of liquidation" explains this.

Before suggesting a defense against such false moves, it should be noted that there are times when the apex of a triangle will be followed by several minor fluctuations in opposite directions (1 - 3, Figure 19), wherein the trend moves horizontally for a period of several weeks, before the "real move" proceeds, such as is shown, for example, in Figure 19. In these cases, it is necessary to await the formation of an upward or downward zigzag (3-8), which proceeds definitely out of the area of confusion. Patience is required, and it is often better trading to keep a commitment, or stay out of the market if one is on the sidelines, until the trend has assumed a definite direction.

In about 50 per cent of the total cases, there will be a clean break from the apex of a triangle, without a false rally. In the remaining 50 per cent, the majority will have only one false move. As will be seen by observing a number of triangle patterns, as fluctuations narrow down at the apex, small supply and demand areas, of several days each, frequently form on either side of the triangle. These areas represent the key to the defense we are about to suggest.

Figure 20 shows the two cases which represent the problem. Let us assume that a symmetrical triangle has formed. Not to confuse the problem, we will further assume that we are out of the market. It is our desire to make a commitment to take advantage of the move from the apex. Conditions are such that the situation is about evenly balanced. We have no clues upon which we feel we can rely, as to the direction of the coming move. As the triangle works out to its apex, minor supply and demand areas of several days' duration develop on either side.

Let us first take Case 1, where a false rally is followed by the real move downward. We place two stop orders: one to buy 100 shares at A, and one to sell 100 shares at B. The false advance thus puts us long 100 shares at A; not knowing whether the advance is false, and wishing to be on the short side if so, we then place an open order to sell 200 shares stop at B. Thus, when the real decline begins, we are stopped out of our long

position taken at A, and are short an equal amount of stock at B. Now let us take Case 2, wherein a false decline is followed by the real move upward. Here our sell stop order was executed first, and we become short 100 shares. When this was executed, we placed an order to buy 200 shares stop at B. The ensuing rise thus automatically covered our short position, and placed us long 100 shares at B.

Now what is our further defense, in the event a second false move occurs, such as illustrated in Figure 19? The answer is we must then wait until there is definite evidence that a pronounced trend is under way. If this trend is against us, we are foolish to buck it, and commitments should be closed out. In most such cases, it is best policy for the trader to abandon the market temporarily, because the whipsawing is likely to shake his courage to the extent that his judgment is impaired.

Several minor technical factors are helpful, in determining whether a move is to be false. Real moves, which are clean breakaways from the apex of a triangle, are usually sharp, that is there is a substantial advance or decline for one or two days, with high or low closings. If the move is strong enough to cause a gap, this is additional evidence that it is probably not false. Also, real moves are usually accompanied by sharply increased volume.

In studying false moves the diagrams and notations in Figure 21 may also be found useful. The same suggestions hold true for the reverse side.

Charts for Studying Triangles

There is no particular equipment necessary, or more useful than any other, for studying the phenomena of triangles. A commonly used portfolio of charts is all that is needed.

Minor triangles can best be studied on charts of the hourly averages. If hourly charts of individual stocks are kept, triangles are also studied on these.

The smaller intermediate triangles appear best to the eye on daily bar charts, although they appear also on closing line, or geometric line charts. The longer intermediate trend patterns are best studied on weekly bar charts.

The occasional major triangles which develop appear most vividly on monthly bar charts.

It makes little difference whether semi-logarithmic or arithmetic charts are used, because the patterns show up on both. However, in using semi-logarithmic charts for the purpose of observing triangles, it must be remembered that, in the high-price register, the amplitude of the triangle will be relatively small, and frequently the pattern will stretch over quite a distance, relative to its amplitude, as compared with the same pattern plotted on arithmetic charts. Also, in the lower register, just the reverse will develop. The amplitude of the pattern will be relatively great compared with its duration. But if the market student, using semi-logarithmic charts, clearly understands these characteristics, there is no difficulty in dis-

Figure 19

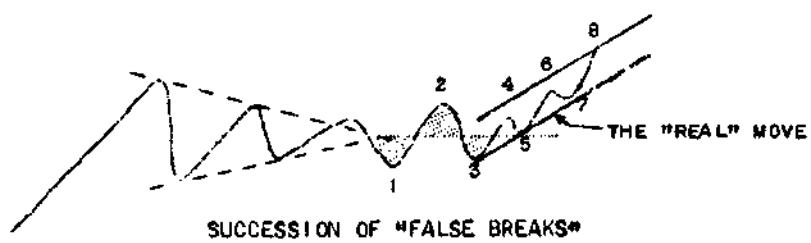


Figure 20

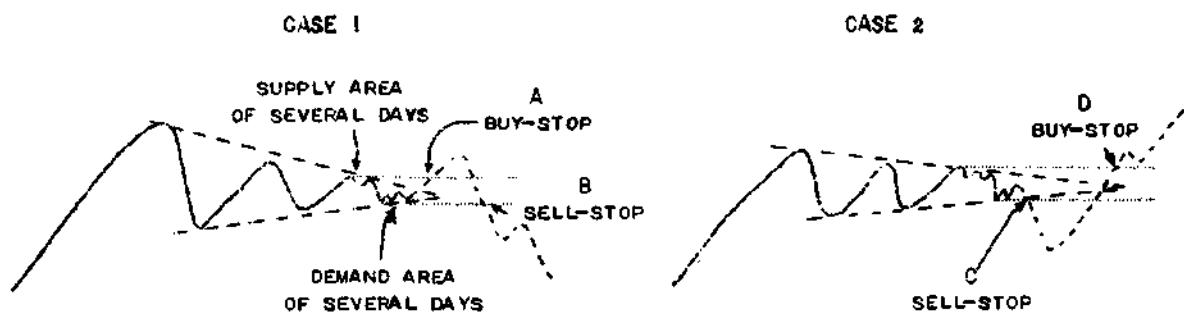


Figure 21

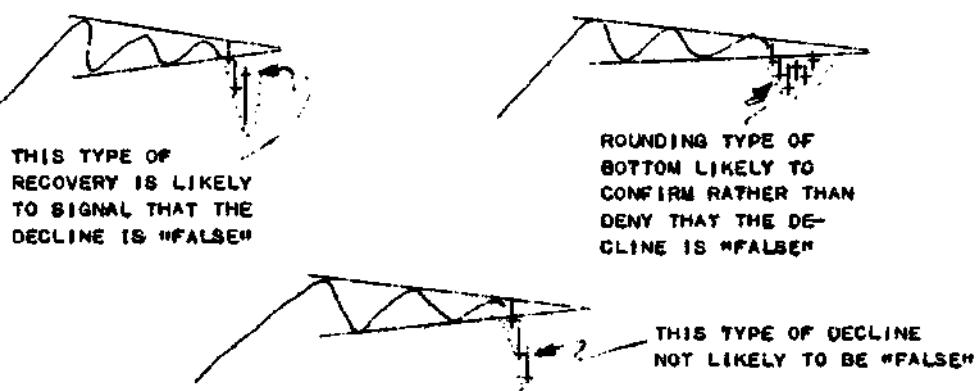
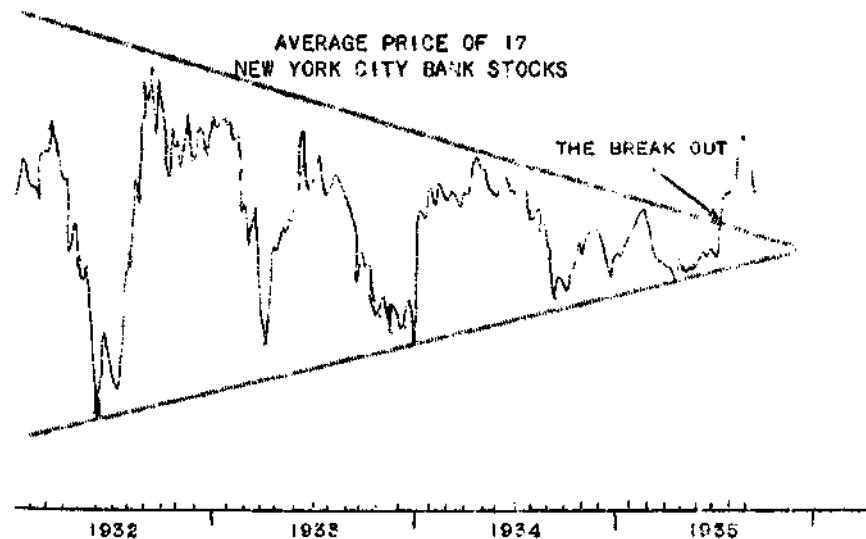


Figure 22



cerning the patterns of triangles.

A Remarkable Case of a Symmetrical Triangle

In July 1935, the New York City Bank Stock group, including 17 stocks, broke out upside from one of the most remarkable symmetrical triangles in history. Mr. Henry J. Kuehls, who has been responsible for many interesting, and importantly valuable charts of both economic and financial statistics, presented a chart showing the picture, in the September 6, 1935 edition of the New York World-Telegram. A sketch of this chart is reproduced in Figure 22. The decline which occurred in late August and early September, because of dividend reductions in some of the New York Bank stocks, it appears, provided an excellent investment buying opportunity in these shares.

With the decisive upside break in July, the outlook for New York City Bank shares appears to be extremely sanguine for the next several years. This contention is based upon the idea that the size of the triangle pattern forecasts a substantial movement.

However, there is no estimate of the time element. It may be a matter of several years. But then, investors who understand the situation, in most instances buy bank stocks for appreciation of principal, rather than for income.

Summary

In closing this discussion of the Triangle phenomenon, let us make several suggestions, which should be of practical use to the reader.

First of all, *remember that most important triangles cover a period of several months, and have at least one, and sometimes two or three, preliminary formations.* If one is to make the greatest use of the pattern, patience is essential in awaiting the full development.

Remember also, that in most cases there is no way, which this author has learned, to tell positively, in advance, which direction the subsequent move from the apex of the triangle will take. A decisive breakout is the only real technical evidence.

When several successive triangles appear in the course of a persistent advance or decline, have in mind that they are suggesting important liquidation or accumulation is under way. Don't get caught bucking this tide.

Keep in mind that triangles develop more frequently in some stocks, than in others. For example, in the past 10 years, weekly high and low charts of du Pont, Johns-Manville, Sears Roebuck and Union Carbide have shown relatively frequent examples of triangles in their price patterns. Note that all of these stocks are more or less leaders.

In closing, it is of greatest importance to remember that the *primary utility of the triangle phenomenon is that it forecasts a sharp subsequent movement,* and is helpful in estimating the extent of the advance or decline.

NOW LET US GO ON TO THE STUDY OF THE NEXT WORKING TOOL USED BY THE TECHNICAL STUDENT. IN CHAPTER X, WHICH IMMEDIATELY FOLLOWS, THE PHENOMENON OF TREND LINES WILL BE THE SUBJECT OF DISCUSSION.

CHAPTER X

TREND LINES

"Simple things are not always as easy as they look.

REFERENCES

"Stock Market Theory and Practice"
 (pages 647-651) "Technical
 Analysis and Market
 Profits" (pages 243-264)
 "Stock Market Tactics" "Investor's
 Handbook"

Let us now take up the study of a third working tool. In the two previous Chapters, we have discussed Tops and Bottoms in terms of Supply and Demand Areas, and Reversal patterns, as well as Triangles, which were indicated as a phenomenon of Trend Lines.

In other previous Chapters, we have mentioned that stock prices move in trends, and in discussing the Dow Theory it was pointed out that a trend was marked by a series of successively higher, or successively lower tops and bottoms.

As the eye views a series of these ascending or descending tops and bottoms, the inclination springs alive to lay a straight-edge across them, and draw a line.

Trend lines are thus the most natural phenomena of all the working tools used by the technical student. They are probably the most frequently employed because they appear so simple. But they can be quite deceptive, and unless the principles of their application are understood, they are a treacherous instrument. They are a phenomenon which appears only after reversals have occurred. Although they are still a very useful working tool, studies of the past ten years clearly indicate that they were of greater value in the period from 1920 to 1929, than, for instance, the period from 1932 to 1935. In the Coolidge bull market, they were far more helpful than in the period of Roosevelt's "New Deal".

We study trend lines because they emphasize the direction of the trend, and because they mark turning points. As Schabacker so aptly stated¹ "Trend lines serve a highly useful purpose in limiting losses and letting profits run".

For the most part, trend lines are a "When" question working tool, allied with Triangles and Moving Averages.

In periods of economic uncertainty, when stock prices move sidewise, the trend line phenomenon is of less useful value than in periods when a pronounced advance or decline (diagonal trends) is in progress.

R. W. Schabacker R. W.

Schabacker

L. L. B. Angas William
 Dunnigan

Definition

Using precise technical language, we may define a trend line as:

A tangent projected across two or more exposed reversals in the price trend, usually applied to the right side of the pattern. In an advance, exposed reversal points are successively higher lows, while in a decline they are successively lower high points.

Putting the idea in the simplest language, we may say that they are:

Straight lines projected across successive highs or lows. They are mechanical in nature.

There are certain trend lines which are mathematically projected, and about which we will learn more at a later point.

As most trends are diagonal when plotted on graphs, the vast majority of trend lines are drawn at an angle varying from 10 to 85 degrees, with most in the bracket from 20 to 60 degrees. Trend lines may be applied to many kinds of statistical phenomena. In stock price studies, they may be applied to both price and volume trends, and both closing and highs and lows, plotted at any time period.

As we will find later, it is often necessary to adjust the first trend line, when a trend accelerates sharply upward or downward. *The application of trend lines requires experience and judgment, and is often a process of "trial and error".*

Trend lines should not be confused with the term "line", used by the Dow Theorist (see Chapter VII). However, most of the Dow Theory "lines" are marked on either side by minor horizontal trend lines.

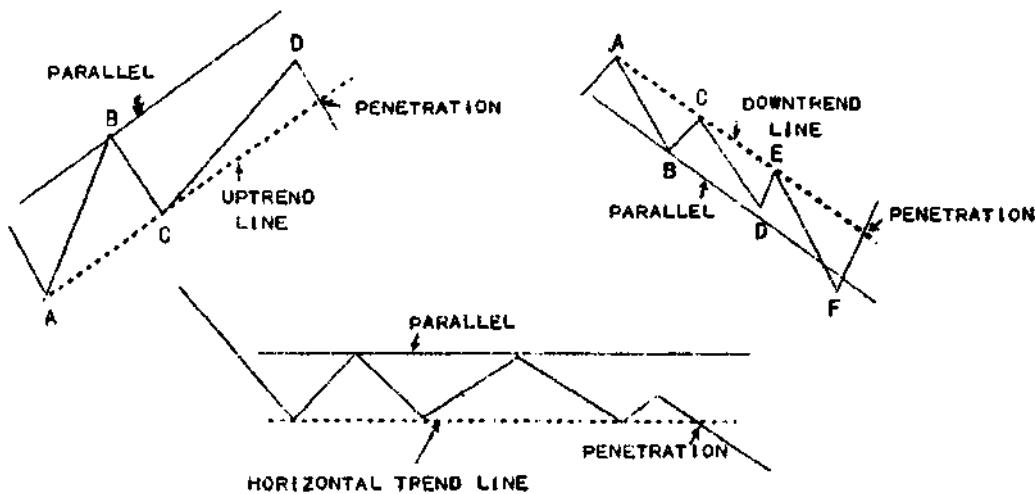
Theory of "Trend Lines"

In practice, the theory of trend lines is, briefly, that once they are penetrated, the trend which they mark has been reversed.

Thus, if a downtrend line, across a series of successively lower highs, is penetrated, it is a signal to buy; while if an uptrend line across a series of higher lows is penetrated, it is a signal to sell.

¹ "STOCK MARKET PROFITS", PAGE 144.

Figure 1



Three Types of Trend Lines

In studying trend lines, it will be found that they fall into three general classifications, as follows:

1. *Uptrend* lines, which are plotted across successive low points, in an advancing trend, which mark the rising demand areas. When up trend lines are penetrated, a decline is signalled.
2. *Downtrend* lines, which are plotted across successive high points, which represent declining supply areas. When these are penetrated, an advance is signalled.
3. *Horizontal* trend lines, which are plotted across a series of similar highs or lows, marking trading areas where demand or supply comes into the market at approximately the same area, upon several occasions. These are not frequent because, by and large, the market is moving in a diagonal direction most of the time.

Classified According to Trends

Trend lines may also be classified according to the four trends, about which we learned in Chapter IV, as follows:

1. Long term (see Chart 1)
2. Major (see Charts 4, 7, 8, 20, 21)
3. Intermediate (see Charts 7 and 11)
4. Minor (see Charts 11-14, inclusive)

Long term trend lines are projected across a series of major reversals. *Major* trend lines are projected across a series of intermediate turning points. *Intermediate* trend lines are projected across a series of minor tops and bottoms. And *minor* trend lines are projected across a series of sub-minor turns.

A study of the charts mentioned above clearly illustrates this procedure.

After a trend line in one direction has been penetrated, it is necessary to await the formation of a higher or lower turning point, to be used with the previous reversal, in order to project the new line, marking the new trend.

The long term trend lines which appear on Chart 1 are quite academic. Until 1931, when the lower line was penetrated, technical students had considerable respect for this line, which had been in force for 70 years. As it will be many years more before we will be able to determine whether there is another long term uptrend line, the matter can be dropped without fear of losing much.

Major trend lines are of more importance to the technical student. They are projected across a series of intermediate turning points. In an uptrend, the first point, of course, is the major reversal at a bear market bottom. The next point is the end of the first corrective phase, which, or example, on Chart 8, was the low just preceding the Bank Holiday.

It must be understood that the angle of major trend lines is usually of small degree, as compared with the angle of intermediate or minor trend lines. A sharp upward trend line, such as that across the July-September minor lows, in 1932, could not possibly be construed as the angle of incidence of a major bull market. With the exception of the panic of 1893, the sharp declining angle of the 1929-1932 bear market, as shown on Chart 1, has not been experienced since 1854, when our records begin (except for the one-year bear market of 1922-1923). However, in 1907, after beginning with a less precipitate decline, prices receded sharply, so that the final trend line in this bear market had an extreme angle.

The application of a major trend line is something which requires a long time period, usually a year or two. Frequently, a major trend line will have to be adjusted downward or upward, at the end of a second cycle in a major market (see Chart 8). This is discussed more at a later point.

Chart 20 shows one of the simplest, and yet one of the most practical applications of major trend lines, which we have. The graph on this chart shows a line for the opening, at the beginning of each month, of an average of all stocks listed on the New York Stock Exchange. It is series No. 1, which appears on page 4 of the *Stock Exchange Bulletin*.² Note how the uptrend

line of the 1923-1929 bull market (A) was penetrated in July of 1929, two months before the top of that great bull market.

Note also, that the September 1929 high of this average failed to better the long trading area from the first quarter of 1929, to the middle of 1929.

See also, how the trend line applied to the bear market of 1929-1932 (B) when it was penetrated, accurately showed a change of market. It is interesting to note that in the current bull market, the uptrend line (C) was not even closely approached by the lows of 1934 and 1935. Note this difference, as compared with Charts 7 and 8, showing daily fluctuations, wherein, in both instances, the first major trend line projected across the lows of July 1932 and February 1933, was not only approached, but actually penetrated, and the major trend line thus had to be adjusted slightly downward.

Reference to Chart 5 shows an interesting case in this connection. Note how the September 1934 low in American Can, plotted on a weekly basis, was exactly on the trend line.

Major Trend Lines of Chief Interest to Long Pull Investor

Naturally, major trend lines are of most practical use to the long pull investor, who takes a market position at a major reversal (as closely as possible) with the intention of holding it until the next major reversal, which may be years away. However, it is to be remembered that the student interested in the intermediate swing greatly benefits by the knowledge that a major trend line has been penetrated. He uses the penetration as one of the signals to change his predominant market positions to make them conform with the new major trend. So long as a bear market exists, the short side is most attractive and safe, because the underlying trend is downward. Immediately the existence of a bull market is established, however, the probabilities are all in favor of the long side, and short commitments become sharply more hazardous, necessitating extreme vigilance so long as they are held.

Intermediate Trend Lines

Of greatest importance to the average trader, are the intermediate trend lines, because he is chiefly interested in the intermediate trend.

A study of intermediate trend lines must naturally be divided into two categories, namely, major phase trend lines and corrective phase trend lines. Obviously, the major phase trend lines are in the direction of the major trend, while the corrective phase trend lines are counter to it.

² COPIES OF THE MONTHLY BULLETIN OF THE NEW YORK STOCK EXCHANGE, PUBLISHED ABOUT THE MIDDLE OF EACH MONTH, MAY BE OBTAINED FREE OF CHARGE, BY COMMUNICATING WITH THE SECRETARY OF THE EXCHANGE. EVERY STOCK MARKET STUDENT SHOULD GET THEM REGULARLY.

Also, the long and short intermediate cycles, which were discussed in Chapter V, have a direct bearing upon intermediate trend lines. It is suggested that the reader study carefully all of the fine lines which are used to mark intermediate trends, both major and corrective phases, on Charts 7 and 8.

A study of trend lines indicates that they are somewhat more valuable as applied to major phases than to corrective phases of intermediate cycles, because in the corrective phases, there are likely to be several rallies or declines, which make it necessary for several adjustments to be made before the corrective phase intermediate trend line which marks the real turning point to a new major phase, can be projected. This is the great difficulty in connection with using trend lines. It is the factor which the novice does not understand. Penetration of preliminary trend lines frequently throws him off the track, and causes him to make a premature commitment which either creates a loss for him, or leaves his capital tied up, or frozen, during a considerable period of time.

The question of adjusting trend lines is discussed at a later point.

Minor Trend Lines

Minor trend lines are chiefly useful to the minor trend trader. For the intermediate trend trader to follow their implications is often a dangerous practice, except when he is watching for the penetration of an established intermediate trend line. Numerous minor trend lines are well illustrated on Charts 11, 12 and 13. In these cases, they are applied to the hourly and 20-minute charts.

In using minor trend lines, even the minor trend trader must keep in mind that they are useless, unless projected across two or more minor turning points, between which a rally and decline, or vice versa, of several days, have occurred. Except in a drastic decline, such as that of May 28-June 1, 1935, a rally or decline of an hour or two, which may form a sub-minor top or bottom, is usually a poor contact across which to project a minor trend line.

To illustrate the point, let us look at the minor downtrend line on Chart 11, from middle February to middle March, 1935. Here we have a trend line with three good contacts, which was broken upside following the five-point reversal which marked the bottom in March. The upside penetration of this line was not only a signal for the minor trend trader, but also proved to be one of importance for the intermediate trend trader.

Problems Which Must Be Understood

Before discussing certain refinements of trend lines, and their uses, it is essential to clear up several important problems which arise in any detailed study of the phenomena of trend lines. These problems fall into five categories, namely:

1. Scales used in plotting charts affect the trend line.

2. The angle of a trend line has an important bearing on its interpretation.
3. In projecting trend lines, will different procedure produce different interpretation?
4. What are the problems in adjusting trend lines? and
5. What penetration of trend lines is reliable?

Let us discuss these problems in the order suggested.

Scales Used Will Make an Important Difference in the Interpretation of Trend Lines

There are two important factors, purely mechanical in nature, which from time to time will make notable difference in the interpretation of trend lines. They are:

- a. The size and relation of the price and time scales, and
- b. The type of price scale.

Quite often, there are occasions when two charts of the same price trend will be prepared on slightly different scales, either for price or time, or both, and the result will be that a trend line projected across the same two tops or bottoms will be penetrated at a different level, and at an earlier or later time. The question arises as to whether one chart or the other is in error.

Actually, both charts have an amount of error, because, as the average market student uses charts, they are not accurately drawn. For example, if a trend line is not constructed through two accurately plotted points, or is not itself drawn accurately across these points, there is considerable error, particularly if the line is a long one, by the time it is penetrated at a later point.

One market student might choose to make his observations by using 20 lines to the inch for his time scale, while another would find this too tedious upon the eyes, and prefer to use only ten lines to the inch for his time scale. Both might use the same linear division for their price scale, and the trend lines drawn upon their charts would be penetrated at different points.

Immediately, the conclusion is reached that the difference in the time scale explains the difference in the trend lines. The fact of the matter is, that if both trend lines were absolutely accurately plotted, the difference in penetration would probably be very slight. The same would be true of occasional variations in the price scale.

But if both scales are varied on one chart, as compared with another, there can be quite a discrepancy in the point at which penetration occurs. A comparison of a daily and weekly chart for the same stock will quickly show this.

Another factor which enters into the problem is the fact that some charts are prepared with time scales based on calendar days, while others cover only market days. If it happens that several calendar days, on which there is no trading, follow each other in close succession, between the two points across which a

trend line is projected, the additional time scale space will so change the angle of a trend line, that there will be a difference in the point of penetration, as compared with a chart prepared on the basis of trading days alone.

However, in practice, except as applied to the minor trend, such differences in time and level of penetration of trend lines, as are caused by the above factors, are not really very important in that any significant reversal is usually followed by a movement of sufficient amplitude to penetrate various trend lines within several days of each other, and within from 2 to 5 per cent in the price trend.

A long study of various scales has not evolved any ideal formula which will provide earlier or more reliable trend line penetration.

The type of scale used has a far more important bearing on the penetration point than the size of the scales, or the relation of the time and price scales.

It will be remembered that in Chapter II, it was noted that in stock price studies, there were three types of price scales which were most used, namely:

1. The arithmetic scale,
2. The ratio, or semi-logarithmic, scale, and
3. The square root scale.

Of these three, the more widely used are, of course, the first two. The square root scale has been given greater attention in the past several years, but it has not as yet proved that it is superior to either the arithmetic or semi-logarithmic scale, in all cases.³

Comparison of Three Scales

Let us examine a monthly high and low chart of daily closings of the Dow Jones average of 30 Industrial stocks, from 1929 to 1935, plotted on the three scales. Chart 21 shows such a picture. In Case 1, the data has been plotted on the arithmetic scale, in Case 2 on the logarithmic or ratio scale, and in Case 3, on the square root scale.

In each case, the price scales have been designed so that they are the same linear length, and in all three cases, the time scales are the same. Now let us observe the differences which meet the eye, in these three cases.

First, is the *arithmetic scale*. Here we note that in the bear market, the first sharp crash in October and November, was followed by a more gradual decline, and by the time the bear market lows were reached in July of 1932, the curve of the pattern showed a distinctly decelerating tendency. Conversely, on the upside, in the bull market since the lows of 1932, the curve is comparatively showing a gradual acceleration.

Quite the contrary is true in the case of the

³ DR. FREDERICK R. MACAULAY OF THE NATIONAL BUREAU OF ECONOMIC RESEARCH, NEW YORK, SUGGESTED THIS SCALE FOR STOCK PRICE PLOTTING; CHARLES BURGESS AND HOMER FAHRNER OF CALIFORNIA HAVE CONDUCTED CONSIDERABLE RESEARCH WITH IT. SEE CHART 2, THE STOCK AVERAGE IS PLOTTED ON SQUARE ROOT SCALE.

logarithmic scale, where the downward curve in the bear market showed notable acceleration, right to the turning point in July 1932. Conversely, in the bull market since that date, there has been a definite tendency for the upward curve to decelerate, compared with the arithmetic curve.

In the third case, which shows the *square root scale*, both of these curve tendencies appear to be straightened out, which of course is the purpose of applying this unusual scale.

From the viewpoint of trend line procedure, we see that in the case of the arithmetic scale, the first major downtrend line (A) had to be adjusted upward to the trend line B, which was finally penetrated in the July 1932 advance. On the other hand, trend line A on the ratio scale had instead to be adjusted downward to trend line B, and as a matter of fact, before the decline was over, it was necessary for a second adjustment, in the form of trend line C.

If we compare trend line B in Case 1 (arithmetic) and Case 2 (ratio), we see instantly, that in the case of the ratio scale, line B was not penetrated until the advance in May 1933 which followed the Bank Holiday, at a level about 10 per cent above the penetration of a similar trend line applied to the arithmetic plotting.

On the other hand, the adjusted trend line B, applied to the square root scale, was penetrated early in August, 1932, at a level approximately between the penetration points in the two previous cases. That is, it was a little later in being penetrated than the arithmetic scale, and considerably earlier than the ratio scale.

The uptrend line in the current bull market shows the same general characteristics. Note that in Case 1, a very substantial upward adjustment had to be made, across the lows of February 1933 and March 1935. In the case of the ratio scale, much less adjustment was necessary, while in the case of the square root scale, only a very small upward adjustment was needed.

Before drawing a conclusion concerning the application of trend lines, to the various scales, let us extend our discussion somewhat further, by observing Figure 2, which compares penetration points in two simple diagrams (an uptrend and a downtrend) on arithmetic and ratio scales. As these are most used, we do not include in the comparison the case of the square root scale.

Figure 2 shows two diagrams, compared on ratio and arithmetic scales. Let us first take the decline which appears to the left. Here we see that across the top and the first lower high point, trend line A was projected. In the case of the ratio scale, it was penetrated at approximately 2.9, while in the case of the arithmetic scale, it was penetrated at 2.4. Then a lower top formed, and a new trend line was projected over the second and third peaks, with the result that on the ratio scale, this adjusted line was penetrated at 1.7, while on the arithmetic scale it was penetrated at 1.6.

Now in the case of the advance: Here trend line C was projected across the bottom, and the next higher

low point. The result was that it was penetrated at 6, in the case of the ratio scale, and 4.8 in the case of the arithmetic scale.

From these penetrations, we may draw similar conclusions to those which might be taken from Cases 1 and 2, on Chart 21.

Downtrend Lines Are Penetrated Earlier When Applied to the Arithmetic Scale; Uptrend Lines Are Penetrated Earlier When Applied to the Ratio Scale

From this diagram, as well as the pictures on Chart 21, we may draw the following conclusions, which are confirmed by research of a large number of other actual cases.

1. As a general proposition, earlier buying signals will be produced as the result of upside penetration of downtrend lines, if they are applied to an arithmetic plotting, and
2. As a general proposition, earlier selling signals will be produced as the result of downside penetration of uptrend lines, if they are applied to a ratio plotting.

The conclusions are diametrically opposed to those presented in an earlier manuscript by the author. However, the validity of the above conclusions may be logically explained by the following reasoning:

Plotting made on the arithmetic scale, across two successively lower high points, will be at a greater angle of incidence on the arithmetic scale than on the ratio scale. The result will be that the downtrend line on the arithmetic scale will therefore be penetrated at an earlier point.

Conversely, due to the compression which occurs in the upper brackets of a ratio scale, the angle of incidence of a downtrend line, projected across the same two peaks, will be less than that in the case of the arithmetic scale, with the result that such a trend line will be penetrated at a later time than in the case of the arithmetic scale.

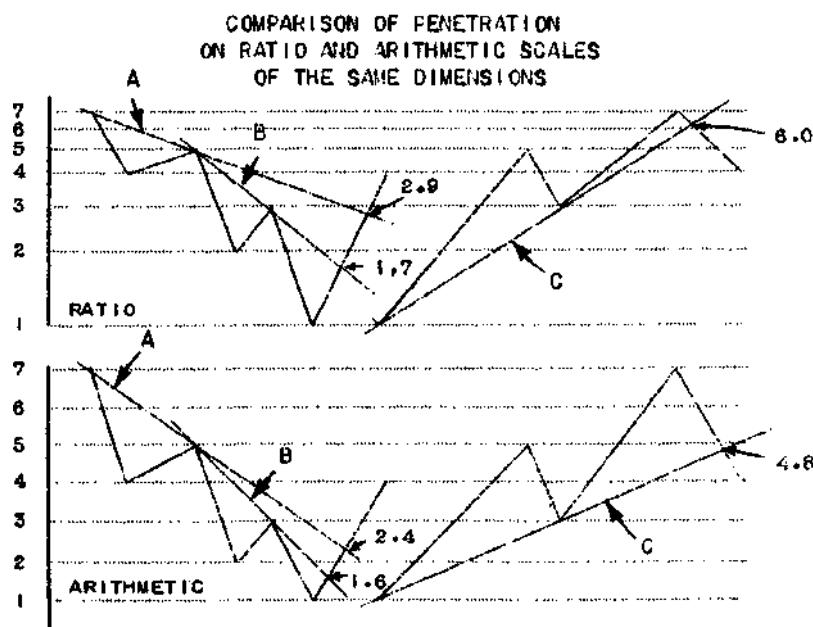
On the other hand, in an advance, an uptrend line projected across two successively higher low points, will have a greater angle of incidence, when applied to a ratio scale, than in the case of an arithmetic scale, with the result that such a line will be penetrated earlier, in the case of the ratio scale, than in the case of the arithmetic scale.

The compression of the upper bracket of a ratio scale is, of course, also a factor in producing an early penetration of an uptrend line applied to the ratio scale. Conversely, the fact that the price trend is not similarly compressed in an arithmetic scale is the reason why the penetration of an uptrend line applied to an arithmetic scale will be later than in the case of a ratio scale.

With these facts in mind, the reader might logically ask "Well, what shall we do about it?" The answer is

In studying major trends, for the amount of work involved, it is worthwhile to have two charts, one on arithmetic and one on ratio scale, the first to be used in studying trend line penetrations on

Figure 2



the downside, and the second on the upside.

Let us take, for example, Charts 7 and 8. On Chart 7, the major uptrend line projected across the lows of July 1932 and February 1933, was very slightly penetrated in September of 1934. In the case of Chart 8, on the ratio scale, the same trend line was decisively penetrated in June.

Notice also, that the angle of incidence of the new adjusted trend line across the lows of 1932 and 1935, had a greater angle of incidence in the case of Chart 8, on ratio scale, than in the case of Chart 7, on the arithmetic scale. This should be valuable at a later time.

In the case of a large number of daily or weekly charts, in a study of individual stocks, it would be quite impossible to have two charts for each merely for the purpose of providing means for seeing earlier penetrations of trend lines. Because of their great benefit otherwise, the author chooses to use ratio charts, always keeping in mind that downtrend lines on such charts are likely to be penetrated somewhat later than in the case of arithmetic charts.

Trend Lines on Charts of Different Time Periods

It is almost impossible to reconcile time or level of penetration of comparable trend lines, on charts which are prepared to show different time periods; for example, a daily high and low chart, as compared with a weekly high and low chart for the same stock or average. Naturally, any decisive penetration of comparable lines will appear on both charts. But as to whether it will appear on the daily chart before the weekly chart depends entirely upon when, in a given week, the decline or advance happens to be enough to penetrate a weekly chart. The matter is academic anyway, as in the case of the penetration of trend lines, it is only when a decisive movement has

occurred, and this shows up on charts of almost any kind.

A study of minor trend charts, plotted on different bases, will show a comparatively large number of cases where penetrations appear to occur at different points.

Now let us consider very briefly another way in which trend lines vary.

Angles of Incidence of Trend Lines

From what has already been said, it will quickly be understood that the angle of a given trend projected across two or more successive high or low points, will vary according to both time and price scales, or a combination of them, employed in preparing charts.

A study of a large number of trend lines does not show that there is any normal expectancy as to the angle of a trend line. In an uptrend, for example, in the major phase of a bull market cycle, it is not unusual to see the first part of the advance rise to an angle of from 70 to 80 degrees. Then the angle turns down to between 30 and 40 degrees, and often in the final push which makes the top, again resume a sharper angle, between 60 and 70 degrees.

In downtrends, the angle of incidence frequently begins between 30 and 40 degrees, and gradually accelerates to between 60 and 70 degrees.

The sharpest advances and declines are in the range between 70 and 85 degrees. It is seldom that a move of more than one or two days will exceed this maximum angle.

Almost any market student who has had engineering training, will sooner or later try his hand at trying to determine changes in trend by means of changes in the angle of incidence of price movements. Following much arduous work, he usually comes to the conclusion that there is no rhyme or reason to the

price trend, and gives up the idea in disgust.

Considerable research, and observation of the angles of trend lines, leaves only one or two generally useful ideas.

First, it is safe to say that major trends never proceed at a very sharp angle. Between 20 and 40 degrees is about the maximum angle. At the beginning of a bull market, if a trend line across the bear market low, and the next intermediate low point proceeds at an angle much greater than this, it is likely that a subsequent intermediate bottom will make it necessary to adjust that line downward to a lesser angle. However, bear markets often have an angle of incidence somewhat greater, varying between 30 and 50 degrees, and frequently accelerating in their latter stages to about 70 degrees.

Secondly, it may be said that whenever an uptrend, stretching over a period of one or two weeks, accelerates to an angle above 80 degrees, it will not be long before a reversal may be expected.

The refinements in studying the angles of trend lines are so numerous, and the conclusions so wobbly, that the reader might well use his time in studying other problems.

Adjustment of Trend Lines

By this time, it must be understood that it is frequently necessary to adjust a trend line. That is, a first trend line, drawn across a reversal point and the successive lower top or higher bottom, is not always the line which either clearly marks the angle of a trend, or, when penetrated, produces the most advantageous reversal signal. In about 6 cases out of each 10, it becomes necessary to make some adjustment, either upward or downward, of both major and intermediate trend lines. Even a larger proportion of minor trend lines must be adjusted if they are to fit all minor trends.

Let us consider, first, major trend lines. Observing Chart 21, it will be noted that when the arithmetic scale (Case 1) is used, in a major downtrend, the first adjustment is likely to be upward. Take, for example, trend line A, which had to be supplanted by trend line B, as soon as the trend began to round upward, in 1931. If a ratio chart is being used (Case 2), this adjustment is usually downward, and if a decline of some substantial proportions occurred, several adjustments are required if the last line is to be penetrated at an early point. The idea is well demonstrated, by trend lines A, B and C, of Case 2.

In bear market declines, the square root trend lines are apt to be more accurate throughout the entire recession in price. This is well demonstrated in Case 3, on Chart 21.

In major uptrends, the reverse of the above usually holds true; that is, major uptrend lines on arithmetic charts must be adjusted upward, while frequently, on ratio charts, there is downward adjustment. In the case of the present bull market, we noted that on Chart 21, the long sidewise movement from 1933 to

1935 made it necessary to adjust trend lines on all three scales *upward*. As these lines are at a moderate angle of incidence, it is likely that they mark the real bull market trend; and when they are decisively penetrated, we will again be in a bear market.

In adjusting major trend lines, there is usually only one adjustment, because most major markets include only from 2 1/2 to 4 1/2 intermediate cycles. The bear market low, and the succeeding end of the correction of the first upward cycle, form the points for the first trend line, while the end of the second cycle frequently forms the point for the adjusted major trend line, as we see now, on Chart 21.

Now let us look at the adjustment of intermediate trend lines. Here our problem falls into two categories, namely, Major Phase Trend Lines and Corrective Phase Trend Lines.

There are fewer adjustments necessary in the major phase lines than in the corrective phase lines. This is particularly true in the case of shorter intermediate cycles.

In a very brief discussion of the subject, let us look at Chart 8, showing the daily high and low of the Standard 90 stock index, for the period January 1930 to September 1935. This period includes the last 5 1/2 intermediate cycles in the bear market 1929-1932, and the first two cycles of the current bull market, with what is believed to be part of the major phase of the third cycle.

To illustrate the variations in the problem of adjustment of trend lines in both major and corrective phases, let us begin with the Hoover Moratorium rally in the summer of 1931. This rally represented the corrective phase of the fourth cycle of liquidation in the bear market of 1929-1932. Actually, the correction ended with the high on June 27.

In this case, the intermediate trend line A was penetrated at an early time, in the next major phase, and the bear market continued. But the major phase of the fifth cycle did not proceed immediately. On the contrary, there was a period of nearly two months, through the summer of 1931, when international economic events were most confusing, with the result that American stock prices fluctuated in several small waves, forming a triangular pattern, which finally broke out downside just after Labor Day. This was discussed in the previous Chapter.

During the formation of this triangle, there were three successively lower trend lines which developed (A, B and C). When the last of these was penetrated downside, the decline in the fifth major phase of the 1929-1932 bear market became precipitate. Thus, trend line D was adjusted, and trend line E was projected as soon as the rally which followed Great Britain's abandonment of the gold standard had culminated. When this trend line was penetrated, the corrective phase of the fifth cycle was under way.

During this correction, it will be noted that trend line F had to be adjusted to trend line G. When this was penetrated, the major phase of the sixth cycle was under way.

As soon as the first minor rally of importance culminated, a downtrend line (I) was projected on that major phase. When this was penetrated, it was assumed that the corrective phase of the sixth cycle was under way, and following a sharp advance, uptrend line J was projected across the minor lows, on the theory that it marked the corrective phase of the sixth cycle. But when the January-February decline made a new low, and the sharp Glass-Steagall rally tested the previous high, it was evident that a trading area was in progress, and trend lines K and L were projected horizontally across the tops and bottoms.

After the minor correction following the Glass-Steagall rally, trend line M was projected, on the theory that another cycle of liquidation might occur. At this point, it was a question of an upside penetration of K, indicating the probability that the bear market was over; or the downside penetration of M, and then L, indicating that another cycle of liquidation was under way. The latter proved to be the case, when the decline of March-July proceeded as the final half-cycle in the bear market developed.

In this final decline of the bear market, it was necessary to adjust the downward trend line upon two occasions, so that a series of three trend lines were projected across the highs of this decline (N, O and P). When the final line of this series was penetrated, the new bull market began.

The first intermediate trend line (Q) in the new major phase of the bull market had to be adjusted upon two occasions (R and S).

In the corrective phase of this cycle, as a large descending triangle formed, there were three adjustments (U, V and W). When W was penetrated, the next major phase was definitely under way. It was again necessary, in this second major phase, to make several adjustments, from a bottom something like that in the case of the first major phase.

At this point, on Chart 8, we have changed trend lines into "trend bands". In studying trend lines which are applied to high-low daily charts, it is always advantageous to consider any trend line as marking a rising or falling demand or supply area. Therefore it is well more or less to eliminate the fringe of the daily movements by projecting a trend line in terms of a narrow band, which takes in the majority of minor tops and bottoms. These bands are, in themselves, slight adjustments of individual trend lines.

In the long corrective phase from the July 1933 high to the March 1935 low, there were four distinct trends marked by these trend bands; and it was not until the adjusted trend line across the February 1934 and January 1935 highs was penetrated, that the major phase of the third cycle in the current bull market was under way.

From the above discussion, it should be immediately obvious that the statement beginning this Chapter, concerning the fact that trend lines are not as simple as they seem, is well justified.

Due to the fact that in the majority of cases, intermediate trend lines have to be adjusted from one

to three times in the course of either a major or corrective phase, it is a good rule to wait for at least a second adjustment before taking the stand that a trend line penetration probably indicates an intermediate reversal.

Before leaving the subject of adjusting trend lines, let us look at the period from May to July, 1933, on Chart 7. In this case, in the June 13-16 sharp decline, trend line A was sharply penetrated, thus providing a sell signal. Subsequently, prices rose substantially higher before the second major phase was ended. The question arises as to what is the defense for such a premature penetration. In this particular case, the trader had but one thing to do, namely; if he had sold stocks on the penetration downside, of trend line A, in this June decline, the upside penetration of the small horizontal trend line C provided a signal to repurchase stocks. Although, theoretically, this provides a defense from a premature penetration, in this case it is likely that if stocks were again sold when trend line B was penetrated, there would not have been much profit between the purchase price after C was penetrated, and the sale price when B was penetrated.

Trend Bands

Frequently, the academic question arises as to whether trend lines should be projected across the extreme high and low points on a chart showing daily or weekly range. Some technical students will argue that it is essential to project trend lines across the extreme points, while others will point out that use of trend bands, suggested above, prevents numerous premature penetrations. The author leans to this side of the argument.

As a matter of fact, there have been numerous cases in recent years, where trend lines applied to the closing prices, rather than the extreme low and high points, appear to be penetrated falsely upon fewer occasions. The happy medium seems to be, as noted above, to consider every trend line as an ascending demand area, or a descending supply area. If this is done, the extremes will be noted, but they will not be given undue significance. The same general theory holds for the lines which mark triangles.

The subject of considering the extremes also brings up the question as to whether a valid trend line may be projected across a series of higher bottoms or lower tops, which do not include the previous reversal point. In the opinion of this writer, the answer to this question is decidedly YES. Take the case, on Chart 8, of the advance from March to July of 1933. Here the important trend line (or trend band) was projected, not across the lows of March and April, but across the lows of April and June, entirely leaving out the lows of March.

Thus, upon frequent occasions in adjusting trend lines, we automatically drop the consideration of the reversal as the first contact. This is because most trends tend to accelerate as they progress.

We now come to the last of the five problems men-

tioned on pages 239-240, wherein we will consider the vital subject of penetration of trend lines.

Penetration of Trend Lines

As is the case in the study of the Dow Theory, the problem of penetration is ever present. There is always the question of "What is significant penetration of a trend line?"

The more one studies trend lines and their penetration, the more one becomes convinced there is no exact formula which will answer this question. Some technical students, in studying daily charts of the averages, like to see a full-point penetration, that is, one point for whatever average is being studied, before they feel that a penetration of a trend line is a valid one. Others rely more upon a closing level through a specific trend line.

A considerable study of the subject leads the author to believe that a combination of the two is a safe compromise. That is, if a well-defined trend line is penetrated by a point, and at the same time the closing price is through it, it is likely to be a significant penetration.

But the mere amount of a penetration is not felt to be as important as the circumstances which attend it.

For example, a sharp, decisive penetration, in the form of a one or two-day advance or decline, which leaves the closing level near the high or low of the day, and is accompanied by sharply increased activity, is considered to be a significant penetration.

Thus, a penetration which occurs as a result of several days of sidewise movement, is more likely to be a test of the trend line, than a penetration of it. However, if such a sidewise movement is followed by a sharp advance or decline, accompanied by volume, then it may be considered as equally significant.

In addition to a decisive advance, or decline, accompanied by volume, if a gap appears, indicating that sentiment in the direction of the move is quite decisive, it is usually a more significant penetration than one without a gap (see Chapter XII).

Also, it is always worthwhile to consider whether the penetration follows a logical reversal pattern. If, for example, it occurs as the markdown which completes a top or bottom, then that penetration has added value.

If the penetration of a trend line occurs in connection with a triangle pattern, this also has a bearing upon its importance. If, on a given day, prices end just at the trend line, and the next day there is a downside gap, a decisive decline, a closing near the low, accompanied by volume, following what may well be a reversal pattern, that may be considered a decisive penetration, without question; and in about eight such cases out of ten, the reader can be confident that the movement will be extended in a substantial way.

Now that we have discussed some of the problems connected with the consideration of trend lines, let us proceed to an examination of some of their variations.

Center Line Trend Lines

Theoretically, the ebb and flow of market interest, during a given diagonal trend, should produce a line which is the center of the trend, and about which the trend oscillates, or moves from side to side. Let us take, for example, Chart 1.

We have the long term center line indicating the angle of this trend. The bear market tops and bottoms, from about 1860 to 1931, were approximately equidistant from this center line. In each major market, we can draw a similar center line. Take, for example, Case 3 on Chart 21, where, on the square root plotting, we have placed central lines in position, to show how the trend moves around these lines. The square root scale tends to make a trend a straight line.

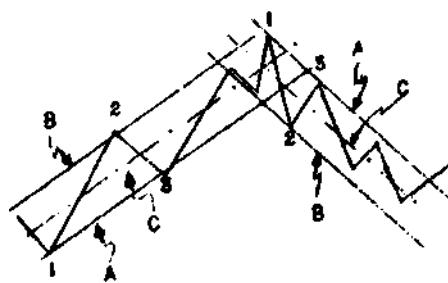
The application of center lines to charts plotted on the square root scale may often be accomplished more easily than those on other scales. However, there are a few intermediate trends, either major or corrective phases, which develop so regularly that a center line, plotted at an early time in the trend, proves to be accurate in reflecting the center of that trend.

The theory of placing such a center trend line is to project it midway between a series of parallel trend lines, based on the first three successive reversals which appear to make up that trend.

In Figure 3, for example, trend line A was projected across the bottoms 1 and 3, while trend line B is a parallel line, projected across top 2. Upon completion of bottom 3, a central line C may be located equidistant from A and B.

The chief value of the center line is that it usually marks the approximate angle of incidence of the proper trend. When prices tend to move above it, it indicates that the trend is accelerating, and showing greater strength than might be expected. On the other hand, when prices tend to move below it, it is a definite indication that the trend is becoming weaker. We see an actual example of this phenomenon, applied to the intermediate trend, from February to October 1932, on Chart 22, marked D and M.

Figure 3



Parallel Trend Lines

A discussion of center trend lines naturally brings up the subject of parallel trend lines. As noted above, there are many trends which seem to be well-marked, between two parallel lines. This was true in the case of the long term "growth of the nation" trend, as shown

on Chart 1, and it is frequently true in the case of a bull or bear market, and more frequently, in the case of either major or corrective phases of intermediate cycles.

The author terms these parallel trends as "trend channels". An excellent example of one, in an intermediate trend major phase, may be seen on Chart 11, in the advance from the March 1935 lows to the September highs.

Parallel lines more often apply to the major phase, rather than the corrective phase, which is likely to be an irregular sidewise movement. The theory of drawing a parallel line, as has just been noted in connection with center lines, is to project it across the intervening top or bottom, between the two points through which the lower uptrend line in an advance, or the upper downtrend line in a decline, is projected. Figure 3 shows the principle. The parallel line, of course, makes the second side of a trend channel.

Occasionally, the major phase of an intermediate movement will develop in such a way that many of the minor rallies appear to approach trend lines, which are parallel with the line which indicates that particular trend. Take for example Chart 22.

Trend Channels

Here we have the last half-cycle in the bear market, and the first major phase in the bull market of 1932 - ? . After the trend had proceeded downward for some time, in April of 1932, line A was projected, and following the high in May, parallel trend line G was projected, across the lows of April. It will be noted that some of the lows during this decline were on the parallel line marked F. In the rally in June to point H, trend line A was decisively penetrated. Here is a good example of a false penetration, which occurred approximately one month before the actual reversal.

As we are able to study this trend in retrospect, we see immediately that the actual center line of the trend was between lines B and G, which were projected across the actual highs and lows of the trend. It is interesting to note that the final rallies in this decline had an angle of incidence which was approximately a right angle to this parallel trend. (Note the small trend lines marked E.)

There was an excellent example of a sidewise movement for a period of several days, showing a horizontal trend, at C.

It will be noted that after the major reversal in July, trend line K was projected across the minor lows in the new uptrend at a right angle to line A. Previous to these minor lows, it will be noted that the bottom in July failed by a large margin, to reach the lower parallels F and G. Thus, in trending away from these parallels, growing strength was clearly indicated.

After trend line K was projected, it will be noted that a sharp advance to point A, in August, occurred. Following the reaction to B, a parallel line O was projected (parallel to K) through A, and then the center line M was projected as the angle of the uptrend. The

fact that tops C and E trended downward away from this upper parallel indicated the weakness which presaged the turning points of that advance.

To make a perfect parallel line case of this advance, it would have been necessary for the decline A-B to have more nearly reached the lower trend line K. This is a good example illustrating a case where it was quite difficult to project a real central trend line.

One of the chief uses of parallel trend line phenomena is in seeing these gradual trends away from the parallel, as indicative of a coming reversal, such as shown by line P.

Once a parallel trend has been established, by means of three points like 1, 2, and 3, in Figure 3, if an uptrend is in progress, stocks can again be sold when prices reach the upper parallel, or, conversely, in a downtrend, stocks can be purchased when they reach the lower parallel, with a good chance of profit.

Occasionally, after forming a well-defined parallel trend, prices will cross and cut through the parallel, to rise to a new high point; or, in case of a decline during a selling climax, to dip sharply below the parallel. These cases, however, are not numerous. In the vast majority of instances, when a well-defined parallel trend is visible on the chart, prices seldom go much above the upper parallel in an advance, or the lower parallel in a decline; and in most cases, as shown on Chart 22, they tend to trend away from the parallel prior to a reversal.

This brings us to another interesting and useful variation of trend lines.

Converging Trend Lines

In the previous Chapter, concerning triangles, it was mentioned that occasionally a pattern will develop wherein two trend lines will converge at an angle upward or downward. This phenomenon we call converging trend lines. It is well illustrated in the period August-September, 1932, on Chart 22. Take, for example, the movement A-E inclusive. A lower trend line (L), through points B and D, and an upper line (P) across points A, C and E mark such a series of converging trend lines. When the lower line was penetrated, it signalled the end of the first major phase, or primary swing, of the bull market which began from the July 1932 low.

Converging trend lines frequently occur in connection with a parallel trend, such as we have just described above. Frequently, although not always, the lower line in a pair of converging trend lines, in an advance, will be the line which marks the trend. Conversely, the upper line in a decline will mark the trend.

In the particular case illustrated on Chart 22, this was not the situation, as trend line L through B and D, though parallel, was considerably above line K which marked this particular uptrend. In many cases, converging trend lines develop in this way.

Quite frequently, converging trend lines are a phenomenon which is best shown on a closing line, rather

than a high-low, chart.⁴

Trend Line "Fans"

Previously, in a discussion of the corrective area in the first cycle of the current bull market, between September 1932 and April 1933, as shown on Chart 8, it was noted that several trend lines, in fan formation, frequently form as a result of minor movements which penetrate preliminary lines, before the real penetration of the final line takes place. Let us look at Chart 8 again for a moment.

Beginning with the top of September 1932, it will be noted that there were four trend lines across the highs of the corrective phase (T, U, V and W). Frequently, this phenomenon develops in the corrective phase of an intermediate cycle. It is naturally the result of adjusting trend lines, and, as noted above, *it is usually wise for the trader to await the penetration of the second or third line*, before relying too heavily upon the probability that the trend has turned.

Least Square Trend Lines

From time to time, market students mathematically inclined, have made an effort to fit a straight line to the trend of stock prices, by what is known as "the method of least squares". A complete description of this statistical procedure is outlined on pages 273-280, inclusive, in *Statistical Methods*, by Frederick C. Mills.

For purpose of illustration, we have fitted two such lines to the bear market decline of 1929-1932 (see Chart 7).

The upper line was fitted to the high points which are numbered 1 to 7, inclusive; while the lower line was fitted to the low points numbered from 8 to 13 inclusive. It will be noted that these two dotted lines converge late in August 1932, at a level several points under the actual low in July. Thus, the convergence of the lines, which were computed and plotted on the chart in middle 1931, a year before the end of the bear market, by their convergence gave an indication, substantially in advance, of a bear market reversal level both in time and price. From a major trend viewpoint, this was singularly accurate.

Note that the upside penetration of these two lines was within a week, and within three points of the actual bear market low.

It is not believed that the method of least squares can be profitably employed by application to either the intermediate or minor trends. Readers mathematically inclined, to whom the idea has appeal, might try the fitting of a pair of least square lines to the current bull market, using the September 1932, July 1933, and February 1934 highs, and the July 1932, March 1933, October 1933, July 1934 and March 1935 lows.

The practical use of such least-square trend lines is, in a substantial measure, the same as the use of the center trend line. That is, when, after a substantial

decline, the market shows evidence of turning away from the straight lines projected by the method of least squares, then there is evidence that a reversal is either about to take place, or has already occurred.

The method is highly academic, and requires a fair knowledge of algebra, and the solution of algebraic equations. The equation for the method will be found on page 277 of Mills' *Statistical Methods*.⁵

Volume and Trend Lines

When an important trend line is penetrated, it frequently happens that volume increases immediately after the penetration. It is likely that in recent years no small part of such volume arises from the activities of technical students who take positions promptly as the penetration occurs. When their guesses prove wrong, the volume continues at an active pace.

As most important trend lines, both intermediate and major, are penetrated during or by means of a mark-up or mark-down, it is to be expected that activity at such penetrations will increase as compared with that immediately preceding such an area. Where penetrations occur as a result of a sidewise movement, volume is likely to be notably small. Such penetrations are usually not significantly important.

Horizontal trend lines are usually penetrated on dull volume with activity picking up if the move is important and continuing at a low level if the move is a false one.

Horizontal Trend Lines

Due to their comparative simplicity, we have devoted little space to horizontal trend lines. As stated early in the Chapter, they develop less frequently than diagonal trend lines, and appear as the result of the sidewise movements, or trading areas, during periods of unusual uncertainty. Good examples may be seen on Chart 7, from October 1932 to April 1933, and again between July 1934 and March 1935.

Similar minor trend periods may be seen in the Utility average, on Chart 11.

In the case of the 1932-1933 horizontal trend, on Chart 7, a false penetration occurred, just before the 1933 advance, as the panic which preceded the Bank Holiday depressed stock prices.

In the 1934-1935 case, the upside penetration, it will be noted, was accompanied by expanding volume, which confirmed its importance.

A series of horizontal trend lines, which encompassed four major markets, may be seen on

⁴ SEE PAGE 234, CHAPTER IX.

⁵ FOR THOSE READERS WHO HAPPEN TO HAVE THE "CHART TECHNICIANS' MANUAL", BY OWEN TAYLOR, WE WISH TO POINT OUT THAT THE REFERENCE MADE ON PAGE 54, OF CHAPTER 8 OF THAT PUBLICATION, WHEREIN IT WAS STATED THAT "A MOVING AVERAGE IS AN APPLICATION OF THE METHOD OF LEAST SQUARES" IS AN INCORRECT STATEMENT. WE CAN FIND NO STATISTICAL AUTHORITY WHO SEES ANY DIRECT CONNECTION BETWEEN THE APPLICATION OF LEAST SQUARES AND MOVING AVERAGES, AS SIMILAR OR RELATED STATISTICAL PROCEDURES. THE STATEMENT APPEARS TO BE AN ILL-CONSIDERED REFERENCE.

Chart 4, from the period 1914 to 1924. Note the interesting fact that this huge trading area was followed by a move of extended amount, more or less in proportion to the size of the trading area marked by the horizontal trend lines. Note also that the penetration occurred as the result of a very sharp rise in November and December, 1924, which was accompanied by a substantial step-up in activity.

Simultaneous Penetration by Many Croup Averages Makes a More Important Reversal

There have been many occasions when a few stocks or a few groups have penetrated trend lines and given a false signal, while other groups failed to follow. A widespread penetration, at approximately the same time, by most groups is needed to give an important signal. Experience shows that most weight must be given to groups representing fundamental "heavy" industries, such as railroads and steels. In many cases, the stocks representing industries enjoying exceptionally good circumstances tend to turn upward after declines, while a wide list of groups still have liquidation to undergo.

Trend Lines Applied to Price Ratios

As we will learn, in studying Chapter XVII, trend lines are often quite useful in interpreting turning points in price ratios, as well as price trends themselves. Two of the most important observations concerning the phenomenon of the trend line, applied to price ratios, may be summarized as follows:

When, during a diagonal upward or downward trend, a reversal occurs in the price, and a rally or decline in the opposite direction is strong enough to cause a decisive penetration in both price, and the ratio of the price, it is usually more significant than a penetration of the price alone (see Charts 40 and 41).

In studying the application of trend lines to ratios, it is important to know that a significant penetration of a price ratio is usually by means of a very sharp movement in the direction of the new trend. Both these premises will be given further consideration in Chapter XVII.

Trend Lines Often Produce Excellent Signals When Applied to Figure Charts

As we will find, in studying Chapter XVI, trend lines which are applied to stock price charts plotted in the manner of a number, or figure chart, which is based upon observation of price change alone, and does not have a comparable time scale with the charts we have been studying thus far, often show early penetrations, as compared with other types of charts, and fewer false penetrations occur on figure charts as compared with the bar and line types of charts we have been studying thus far.

This is due to the fact that the elimination of the time element compresses price fluctuations. Thus, there are fewer occasions where trend lines have to be adjusted.

Due to this compression of price fluctuations, horizontal trend lines are more numerous on figure charts, although they are usually of smaller linear dimension (also because of the compression of the time scale), than on line or bar charts.

Trend Lines Must Be Used in Conjunction with Other Working Tools

Earlier in the Chapter, it was pointed out that the penetration of a trend line, which produces the final signal of a change in trend, occurs after the actual reversal point. Thus, it is naturally true that some kind of reversal pattern has in part developed, before the trend line is approached or penetrated.

Simultaneous with the penetration of a trend line, or just afterwards, there are likely to be other working tools which develop signals of a reversal in quick succession. For example, shortly after a trend line is penetrated, it is usual to see a moving average penetrated. Sometimes, in the course of a decisive penetration, a gap often develops. Accompanying important penetrations, activity usually picks up sharply.

For a more complete description of the interrelation of various technical factors, see pages 135-138, Chapter V.

Charts Used in Studying Trend Lines

No special charts are necessary for the study of trend lines. Charts which are used in the regular portfolio, for observing the movement of both averages and individual stocks, are quite sufficient.

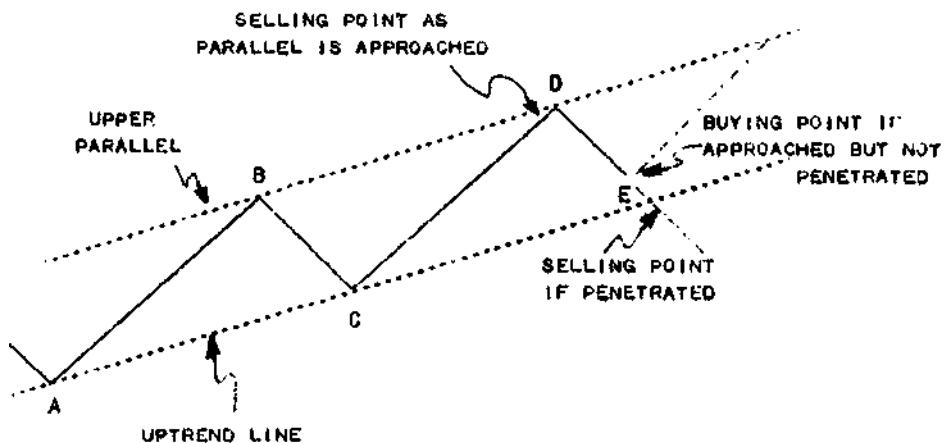
However, there is one fundamental problem, mentioned previously, which the reader must keep in mind. That is, if weekly, daily and hourly charts are being used to observe the price movement of either the averages or individual stocks, there can be no exact correlation between the application of trend lines on the three charts of different time periods. Intermediate trend lines, projected across what appear to be the same reversal points, will not be penetrated at exactly the same time on the various charts. There will be some difference in almost every case. But a decisive penetration of intermediate trend importance, will usually show itself throughout the chart portfolio.

Penetrations appear at various times in different averages. For example, time or point of penetration on the charts of the Herald-Tribune 100-stock average and the Standard 90-stock index will seldom be the same, and they cannot be reconciled with any exactness.

Chief Uses of Trend Lines

In closing the discussion of trend lines, let us consider briefly the several occasions wherein the chart student and trader makes practical use of them. The employment of trend lines, in practical stock trading, may be reduced to several very simple propositions. Let us consider Figure 4. We will apply these propositions to an uptrend. It is to be understood that they are *applied in the same fashion, in reverse, to a down-*

Figure 4
PRACTICAL USE OF TREND LINES



trend.

Let us assume we begin at a bottom, at A. A rise takes place, to reversal point B. A correction occurs from B to C. Then the rise is resumed. Hence, we have an uptrend line across points A and C. A parallel line is projected across B.

An uptrend is under way. Therefore, we should be long of stocks. Now, as point D is approached, in the neighborhood of the upper parallel across B, we have a good selling point provided. The number of cases when the trend accelerates so sharply as to cause an extended penetration of the upper parallel are few, and we can take the trading risk of selling commitments, or at least of substantially paring down our long portfolio in the neighborhood of D. If we have sold prematurely, we can re-enter the market on the long side with small losses, in the event an upward zigzag develops from C and exceeds D. But if, as in most cases, a reaction from D proceeds toward the trend line across A-C, then we will find that our sales have been well made.

Our next operation is to plan purchasing as the trend line is approached, providing volume tends to dry up on the decline D-E, and there seems to be reasonable evidence that the trend line is not to be penetrated. On the other hand, if the line is penetrated, we will naturally have another selling point, particularly if the decline D-E accelerates with expanding activity.

Trend Lines Not Infallible A Treacherous Working Tool Unless Used with Common Sense

A study of trend lines over many years shows that this working tool does not give uniformly accurate indications. It must be used as one of several aids which help the technical student to reduce guesswork as far as possible. Experience will teach the great value of this tool, however, if deductions are made cautiously.

As it is easily visualized, the trend line is probably

the most widely used working tool. Consequently, it has doubtless caused traders more losses than other tools. The experienced observer learns to avoid jumping to conclusions, and combines trend line indications with deductions furnished by other working tools.

IN THE NEXT CHAPTER, WE WILL LOOK INTO ANOTHER KIND OF TREND LINE CALLED MOVING AVERAGES, WHICH IS ALSO USED BY THE TECHNICAL STUDENT TO VERIFY THE DIRECTION OF A TREND AND PROVIDE REVERSAL SIGNALS.

CHAPTER XI

MOVING AVERAGES

REFERENCES

"Statistical Methods"
 "Statistical Analysis"
 "Investor's Handbook"

Frederick C. Mills
 Edmund E. Day
 William Dunnigan

In the previous Chapter, wherein Trend Lines were the subject of discussion, it was stated that more would be said about trend lines which are mathematically fitted, as compared with those which are fitted by inspection. Thus, we now come to the subject of moving averages, and their application to stock price trends.

In approaching the subject of moving averages applied to stock prices, it must be understood that they involve a mathematical procedure. Trend lines, which are fitted by inspection, by drawing them across two or more successive tops or bottoms, involve elements of judgment in first projecting and later in adjusting them after a trend has accelerated. Moving average trend lines, on the other hand, are mathematically computed, and applied to a trend without regard to a series of higher or lower tops or bottoms. They may be applied beginning at any time.

Moving averages have been used by statisticians for many years for the purpose of smoothing or eliminating the fluctuations in the observations of statistical data. Although they have been applied to stock price trends for a number of years by many technical students, very little except the author's work has been published on the subject.

In this volume concerning stock market studies, moving averages are the fourth working tool used by the stock market technical student. As we will learn later, they are used in conjunction with other technical factors. In stock market studies, moving averages are applied to both the price and volume trends. We will give the greatest attention to their application to price trends. Essentially, they are "When" question working tools.

We study moving averages, and apply them to stock price trends, because, like other trend lines,

1. They emphasize the direction of a trend,
2. They provide a means of confirming a trend reversal, and
3. They enable us to smooth out the numerous unimportant price and volume fluctuations which often confuse us.

As we will learn later, stock price moving averages are of the greatest value when applied to diagonal trends. *In horizontal movements, during a trading area, they are a treacherous and almost useless working tool. Unless their particular characteristics*

are well understood, they are a dangerous instrument, likely to be quite costly to the stock market trader.

Sequence of Discussion

To make our discussion easier to follow, let us here present a brief outline of our story, covering to the point where we will take up the practical use of moving averages in making stock market profits. The discussion will be presented in the following sequence:

1. Definition of Moving Averages.
2. Construction of Moving Averages.
3. Theory of their use.
4. Classification of moving averages according to trend.

Moving Averages Defined

The method of moving averages is a device used by statisticians wherein a series of fluctuations (in our use, the movements of stock prices) are smoothed or ironed out, by the process of averaging a successive group of a selected number of such fluctuations. Thus, a stock price moving average depends upon the time period which is used in observing such fluctuations, such as hourly, daily, weekly and monthly price movements.

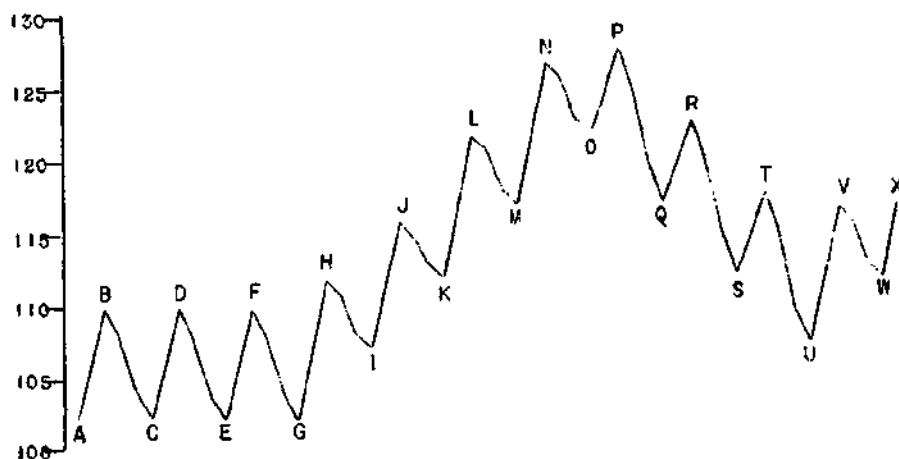
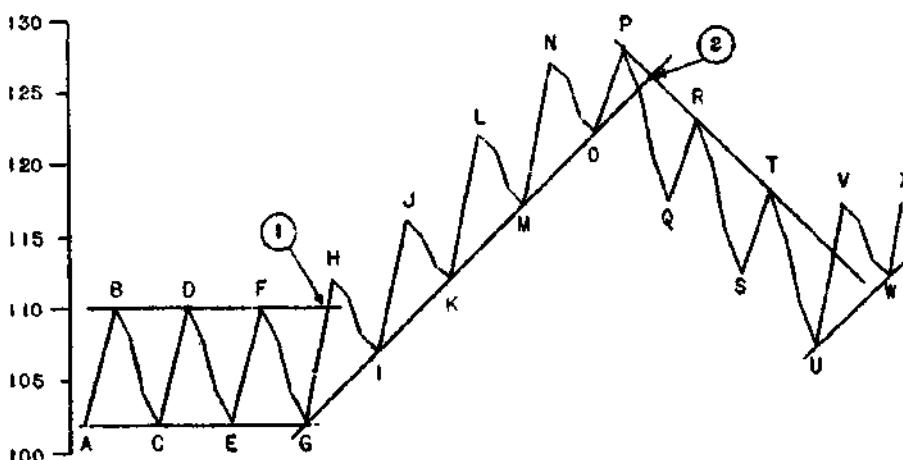
For the most part, moving averages of stock prices are based upon closing figures, rather than those which represent ranges.

Construction of Moving Averages

Readers who are familiar with the theory and practice of the construction of a moving average might well skip this section, to page 252. It is presented for those readers to whom the subject of moving averages is new.

First of all, it must be understood that they are a simple statistical procedure, not at all complicated, and the method of their construction can easily be mastered in a short time, by a careful study of the next few paragraphs.

In outlining the construction of moving averages, we will use an imaginary series of price changes, showing a regular periodicity (the same fluctuations repeated), with a uniform angle of trend. Let us turn first to Appendix I. Here, in Column 1, we see a series of data, which runs as follows: 102, 106, 110, 108, 104 for three successive cycles (A to G, Figure 1).

Figure 1**Figure 2**

The price movement is then given an angle of incline, by adding a constant increment of 1, to the data, as presented in Column 2, Appendix 1, and as shown in the movement from G to P in Figure 1. Then the trend is reversed by subtracting a constant increment of 1, as shown in Column 2 of Appendix 1, and in the movement from P to U of Figure 1. Finally, the data is again reversed, by adding a constant increment of 1, also shown in Column 2 and in the movement from U to X in Figure 1.

Thus, the picture shown in Figure 1 may be interpreted as a trading area, or Dow Theory "line" from A to G, a major phase in an upward intermediate cycle from G to P, the corrective phase of the intermediate upward cycle from P to U, and the beginning of a new major phase from U to X. The rallies A-B, C-D, E-F, G-H et cetera, and the declines B-C, D-E, F-G, H-I et cetera may be regarded as minor movements in the price trend.

Probably we will never see the market behave in any such regular manner as pictured in this illustration, with the minor cycles of advances and declines having the same amplitude and duration, and describing such a uniform movement.

Fitting a Straight Trend Line to Hypothetical Data

If we were fitting the simplest form of trend line to the price movement in Figure 1, we would, according to the principles outlined in Chapter X, draw horizontal lines through A, C and E, and through B, D and F, as shown in Figure 2.

The penetration of the B-D-F line at (1) would be regarded as a buying signal. After the decline from H, and the subsequent rally from I, a trend line would be drawn across the bottoms G and I. Penetration of this trend line at (2) would be considered a selling signal. Following the decline from P to Q, and the rally from Q to R, a trend line would be projected across the tops P and R, and a buying signal would be given at (3). After the rally from U to V, and the decline from V to W, a trend line would be drawn across the bottoms U and W, and when broken by the price movement, the phenomenon would be interpreted as a signal to sell. This type of trend line fitting is purely a graphic one, accomplished by the eye as it were. With moving averages, the procedure is a bit more involved, and requires the use of a simple type of mathematical computation.

Figure 3

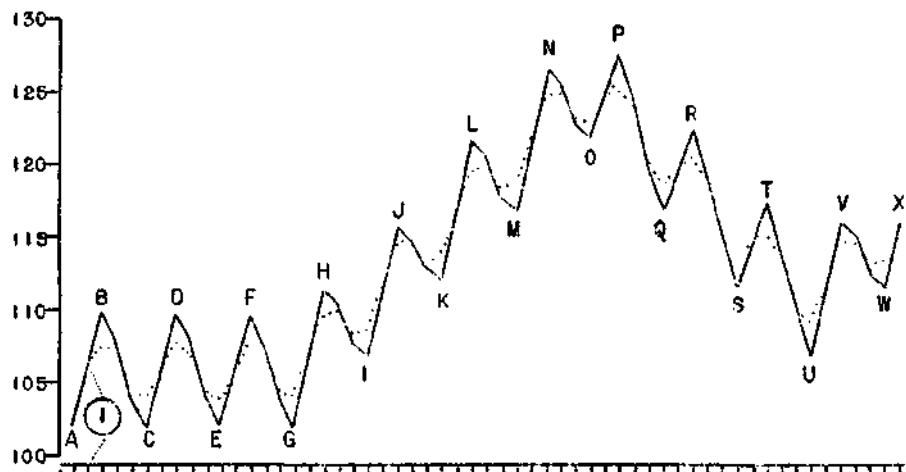
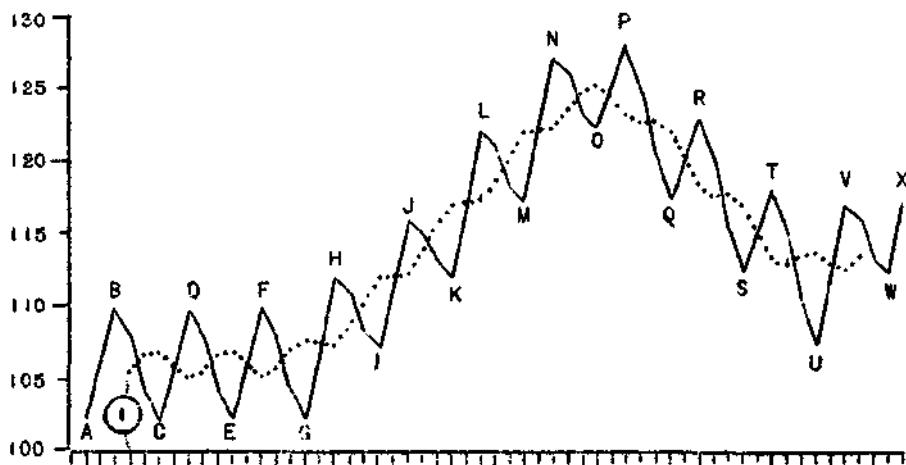


Figure 4



Two Problems in Fitting a Trend Line by Moving Average

In fitting a trend line to the data graphed in Figures 1 and 2, by the method of moving averages, two problems must be solved. First, the minor cycles A-B-C, C-D-E, etc., must be smoothed or eliminated so far as possible. This requires discovery of the number of items or price quotations that should be included in the moving average. Second, there must be determined the number of days which the moving averages should be led or plotted ahead of the base data to give the most profitable results.

Smoothing the Base Data with Three-Item Moving Average

Taking up the first problem, that of eliminating the minor fluctuations in Figure 1, we will seek the proper number of items to be included in the moving average by the method of trial and error. We will first try a three-item moving average. As illustrated in Appendix I, we add the first three items in Column 3 and divide by 3, securing a moving average figure of 106, as shown in Column 5 ($102 + 106 + 110 = 318 \div 3 = 106$). This figure is centered opposite the

second or center item in Column 3, Appendix I, and is plotted opposite the second item at (1) in Figure 3, on the ground that the average represents the norm for the middle of the three-item period. Later, we will plot it differently, but this involves the problem of "lead", which will be discussed after we solve the first problem of smoothing the trend. Having computed an average for items 1, 2 and 3, we now "move" the average to include items 2, 3 and 4, or, in other words, from the total of items 1, 2 and 3 we subtract item 1, and add item 4, then divide by 3 to secure the average of items 2, 3 and 4. The figure is 108, the second figure in Column 5, Appendix I ($110 + 108 + 104 = 322 \div 3 = 107.3$, or, making the computation from the previous total: $324 - 106 + 104 = 322 - 5 = 3 = 107.3$). When these computations are continued for all the three figure sums in Column 3 of Appendix I, we secure the moving average figures shown in Column 5, of Appendix I. These figures are plotted against the base data without lead (centered) in Figure 3. From this graph it is apparent that the three-item moving average does not eliminate the minor fluctuations, the dotted moving average line being drawn far into each peak and valley of the base data. Evidently we need to

include more items in the moving average, in order to secure a smoother trend line.

Smoothing the Base Data With Seven-Item Moving Average

We next try a seven-item moving average. This is computed in exactly the same manner as the three-item moving average except that seven price quotations are now averaged, instead of three. As shown by the first figure in Appendix I, Column 7, the average of items 1 to 7, inclusive, is 105.4 ($102 + 106 + 110 + 108 + 104 + 102 + 106 = 738 / 7 = 105.4$). We now drop item 1 and add item 8 to secure the average of items 2 to 8 inclusive. This figure is 106.6. Next we drop item 2 and add item 9, including items 3 to 9, inclusive, in the average. This figure is 106.9. The 7-item moving average for the complete hypothetical series is tabulated in Column 7, Appendix I, and is plotted against the base data without lead beginning with the fourth plotting at (1), in Figure 4.

Now we observe that the trend line is smoother than that furnished by the 3-item moving average, but the curve is somewhat illogical in that peaks are shown in the trend line where valleys appear in the base data, and valleys appear in the trend line where peaks are shown by the base data. Evidently we have not yet hit on the correct number of items to be included in the moving average to smooth out the minor fluctuations of the base data.

Smoothing the Base Data With Five-Item Moving Average

Let us make one more try, this time using five items in the moving average. As shown in Column 9, Appendix I, the average of items 1 to 5 inclusive is 106 ($102 + 106 + 110 + 108 + 104 = 530 - 5 = 106$). We next drop item 1 and add item 6 to secure the average of items 2 to 6 inclusive. This figure is also 106. Next we drop item 2 and add item 7, including items 3 to 7 inclusive in the average. This figure is again 106. The five-item average for the complete hypothetical series is shown in Column 9, Appendix I, and is plotted against the base data without lead, beginning at the third plotting (1), in Figure 5.

It appears that we have at last found the correct number of items to be included in the moving average, for in Figure 5 the minor fluctuations are completely eliminated, the 5-item moving average resulting in a smooth trend line.

In fitting trend lines to security price movements by means of the moving average, the reader cannot hope to smooth the trend as perfectly as in Figure 5, for there imaginary data with cycles of constant periodicity and amplitude about a uniform slope were assumed, whereas in actual practice price cycles vary in both amplitude and periodicity and describe curved as well as straight line trends.

If stock market cycles were absolutely regular, as to both time and amplitude, it would be possible to select a moving average which, when plotted on the

charts, would be an absolutely straight line. But as the likeness of successive stock market cycles is only coincident, and rarely are there two cyclical movements in stock prices which even closely resemble each other, there is practically never a case where a moving average, when applied to the trend of stock prices, forms a straight line.

However, the selection of moving averages of certain duration frequently results in a line which is far more straight than the actual price fluctuations upon which the moving average is based.

In Figures 2 to 5, an attempt has been made to smooth out the minor cycles and fit a trend line to the larger or "intermediate" swing. If we were interested in a minor trend line, we would endeavor to smooth out the sub-minor fluctuations, or if we were concentrating attention on major bull and bear markets, we would endeavor to eliminate the intermediate swings. So much for the problem of smoothing the trend.

The Problem of Lead

The second problem in the application of the moving average to stock trading is to determine the number of items (weeks, days, hours, according to the moving average being used) which the moving average should be plotted ahead of the base data in order to give the most profitable results.

In Figure 5, the moving average is centered or plotted opposite the third item of the base data on the ground that the average represents the norm for the middle of the five-item period. This is the way the moving average is usually employed in economic analysis for the reason that the economist is interested in the trend line itself or the fluctuations above and below the trend. *In this form it is of little interest to the technical student, but by a slight adaptation in plotting it can be made into a working tool of considerable significance.*

This adaptation merely requires the moving averages to be "led" or plotted ahead of the price data. In Figure 6, the five-item moving average has been plotted opposite the seventh item, at (1) of the base data instead of opposite the third item as in Figure 5, or putting it another way, the average for items 1 to 5 has been plotted opposite item 7, the average for items 2 to 6, opposite item 8, the average for items 3 to 7, opposite item 9, et cetera.

Fundamental Weakness of Moving Average

As we will learn later, this example illustrates both the strength and the weakness of the moving average as a working tool. *In an uptrend the price items entering into the moving average are generally less than the current price, hence the current price tends to remain above the moving average line. When the trend reverses the price items entering into the moving average gradually become greater than the current price, causing the price movement to penetrate the moving average line and remain on the lower side*

Figure 5

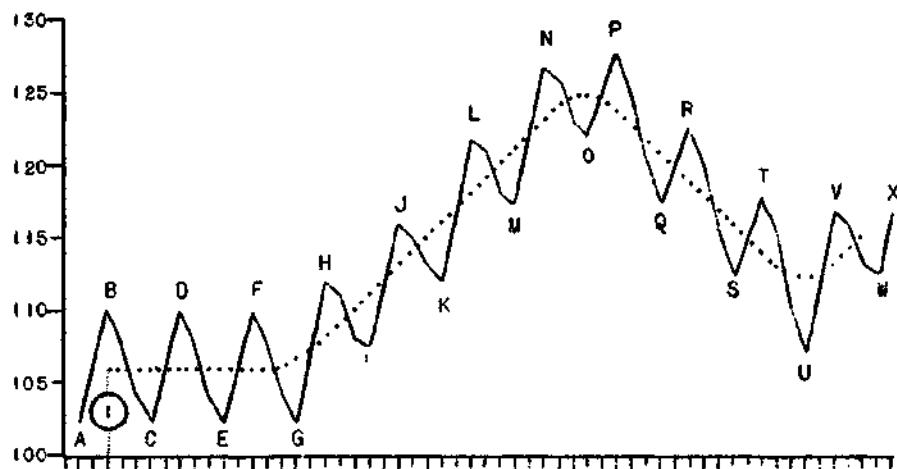
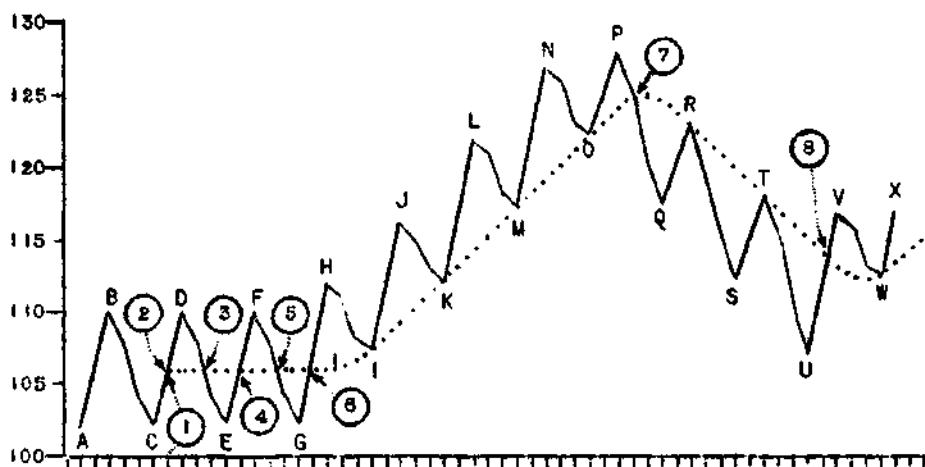


Figure 6



until a new advance gets under way. Thus in diagonal movements, if the moving average is properly fitted, buying and selling signals are furnished near the points of reversals. When the price movement levels out for a period of time, however, or describes a horizontal trading area as from A to G in Figure 6, the moving average, true to function as a smoother of trends, runs along the center of the trading area, and gives buying and selling signals that cause the trader to lose brokerage fees and taxes, together with whatever movement occurred between the point at which the base data intersected the moving average, and the price at which the order was executed. In Figure 6, (2), (3), (4) and (5) represent signals of this type. Later in the Chapter evidence will be introduced to show that continued losses of this nature may exceed profits accruing from signals furnished by a moving average.

Determining the Lead

Returning again to the problem of leading the moving average, how was the lead given to the five-item moving average in Figure 6 determined? By experiment the answer is. The base data were plotted on one chart sheet, and the moving average on another

on a comparable scale. The moving average was then superimposed over the base data on a light table and adjusted right (larger lead) and left (smaller lead) until a fit was obtained which, when paper-traded,¹ gave the best results. This required plotting the moving average opposite the seventh item in the base data, or in other words opposite the second item after the last item included in the 5-item moving average. When plotted in this manner, a series of profitless signals were given at 2, 3, 4 and 5, but at 6 a buying signal was given at 106, and the long position was maintained to 7 at 124 1/2, successive declines at I, K, M and O failing to penetrate the trend line. A short position was indicated at 7 (124 1/2) and was continued to 8 at about 113 1/2, when a signal was given to cover shorts and again take the long side. If the lead had been shortened, false penetrations would have occurred at I, K, M, O, R, T and W. Had the lead been lengthened the signals at 7 and 8 would have been delayed.

The shortest lead possible in order to permit intersection of the moving average by the base data is to

¹ SEE CHAPTER XVIII.

plot the moving average opposite the last item included in the moving average. For example, a 3-item moving average would, as a minimum, be plotted opposite the third item, a 5-item moving average would, as a minimum, be plotted opposite the fifth item, and a 7-item moving average opposite the seventh item. In the hypothetical example in Figure 6, the 5-item moving average was plotted opposite the seventh item, two items beyond the minimum, but whether the lead be at a minimum or beyond the minimum is a matter for research to decide in each instance.

One moving average may work best when the lead is at a minimum; while another may require lengthening of the lead beyond the minimum. Also one lead may give best results in the current market but a future market may call for a change in the lead.

In experimental work, the system of plotting the moving average on a separate sheet and superimposing it on the base data over a light table eliminates the necessity of re-plotting the base data and moving averages every time the lead is changed, and makes this type of research relatively easy. In performing this work the reader will find it convenient to number consecutively the grids on which the base data and moving averages are plotted.

Theory of Using Moving Averages in Stock Trading

Assuming that the stock trader has selected moving averages of the proper time period, and plotted them with what appears to be the most efficient lead, he is ready to interpret them in determining reversal signals, as a means for providing decisions to buy and sell. The subject of what moving averages, which have been found useful, and the lead with which they should be plotted, will be discussed in detail later.

Interpretation of moving averages may be classified as three propositions:

1. *In an uptrend, long commitments are retained as long as the price trend remains above the moving average* (see the periods from July to September 1932, Chart 23; and the following periods on Chart 24: 1921-1922, 1924-1926 and 1927-1929). *Thus, when the price trend reaches a top, and turns downward, the downside penetration of the moving average is regarded as a sell signal*, in similar fashion to a downside penetration of the ordinary trend line, which is plotted by inspection, and which is discussed in detail in the previous Chapter.
2. *Similarly, in a downtrend, short positions are held as long as the price trend remains below the moving average* (see the periods 1920-1921 and 1929-1932, Chart 24). *Thus, when the price trend reaches a bottom, and turns upward, the upside penetration of the moving average is regarded as a buy signal*.
3. *During a horizontal or sidewise movement, if the fluctuations are broad enough compared to the length of the moving average being used, the experienced technical student knows that*

the price trend will fluctuate back and forth as the moving average, true to its function, moves horizontally (see the periods 1923-1924, 1926-1927 and 1934-1935, Chart 24). *Thus, numerous penetrations of the moving average in both directions will occur, which may cause several successive fake buying and selling signals. This is the weakness of the moving average as a technical working tool.* If the price trend of stocks always fluctuated in diagonal trends (such as the periods from 1919-1923 and 1927-1932, Chart 24, speaking of the long-term trends; the same principle applies to the shorter trends), and if a decline was immediately followed by an advance or vice versa, the moving average would undoubtedly be one of the most perfect working tools available to the stock market student. But, as any student of the market knows, there are many horizontal movements which either interrupt or appear at the reversal of diagonal trends. At these periods, the moving average used alone can cause very costly whip-sawing.

Moving Averages and the Three Trends

The first problem which arises in using moving averages as a stock market working tool is what number of periods should be used for each, and how many moving averages are necessary. In line with his other stock market research, the author has attempted to develop a series of moving averages which apply respectively to the major, intermediate and minor trends. Thus, three groups of moving averages have been termed as major, intermediate and minor trend moving averages.

But in using this terminology, the reader should understand that no moving average can conform strictly to the period for which it is employed. A minor trend moving average, for example, may be penetrated several times by sub-minor fluctuations before the culmination of the minor trend. Similarly, an intermediate trend moving average may give several buying and selling signals during the course of the major or corrective phase (particularly during the latter) of an intermediate cycle. Likewise, a major trend moving average may be penetrated at other points than at the end of a bull or bear market.

Nevertheless, moving averages are helpful in analyzing the three trends.

In understanding moving averages, as applied to the three trends, it is important to understand that *the smaller the number of periods used in preparing the computation of a moving average, the more sensitive it will be, and the more often it will produce false signals*.

Conversely, the larger the number of periods used, the less sensitive, and the fewer the number of false signals. A moving average can easily be constructed which is not sensitive enough, and which, in stock market work, for this reason becomes quite useless.

Although it is true that there are numerous penetrations of a minor trend moving average which

do not indicate a reversal of the minor trend, it is also true that no important minor trend reversal occurs without a penetration of the moving average which has been applied to that trend. The same is true concerning the intermediate trend.

In considering the following discussion of moving averages, it must also be understood by the reader that no matter how carefully the time period of a moving average is selected, it will not prove to be entirely satisfactory for an indefinite period of time.

For example, in the advance of March-July 1933, a 21-hour moving average, applied to the hourly chart of the Dow Jones 30 Industrials, proved very useful, and produced very few false signals; while the same moving average, applied to the March-September advance of 1935 produced so many false signals that it became useless. Thus, in suggesting certain moving averages for the major, intermediate and minor trends, the author wishes the reader to understand clearly that averages of different periods may be far more useful in future markets than those now suggested.

With this qualification in mind, let us now proceed to a discussion of the moving averages used for each of the three trends. Let us reverse the order used in the previous Chapters, and consider the minor trend first.

Minor Trend Moving Averages

In January of 1932, shortly after the Standard Statistics Company began publishing its daily averages on an hourly basis (which was discontinued in May of that year), the writer commenced experimenting with moving averages of this index, in an effort to find a short term average which would be helpful in the analysis of the minor trend. Various moving averages were laboriously computed, ranging from 3 to 29 hours. Each was plotted at the end of its own period, that is, the plotting for the 3-hour moving average was started at the third hour, et cetera.

The shorter averages, such as 3, 5 and 7-hour, immediately proved to be too sensitive, because the price movement repeatedly crossed the moving average line. In 1932 and 1933, the longer averages, such as the 27 and 29-hour, appeared to be too insensitive, because the price trend moved away from a reversal point a considerable distance before it approached and penetrated the moving average. Thus, buying and selling signals were too late to be useful.

However, in 1935, these moving averages of longer duration, and even longer ones, were found to be of some value. Of all the periods tried (in 1932) the 21-hour moving average appeared to give the best results. Unfortunately, six months after the inauguration of the averages, the Standard Statistics Company discontinued the publication of the hourly Standard 90 stock index, and its three component indexes. Because of the labor involved in computing this base data, the research on the moving average was dropped.

But when, on October 5, 1932, Dow Jones & Company began publication of the Dow Jones

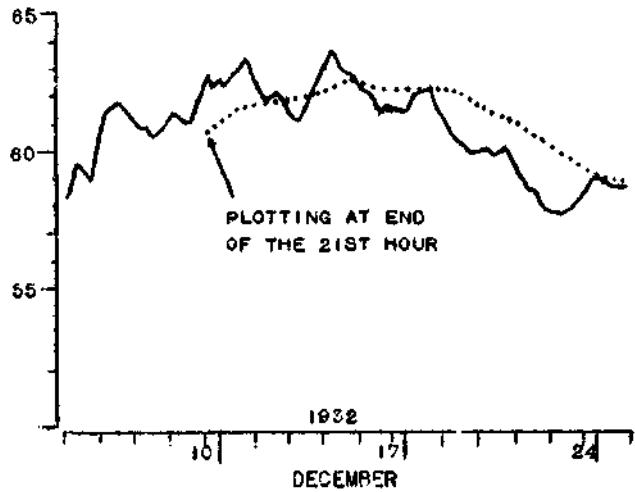
averages on an hourly basis, 21-hour computations were immediately set up, and have been used ever since.

Computation of Minor Trend Moving Averages

At this point, it will probably be useful to those readers not familiar with the computation of moving averages, to outline the procedure used by the author, for computing and plotting the 21-hour moving average. A detailed outline of this will serve to explain the computations, including the useful short-cuts, for preparing other moving averages, as well as the 21-hour, as the same procedure is employed in computing all of the moving averages which will be discussed.

Let us go through the details of each step in the computation. Those readers who are familiar with moving averages, might skip this part of the discussion, to page 259. We will compute the 21-hour moving average for the Dow Jones hourly average of 30 Industrial stocks, for the period from December 10 to December 15, 1932, inclusive, which are the first plottings shown on Figure 7.

Figure 7



To facilitate computation of the moving average, we will use special "Moving Average Computation Sheets", which are employed at the Gartley Laboratory for the purpose.² This sheet, with appropriate figures entered, will be found as Appendix II of this Chapter. Turning to it, we find that in Column 1, marked "Date", is entered the day of the month. In Column 2, marked "Time", is written the hour for which the average is reported. In Column 3, marked "Latest Price", is entered the quotation for the average, Dow Jones Industrials in this case, for the hour noted in Column 2. To compute the 21-hour moving average, it is necessary to have 21 hourly quo-

THESE SHEETS CAN BE PURCHASED FOR ONE DOLLAR PER HUNDRED FROM H. M. GARTLEY, INC., 76 WILLIAM STREET, NEW YORK CITY.

tations, hence in order to begin the computation on December 10, we must have hourly quotations back to 11 A.M. on December 6.

It will be observed that opening prices are not included in the tabulation of hourly prices in Appendix II, the series running 11 A.M., 12 M, 1 P.M., 2 P.M., 3 P.M. (close, then 11 A.M., etc.). On Saturdays, of course, there are only two hours of trading, hence from Friday to Monday, the series runs 3 P.M. (Friday), 11 A.M. (Saturday), 12 M (Saturday), 11 A.M. (Monday), etc. The theoretical justification for leaving out the opening quotation is that no trading time elapses between Stock Exchange sessions.

In computing a mean average of a price series, the prices of all the items included in the average are totalled and divided by the number of items. To find the first "Moving Average Total" in Appendix II, it was necessary to add the 21 hourly figures from 11 A.M., December 6, to 11 A.M., December 10, 1932, inclusive. The resulting figure was 1253.36. This was entered opposite the quotation for 11 A.M., December 10, in Column 7. This total was then divided by 21 to secure the moving average figure, which was then entered opposite the total, in the Column headed "Moving Average" (Column 8).

To compute the second moving average figure in the series, a different method was used. The 12 o'clock quotation on December 10, 1932 was 61.25. Now, instead of adding 21 hourly quotations to find the moving average total, we shorten the process by finding the difference between the latest hourly price added and the hourly price eliminated, and adding or subtracting this difference (Columns 5 and 6 marked "Change") to the previous moving average total. The new moving average total that resulted was then divided by 21 to obtain the new moving average. At 11 A.M. on December 10, 1932, for example, the moving average total was 1253.36. At 12 M on December 10, 1932, the hourly average of 61.25 was reported. In order to include this new figure in the average, the quotation now 22 trading hours old 58.23 at 11 A.M., December 6 had to be dropped. This 22-hour-old figure was entered in Column 4, marked "Eliminated Price". The difference between 61.25, the latest price, and 58.23, the eliminated price, was + 3.02 which was entered in Column 5, marked "+ change". The figure 3.02 was then added to the moving average total (Column 7) for the previous hour to obtain the new moving average total of 1256.38 (Column 7). When this figure was divided by 21, the result was 59.83 (Column 8), the moving average for the period 21 hours previous to, and including 12 M December 10. The succeeding computations in Appendix II were made in exactly the same way, and by following the figures for a few hours, the reader will quickly master the procedure. In this respect the following epitome of rules for computing the 21-hour moving average may be helpful:

1. Enter date of month in Column 1, marked "Date".
2. Enter hour for which average is reported in

Column 2, marked "Time".

3. Enter hourly quotation for average (Dow Jones Industrials, Rails or Utilities) in Column 3, marked "Latest Price".
4. Enter hourly price for 22nd hour back in Column 4, marked "Eliminated Price".
5. Find difference between latest and eliminated price. If latest price is greater than eliminated price, enter difference in plus column under heading marked "+ change". If latest price is less than eliminated price, enter difference in minus column under heading marked "-change".
6. Add or subtract the amount of "change" to the previous moving average total (i.e., on the line above) in Column 7, and enter new moving average total in same column.
7. Divide moving average total by 21, and enter resulting quotient in Column 8, marked "Moving Average".
8. The columns marked "Net Change" are for oscillator studies (see Chapter XIII). "Actual net change" is the difference between the moving average for the current or "latest" hour and the moving average for the hour next preceding it. The "Per cent net change" is the actual net change divided by the moving average of the hour immediately preceding the current hour, times 100.
9. Warning: A mistake is sometimes made in computing at steps 5, 6 and 7, and whenever this occurs it introduces an error into all succeeding moving average figures until the mistake is discovered. Therefore, once a month (or oftener) the moving average total should be verified for one hour by adding 21 hourly quotations previous to and inclusive of the hour selected for the test, as was done above for 11 A.M., December 10, in starting the moving average computation. If the figures thus added give the same moving average total as that resulting from the short method, there is no error in the latter computation. If the two sets of figures are different, the moving average total by the short method should be corrected, and the previous moving average totals should be checked until the error is found.

In figure 7 the 21-hour moving average is plotted opposite the 21st hour, or, in other words, the hourly quotation of the Industrial Average for 11 A.M. on December 10, 1932, and the moving average of 21 hourly quotations previous to and inclusive of this hour (11 A.M., December 6, to 11 A.M., December 10, inclusive) are plotted on the same grid. The hourly Industrial quotation for 12 M, December 10, 1932, and the moving average for the hourly quotations from 12 M, December 6 to 12 M, December 10, are plotted on the same grid, and so on. Experience has shown us that this is the minimum lead which can be given to the 21-hour moving average in order to permit the base data to intersect the moving average trend

line. If it were desired to increase the lead three hours, say, the 21-hour moving average for the period 11 A.M., December 6, to 11 A.M., December 10, would be plotted on the same grid as the quotation for 12 M, December 12, the average for the 21 hours from 12 M, December 6, to 12 M, December 10, would be plotted on the same grid as the quotation for 1 P.M., December 12, and so on.

The 28, 125, 200-day and 3 and 6-week moving averages, about which we will hear later, may be computed in the same systematic manner as described for the 21-hour moving average.

Practical Trading Efficiency of Minor Trend Moving Averages

After three years of experience in applying minor trend moving averages, to the Dow Jones hourly price averages, since the time they were first published on October 5, 1932, the author is thoroughly convinced that minor trend moving averages are a treacherous technical working tool. They must be thoroughly understood, and used in conjunction with other technical factors, or they will cause frequent losses.

Numerous experiments have been made requiring hundreds of hours of research; and the results all point in one direction. The general conclusion is that the tempo of stock price fluctuations so changes in the course of a year or two, or for that matter in several months, that a minor trend moving average which may be efficiently applied to one period is of little value at a later time.

For instance, in the bear market period from January to July 1932, the 21-hour moving average which has just been described provided very profitable minor trend trading signals. During this period, it was applied to the Standard 90 stock index. Also, in the period from March to July 1933, the 21-hour moving average applied to the Dow Jones hourly Industrial index provided timely minor trend buying and selling signals.

But for the whole period from October 1932 to October 15, 1935, if all the buying and selling signals provided by this indicator were acted upon, the cost of commissions and taxes would have wiped out even a large trading account. The reason is simple: There were too many trades resulting from false penetrations.

Considerable research has been conducted with various plans conceived to eliminate these unprofitable trades, but so far the results are decidedly negative. Perhaps the reader's first reaction to this statement would be the suggestion to use a longer term moving average. Let us look at this suggestion for a moment:

On Chart 11, the solid line from March to October 1935 is a 39-hour moving average, while the dotted line is a 21-hour moving average. A study of every penetration of both these averages during this period shows that the 39-hour moving average signals provided about a 25 per cent greater profit during this period, when paper-traded, than the 21-hour moving average signals. But both averages provided numerous

false signals, particularly during the sidewise movements of June 19-July 3; July 11-22; and again between August 14 and September 5.

The next logical question might be: Why not use an even longer moving average than 39 hours. The answer is that although a 40-60 hour moving average might eliminate some of the false signals in a diagonal trend such as the period shown on Chart 11, longer moving averages would undoubtedly result in very late signals whenever a very sharp decline appeared from an intermediate top, or very sharp advances appeared from an intermediate bottom. Also, a longer moving average would not be of any greater help in a sidewise movement. Note, for example, how both the 21 and 39-hour moving averages moved quite closely together during the sidewise movements in the period from March to October 1935, as shown on Chart 11.

Perhaps the reader may justly ask: Well, why use minor trend moving averages applied to the hourly price averages, if they are not particularly efficient? The answer is that, although they have definite shortcomings, as have been pointed out, nevertheless they are an additional working tool which is helpful in forming a general viewpoint of the minor trend.

Intermediate Trend Moving Average

In order to find a satisfactory medium long-term or intermediate trend moving average, the author has experimented, among others, with 15, 25, 30 and 40-day moving averages of the Dow Jones Average of 30 Industrial stocks for the period 1919 to 1933, inclusive. In one series of tests all the moving averages were paper-traded (see Chapter XVIII for explanation of this term) against the base data (i.e., the Dow Jones Average of 30 Industrials) with a minimum lead, the 15-day moving average being plotted opposite the base data of the 15th day, the 25-day moving average opposite the base data on the 25th day, etc. In another test the 25 and 30-day moving averages were paper-traded with a lead of three days above the minimum, the 25-day moving average being plotted opposite the base data of the 28th day, and the 30-day moving average being plotted opposite the base data of the 33rd day.

Any penetration of the moving average by the base data observed on the chart was regarded as a buying or selling signal. Long holdings were sold and a short position taken when the base data line crossed from above to below the moving average line, and short positions were covered and long holdings were acquired when the base data line crossed from below to above the moving average line. The Dow Jones Average was traded as if it were an individual stock. In actual practice, of course, individual stocks, not averages, would be bought and sold, but, if commitments were restricted to a diversified list of five or more of the most active stocks of moderate price included in the average, the net result would not vary greatly from that obtained by theoretically trading the average.

In the tests, orders were theoretically consummated at the closing price on the day on which penetration of the moving average by the base data occurred. In actual practice, since closing prices are being employed, orders would normally be executed at the opening on the day following the penetration of the moving average by the base data, but opening quotations for the Dow Jones averages have been compiled only since October 1932, hence it was necessary to use closing quotations as execution points in the experimental tests. This should not prejudice the results, however, since in the majority of cases there is usually little variation between closing prices on one day and opening prices on the next, and, in any case, what would be lost on one trade by an unfavorable opening would be gained on another by a favorable initial quotation.

Results of Trading Tests

The results of these trading tests are presented in Tables 1 to 8, Appendix III. Tables 1 to 6 give for each test annual figures on the number of trades made, the gross profit and loss resulting from the transactions for each year, the excess of gross profit over gross loss and the net profit after one-half point per trade was deducted to cover brokerage fees and taxes. Tables 7 and 8 are summary in character. Table 7 brings together for comparative study the annual net profit resulting from each test, while Table 8 shows comparative totals on the several tests for the whole period 1919-1933, and also for the first (1919-1926) and second (1927-1933) halves of this period. *These tables merit careful study, for they furnish concrete evidence in light of which the relative value of various intermediate trend moving averages plotted with different leads can be determined.*

The intermediate trend moving average period which appears to give the best results is in the neighborhood of 25 to 30 days. According to Table 2, the 25-day moving average plotted with a minimum lead netted 446.39 points from 1919-1933, while the 30-day moving average (Table 3), plotted with a minimum lead netted slightly smaller gains, 433.26 points, for the same period. The 15-day moving average (Table 1) with minimum lead netted only 214.57 points for the period 1919 to 1933. It will be observed in Column 5, Table 1 that this moving average had a net profit before commissions of 420.57, practically the same amount as the 25 and 30-day moving averages, but the number of trades made on account of the 15-day moving average, as shown in Column 2, Table 1, was considerably in excess of the number made for the 25 and 30-day moving averages, *thereby increasing the brokerage and tax costs* (Column 6, Table 1) and swelling the gross loss resulting from false signals. As a result of this sensitivity, the net profits from the 15-day moving average were relatively small.

The 40-day moving average with a minimum lead, as shown in Table 4, netted 316.58 points during the period 1919 to 1933. This was a better performance than that recorded for the 15-day moving average, but was less impressive than that of the 25 and 30-day

moving average. As *the period of a moving average is lengthened, it becomes more and more insensitive to price changes*, giving fewer buying and selling signals and delaying entry or withdrawal from the market until a later point in the price trend. The 40-day moving average revealed this insensitivity in that it reported fewer trades, compared with the 25 and 30-day moving averages (Column 2, Table 4), and also smaller net profits before and after commissions were deducted (Columns 5 and 7, Table 4).

Results of Advanced Lead

The tests described above were made with the lead set at the minimum.³ When the lead was increased three days for the 25 and 30-day moving averages similar tests were made for 15 and 40-day moving averages because the 25 and 30-day appeared most satisfactory the gains were enhanced. For the period 1919-1933, the total net gain in points for the 25-day moving average plotted on the 28th day, as shown in Column 7, Table 5, was 677.98 points, as compared with a total net gain of 446.39 points for the same period when the moving average was plotted on the 25th day. The 30-day moving average, plotted on the 33rd day (Table 6), reported a net gain of 637.53 points, as compared with 433.26 points when the average was plotted on the 30th day.

It will be observed in the summary Table 8 that the gross profits for the 25 and 30-day moving averages were approximately the same when the lead was set at a minimum and when it was increased three days. The number of trades, however, and also the gross loss, was reduced by the three-day increase in lead, leaving greater net profits. *Advancing the lead on the 25 and 30-day moving averages, therefore, prevented many false penetrations and eliminated losses and brokerage and tax costs connected with these trades.* The substantial increase in net profits resulting from the three-day advance in lead for the 25 and 30-day moving averages, reveals how important it is to set the lead correctly. The author has made paper-trading tests on intermediate trend moving averages only for leads set at the minimum and at three days above the minimum. Whether better results would be obtained with a different lead say a one, two, four, five, etc. -day increase over the minimum, is a question which is still to be decided by further research.

Consistent Profits Made by Intermediate Trend Moving Averages

In Table 7 it will be observed that all of the moving averages, with the exception of the 15-day average, were on the profit side of the ledger most of the time. The 15-day moving average plotted on the 15th day, reported profits in 10 of the 15 years of the test. The 25-day moving average plotted on the 25th day, and the 40-day moving average plotted on the 40th day,

³ WHEN WE SAY "MINIMUM LEAD" WE MEAN THAT A MOVING AVERAGE IS PLOTTED AT THE END OF ITS PERIOD, THAT IS, A 25-DAY AVERAGE IS PLOTTED BEGINNING ON THE 25TH DAY (NOT THE 26TH).

showed net profits in every year save one, while the 30-day moving average plotted on the 30th day, the 25-day moving average plotted on the 28th day, and the 30-day moving average plotted on the 33rd day, reported net profits for every year of operation.

With all the averages, as shown in Tables 1 to 6 and Table 8, the net gains from 1927 to 1933 were much greater than from 1919 to 1926. In the earlier period, the 25 and 30-day moving averages plotted with a minimum lead averages 14 to 16 points profit per year, while in the later period profits averages 43 to 47 points per year. With a three-day increase in lead, the average annual profit for the 25 and 30-day moving averages was 22 to 25 points in the earlier period, and 65 to 69 points in the later period. The increased profits during the period 1927 to 1933 were due, of course, to the violent price movements which occurred in the latter part of the 1923-1929 bull market, the 1929-1932 bear market, and the first two intermediate upswings of the 1932-(?) bull market. While spectacular trading opportunities such as those afforded by the 1929 crash and the terrific rebound from the 1932 lows are not to be expected in the normal run of markets, the profits produced by the 25 and 30-day moving averages even in quieter times, were great enough to attest to the merit of the intermediate trend moving average as a working tool for the trader.

The division of the results of the trading tests into two periods, 1919 to 1926 and 1927 to 1933, in Table 8 shows that, notwithstanding the great differences in the character of the market during those two periods, the relative behavior of the several moving averages remained the same. In both periods the 25 and 30-day averages proved to be the most profitable. The 15-day moving average was the least profitable, while the 40-day moving average occupied an in-between position, although from 1927 to 1933 the difference between the net gains of the 15 and 40-day moving averages was negligible. In both periods the three-day increase in lead on the 25 and 30-day moving averages increased the net gains. The consistent superiority of the 25 and 30-day moving averages in both time periods gives additional weight to their acceptance as the best type of moving average to use in intermediate trend analysis. The same consistency of performance will also be noted in the summary of yearly net gains in Table 7.

Graphic Behavior of Intermediate Trend Moving Averages

In order to show the graphic behavior of intermediate trend moving averages of various lengths, the 15, 30 and 40-day moving averages of the Dow Jones Average of 30 Industrial stocks are plotted with minimum lead on Chart 23 for the period June to December, 1932, covering the bottom of the 1929-1932 bear market, the major phase of the first intermediate cycle of the 1932- (?) bull market and part of the corrective phase of this cycle. The chart would be more complete if the 25-day moving average plotted on the 25th and 28th day, and the 30-day moving average

plotted on the 33rd day, were also shown, but to have introduced these additional series would have complicated the picture and would have made it difficult to effect comparison of the moving averages. Even with the three moving averages shown on Chart 23, it was necessary to enlarge greatly the vertical scale, in relation to the horizontal scale in order to make the averages distinguishable.

On Chart 23 several fundamental characteristics of moving averages are to be observed.

First, it will be noted that *the longer the time period used for the moving average, the smoother the trend*. The 15-day moving average shows fluctuations that are not revealed in the 30-day moving average, and, to a lesser extent, the 30-day moving average shows fluctuations that are not apparent in the 40-day moving average.

Secondly, it will be observed that *the shorter the time period used for the moving average, the closer the moving average follows the price movement*. The 15-day moving average follows the base data quite closely, the 30-day moving average is less sensitive, while the 40-day moving average is least sensitive of the three. The reason, of course, is that day-to-day fluctuations have a greater weight in the 15-day moving average than in the 30 or 40-day moving average.

From this fact two corollary observations follow.

Thirdly, that the *shorter moving averages are penetrated more frequently* by the base data than the longer moving averages, and give more buying and selling signals which are not followed by an important price movement. On Chart 23, the 15, 30 and 40-day moving averages give 19, 15 and 14 trading signals, respectively. The reader will recall from the trading tests described earlier (see Appendix III, Tables 7 and 8) that the 15, 25 and 30-day moving averages produced approximately the same gross profits, but, because of excessive brokerage fees consequent upon frequent shifts of position and losses sustained as a result of false signals, the net profit for the 15-day moving average was considerably less than that for the 25 and 30-day averages. A graphic illustration of this fact is furnished on Chart 23.

Fourthly, the other corollary is that, *at important reversal points, shorter moving averages give earlier buying and selling signals* than the longer moving averages. At the bear market bottom, as shown on Chart 23, the 15-day moving average with a minimum lead gave a buying signal at the 43.5 level, which was executed at the open on the next day at approximately 44.9.⁴ The 30-day moving average was penetrated by the base data at the 45 level, allowing execution at approximately 45.4. The 40-day moving average was penetrated at 45.6 permitting execution at about 46.5. Thus, in making long commitments for the July to September rise, the 15-day moving average enjoyed a .5 point buying advantage over the 30-day moving aver-

⁴ SINCE THE BASE DATA ARE CLOSING QUOTATIONS, PENETRATIONS ARE NOT APPARENT UNTIL AFTER THE CLOSE, ALLOWING EXECUTION ON THE OPENING OF THE FOLLOWING TRADING DAY.

age, and a 1.6 point buying advantage over the 40-day moving average. In the same price pattern, the 30-day moving average gave a slightly earlier buying opportunity than the 40-day moving average, with a difference of 1.1.

The same phenomena may be observed at the September 1932 top. The 15-day moving average was penetrated at 75.5 permitting a short commitment at 75.2. The 30-day moving average was penetrated at 71.5, allowing execution at 69.9. The 40-day moving average was penetrated at 68.3 making execution possible at 65.9. In this move, the 15-day moving average, therefore, enjoyed a 5.3 point selling advantage over the 30-day moving average, and a 9.3 point selling advantage over the 40-day moving average. On the 30-day moving average the selling signal was 4 points earlier than on the 40-day moving average.

At the September top, the 15-day moving average showed greater advantage over the 30 and 40-day moving averages than at the July bottom. The reason is that the July bottom was marked by a trading area, which allowed the moving averages to flatten out somewhat before the turn, and decrease the spread between the moving average and the base data lines. At the September top, the price movement was extremely sharp, rising to a narrow peak and dropping precipitately from this point. The 15-day moving average, being influenced more by day-to-day fluctuations, followed the base data closely and was penetrated relatively early in the movement. The 30 and 40-day moving averages were more weighted down by price quotations at lower levels and therefore were less responsive to day-to-day fluctuations, allowing a greater and greater spread between the moving average and the base data as the rise continued. This, of course, resulted in delayed penetration at the top.

From this discussion it can be seen that advantages and disadvantages are attached both to lengthening and shortening the movement average period.

IF THE PERIOD IS SHORTENED, THE MOVING AVERAGE GIVES MORE BUYING AND SELLING SIGNALS, THEREBY INCREASING TRADING LOSSES AND BROKERAGE AND TAX COSTS, BUT FURNISHING EARLIER SIGNALS AT IMPORTANT REVERSAL POINTS. IF THE PERIOD IS LENGTHENED, THE MOVING AVERAGE GIVES FEWER BUYING AND SELLING SIGNALS, THEREBY ELIMINATING MANY LOSSES THAT RESULT FROM FALSE PENETRATIONS AND REDUCING BROKERAGE AND TAX COSTS, BUT DELAYING SIGNALS AT REVERSAL POINTS WITH CONSEQUENT LOSS OF POTENTIAL PROFITS.

The problem is to secure a moving average which reduces the number of trades, yet signals a position reasonably early in the trend. As indicated previously, a 25 to 30-day moving average appears to meet these requirements best for intermediate trend trading.

Graphic Effects of Variation in Lead

On Chart 23, all three of the moving averages shown have been plotted with a minimum lead. It is suggested that the reader take sheets of transparent paper, and trace off each of these moving averages separately, being sure to first place a horizontal line

along the date scale, and then moving the transparent sheets with the various moving averages to the right, until the false penetrations are eliminated. By this simple experiment, the results of the principle of advancing the lead will be easily seen, and appreciated to a greater degree.

If, for example, the 30-day moving average were moved ahead three days (using the time scale on the bottom), the false upside penetration in June and July would have been eliminated, thus producing a buying signal early in July, without any prior whip-saw.

Also, if the lead on the 15-day moving average is advanced to the right 5 or 10 days, it will be noted that many of the other false penetrations are eliminated. These simple experiments will quickly show the principle of setting the lead in using a moving average.

The trading tests revealed that the 15-day moving average earned practically as much gross profit as the 25 and 30-day moving averages, but netted considerably less than longer averages because of brokerage fees, taxes and losses incident to false penetrations. From Chart 23 it is evident that, if the lead on the 15-day moving average were advanced 5 or 10 days; i.e., the 15-day moving average plotted on the 20th or 25th day, or moved to the right on Chart 23, many of these false penetrations would be eliminated and the net profits for this moving average would be increased. The importance of correctly setting the lead, therefore, must be apparent to every reader.

Advantage and Limitation of Moving Average

One further principle of moving averages is graphically demonstrated on Chart 23. It is this:

IN DIAGONAL TRENDS MOVING AVERAGES FURNISH CLEAR-CUT AND PROFITABLE BUYING AND SELLING INDICATIONS, BUT IN HORIZONTAL TRENDS THEY GIVE REPEATED FALSE SIGNALS WHICH CAUSE LOSS OF CAPITAL.

These characteristics follow from the nature of the moving average. As we have stated on page 254, in an uptrend the moving average is made up of quotations which are mostly lower than the current market prices, hence the moving average "hangs back" on the lower side of the base data line. In a downtrend the moving average is made up of quotations which are mostly higher than current market prices, with the result that the moving average "hangs back" on the upper side of the base data line. In a horizontal trend some of the quotations entering into the moving average are lower and some are higher than the current market price, causing the moving average to follow a middle-of-the-road course, and giving false signals as the current price fluctuates above and below the moving average line.

On Chart 23, at the bottom of the bear market, all three moving averages gave excellent signals, and maintained a long position consistently throughout the July-September rise. In the trading area which followed the September top, however, the base data penetrated the moving average lines repeatedly, giving false signals. In the trading area which occurred at the bottom of the bear market in July 1932, the sensi-

tive 15-day moving average was drawn into the price movement to give false signals. The horizontal movement was not extended enough in time, however, to draw the 30-day moving average to the center of the pattern, hence only two false signals were given by this average. The 40-day moving average completely escaped penetration by the base data until the vigorous rise got under way. *This tendency of the moving average to run horizontally through the center of a trading area is its greatest weakness, and perhaps prevents it from being the most perfect mechanical working tool of the stock trader.*

28-Day Moving Average Very Useful

Early in the course of the author's research with moving averages, it was apparent that an average having a time period of from 25 to 30 days would give good, if not nearly the best intermediate trend results. Therefore, the difference between these two figures was split, and *the 28-day moving average was adopted* for current market analysis and for inclusion in Gartley's Stock Market Data.⁵ Complete paper-trading tests were not made on the 28-day moving average to determine the exact profit which would have been earned for the period 1919-1933, but we know from samples that the amount would fall between that reported for the 25 and 30-day moving averages.

Let us now turn to Chart 8, showing the Standard 90 stock index from January 2, 1930 to October 15, 1935 (a period of 4 3/4 years). The dotted line is a 28-day moving average.

At first, the author used the 28-day moving average with a minimum lead plotting it on the 28th day; but when it was later demonstrated (June 1934) that a three-day increase in lead would prevent many false penetrations, the 28-day moving average was plotted on the 31st day. It is plotted on Chart 8 with this lead.

At this writing (October 1935), it is known that this three-day increase in lead gives better results than a minimum lead, but whether a one, two, four, five days, et cetera, increase in lead will be superior in future periods is a question which only further study of future movements will answer.

Computation of the 28-Day Moving Average

Daily figures on the 28-day moving average for the Standard 90 stock index, and the Dow Jones averages, are given daily in Gartley's Stock Market Data.⁵ For those who wish to compute this moving average, the type of moving average computation sheet already described in connection with the 21-hour moving average, which appears as Appendix II can be used. A sample computation sheet of the Standard 90 is shown in Appendix IV of this Chapter.

Let us review a few of these figures, to make sure that we understand the procedure as applied to the 28-day moving average. The Standard 90 closed at 89.0 on September 3, 1935 (see Column 3, marked "Latest Price"). When the closings for 28 days, i.e. be-

ginning with August 1 and ending with September 3, were added, the sum of 2527.6 was obtained. This figure appears as the first moving average total shown in Column 7. When this sum was divided by 28, the result was 90.27, the first moving average figure entered in Column 8.

Figuring this moving average by the short method, the price for the 29th day back was 88 (Column 4, marked "Eliminated Price"). The difference between the latest and eliminated price was +1.0 (Column 5, marked "+ Change"). The moving average total for the previous day (August 31), which is not shown in Appendix IV, was 2526.6 representing the sum of the daily closings from July 31 to August 31. The plus change for September 3, added to the moving average total for August 31, gave the moving average total for September 3 (2526.6 + 1.0 equals 2527.6). The moving average total for September 3 (2527.6), divided by 28, gave the moving average (90.27) for September 3.

On September 4, the closing quotation for the Standard 90 was 90.2 (Latest Price). The closing quotation for the 29th day back (August 1) was 87.7 (Eliminated Price). The difference between the Latest and Eliminated prices was + 2.5 (+ Change) which, when added to the previous moving average total (2527.6) gave a new moving average total of 2530.1. When this new total was divided by 28, the 28-day moving average figure of 90.36 was obtained.

In the course of the 69 months (January 1930-September 1935) shown on Chart 8, there were 76 penetrations of the 28-day moving average by the closing price of the Standard 90 stock index. Table 1 of Appendix V shows a summary analysis by years, similar to Tables 1-6, Appendix III, of the experience with the 28-day moving average as applied to the Standard 90 stock index. From it we learn profits of 62.4 and 31.2 per cent were made in the bear market years 1930 and 1931; 26.7 per cent accrued in the year 1932 which was half bear and half bull market; 28.5 per cent profit was obtained in the bull market year 1933; but, in 1934, when the price trend was moving side-wise causing false signals, a loss of 15.7 per cent piled up; and, in the first 9 months of 1935, also distinctly a bull market period, the first three months of sidewise movement severely handicapped the profit in the advance of March - September so that at October 1, the year showed a red figure of 3.4 per cent.

Thus, the 5.75 year period showed an average yearly gain of 22.6 per cent with losses in two of the six years, with the possibility that the sixth year may also show a profit. This period from January 1930 to October 1935 was one during which, it will probably not be disputed, there were frequent occasions of great uncertainty. So the 28-day moving average turned in a good trading record under difficult circumstances.

Before proceeding to a discussion of major trend moving averages, some mention might be made of the action of the 28-day moving average from the March lows to the September highs in 1935. In this advance, it will be noted that the May 28 - June 1 minor reaction decisively penetrated the moving average, and

thus produced a premature selling signal, which was closely followed by a buy signal. Note how this case was quite different from the advances of July - September 1932, and March - July 1933, wherein the minor reactions failed to penetrate the moving average; and it was only when the major phase was over that a decisive penetration occurred.

Hence the reader may ask the question: If the 28-day moving average were given a longer lead, would it not have been possible to eliminate the premature penetration on June 1? The answer is that a longer moving average would have to be employed, because even if we advanced the 28-day moving average, now shown with a lead of three days, to a 16-day lead, which would prevent a penetration in the case of the June 1 minor reaction, the performance through the period from February 1934 to March 1935 would have been much less satisfactory.

If an intermediate trend moving average such as the 28-day is being employed, without any other technical factor, for the purpose of making mechanical market commitments, the only practical defense against a minor break like that of May 28 - June 1 is to re-enter the market when, after penetrating downside, the moving average is again decisively penetrated upside.

If a trader has the data available,⁶ the small amount of time required to plot a 28-day moving average is well worth the trouble.

Now let us proceed to a study of the longer term moving averages, used in connection with the analysis of major trends.

Major Trend Moving Averages

After several years of experimenting to find a satisfactory moving average which might be employed in the analysis of the major trend, during which the author experimented with monthly, weekly and daily moving averages, two which showed up rather well were the 125-day and the 200-day moving averages (particularly the latter), as applied to the Dow Jones Industrials for the period from 1919 to 1933. These periods are equivalent, of course, to approximately 18 and 38 weeks, respectively. Although the problem has not been researched, it is perfectly possible that equally good results could be obtained by using 18-week and 40-week moving averages, which would, of course, be much easier to compute, as so many less figures would be involved.

However, if the market student has the data available,⁷ there is very little effort in keeping the 125 and 200-day moving averages up to date on a chart such as Chart 8.

Fifteen Years' Experience with the 125 and 200-Day Moving Averages

The results of paper-trading tests on these major

trend moving averages, plotted with a minimum lead: i.e., 125-day on the 125th day, and 200-day on the 200th day, are shown in Appendix VI, Tables 10 and 11. The 125-day moving average gave a total net profit of 364.10 points for the 15 years, whereas the 200-day moving average for the same period netted 378.00 points, a slightly larger gain. In the Tables the gross profit shown for the 125-day moving average is larger than that reported for the 200-day moving average, but the number of trades for the shorter average was greater, as was the gross loss, hence the net gain fell under that of the 200-day average.

The graphic behavior of these 125 and 200-day moving averages is shown on Chart 24. It will be observed that the curves described by these two averages were similar, but that the 200-day average, being less sensitive than the 125-day average, afforded the smoother trend. The 125-day moving average followed the base data more closely than the 200-day average and resulted in considerably more buying and selling signals. The difference in sensitivity between the two averages was also in evidence at the important turns, the 125-day moving average giving somewhat earlier signals than the 200-day moving average.

125 and 200-Day Moving Averages as Major Trend Tools

Chart 24 affords a good illustration of the point made earlier in the Chapter that a moving average does not necessarily coincide perfectly with the trend for which it is being employed, or, in other words, signal a position at the beginning of the trend, hold it until the termination point, then close it out. In the last year of the 1917-1919 bull market, for example, both the 125 and 200-day moving averages held a long position consistently. However, in the large head-and-shoulders pattern which marked the top, the 200-day average moved through the center of the right shoulder, while the 125-day average cut across the pattern at one point. In the 1919-1921 bear market, both averages remained consistently bearish until near the bottom, when they prematurely cut across the corner of a more or less flat trading area. In the bull market from 1921 to 1923, both averages consistently maintained a long position, but in the 2 1/2-year trading area (or bear market) which followed, both moving averages ran through the center of the wide price fluctuations that marked the period. When the price movement broke out of this area and rallied for two years, the 200-day average held a long position consistently, but the 125-day average was penetrated once by a slight margin. Both averages ran through the center of the sidewise movement that followed in 1926 and early 1927, then the 200-day average gave a bull signal and remained bullish until the crash in 1929. On this rise the 125-day average was frequently penetrated by deep price recessions. In the 1929-1932 bear market, the 200-day moving average signalled a short position throughout the whole period except for a brief time in 1930 at the top of the corrective phase of the first intermediate cycle. The 125-day moving

⁶ BY MEANS OF GARTLEY'S STOCK MARKET DATA.

⁷ SEE APPENDIX I, CHAPTER II.

average was penetrated on this correction and also at the top of the corrective phase of the third intermediate cycle early in 1931. Because of the extremely violent movements that characterized the end of the bear market, the upside penetration of the 125 and 200-day moving averages did not occur until the first intermediate upswing was from 50 to 75 per cent complete. Thereafter, both moving averages, but particularly the 200-day average, cut through the long trading area that marked the corrective phase of the first intermediate cycle, and gave a series of false signals. In the second intermediate upswing both moving averages were long early in the movement, but again gave a series of false signals in the corrective phase of the cycle.

Of the two averages, the 200-day gave fewer false signals than the 125-day, and maintained a more consistent position for longer periods of time. Also, when submitted to a trading test, the 200-day average showed greater net profits than the 125-day average. The 200-day moving average, therefore, is the better tool for major trend analysis. The review of its graphic behavior on Chart 24, however, shows that bear and bull markets do not follow every time penetration of this average occurs. Had this been the case, but 4, or at most 6, trades would be recorded in Table 2 instead of 49.⁸

This may raise a question in the student's mind: If 43 to 45 out of 49 penetrations of the 200-day moving average are not followed by a reversal of the major trend, of what use is this moving average? The answer is that a moving average of this period is less sensitive to price changes than a moving average of shorter period, hence when penetrated by the base data is more likely to be followed by a significant primary movement than when a shorter moving average is penetrated. On Chart 24 the 200-day moving average maintained a highly consistent position when a major diagonal trend is in progress, but, like every other moving average, runs through the center of prolonged trading areas. Practically all of the false penetrations charged against the 200-day moving average occurred in these horizontal price patterns. The experience indicates, therefore, that:

// penetration of the 200-day moving average is not followed by a primary price swing, it is generally indicative of a prolonged trading area.

Combinations of Moving Averages

In proceeding to a more detailed examination of moving averages and their uses in connection with stock price trends, one of the most interesting refinements is the combination of several moving averages.

At various times in the past several years, the

⁸ ONLY 44 PENETRATIONS APPEAR ON CHART 24. THE REASON FOR THE DIFFERENCE IN THE NUMBER OF TRADES RECORDED IN TABLE 2 AND THE NUMBER OF PENETRATIONS SHOWN IN CHART 24, is THAT THE TRADING TESTS WERE MADE ON DAILY CLOSINGS, WHEREAS CHART 24 SHOWS ONLY WEEKLY CLOSINGS.

author has experimented with the idea of trying to eliminate false penetrations of intermediate trend (28-day) and major trend (200-day) moving averages, by means of smoothing out the price curve by a 5 or 10-day moving average, and then applying the longer average to it. Although this seems a logical way to eliminate many false penetrations, by using a smoothed price curve instead of raw data, and taking buying and selling signals when it penetrates the moving average instead of the price trend itself, experience indicates that they are of little value, because the signals are so delayed that they are almost valueless.

However, there are combination uses of moving averages which provide some worthwhile refinements. For example, take the situation on Chart 23. Assume that in the July-August advance, the market had reached the final stage which was seen in middle August, and the trader was anxious to lay his plans to cash in his profits. Although normally he would be using a 28 or 30-day moving average as one of his intermediate trend working tools, it would be worthwhile, after a major phase has been continuing for some time, to apply a shorter term moving average, such as the 15-day moving average, for a period of several weeks until it was sharply penetrated.

For example, during the shaded area as shown on the 15-day moving average on Chart 23 this device is of no value except at the end of major phases. Corrective phases are often trading areas, during which the moving average moves sidewise. Under these circumstances, a short term moving average only complicates the problem of buying and selling.

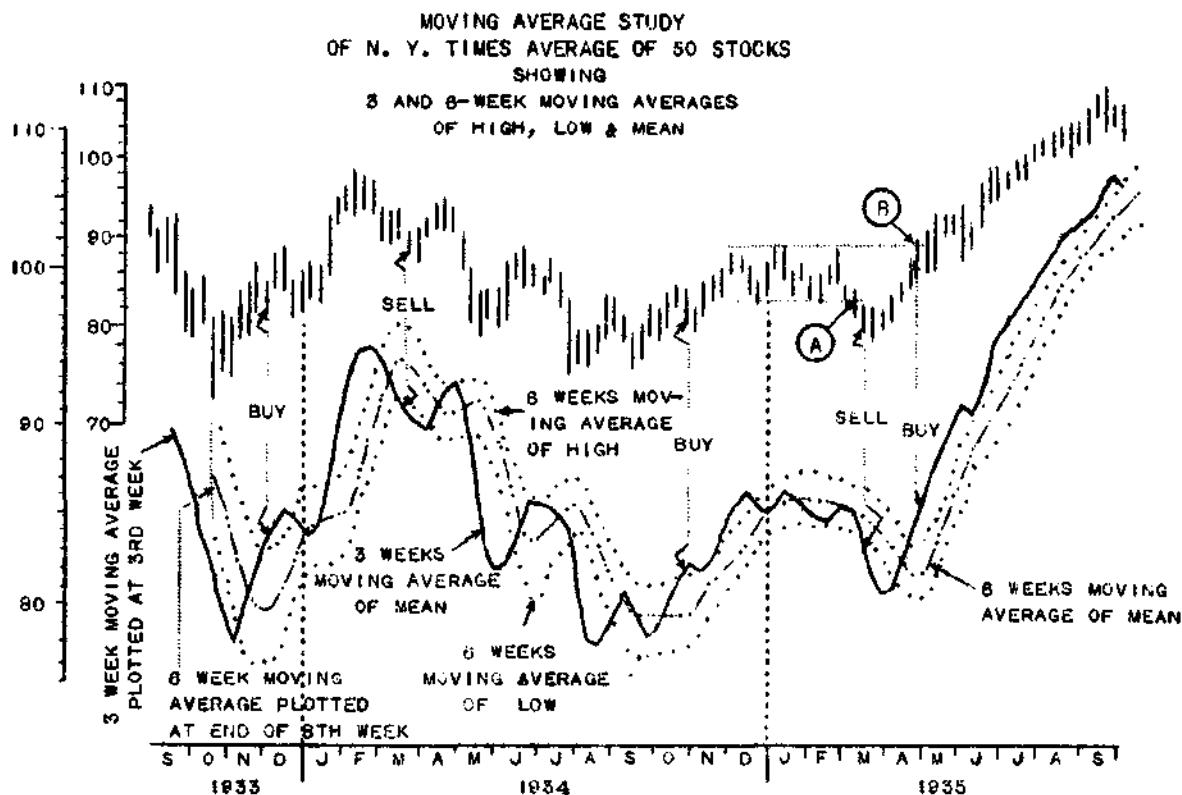
Other research has been conducted, wherein observations have been made of the crossing or intersection of moving averages. Again looking at Chart 23, note how, in the latter part of July, the 15-day moving average moved from a lower position through both the 30 and 40-day averages, just as the price trend itself had done earlier. Shortly after, in August, the 30-day moving average advanced upward through the 40-day moving average.

Some market students have come to place a good deal of confidence in the intersections of short term and long term moving averages such as those shown on Chart 23. They contend that when such an intersection occurs, it is more significant than the penetration of either of the moving averages by the price trend itself. Here again, experience indicates that the signals are delayed too long, and a great deal of the value of the moving averages is thus lost.

Other market students, among them J. Roland, who published a pamphlet late in 1932 entitled "Trend Gauge", have made studies wherein they have built up moving average trend bands somewhat similar to trend channels, projected by trend lines (see Chapter X), by computing and plotting moving averages for the high and low prices, and sometimes the average or mean between the high and low. Figure 8 shows such a study, similar to the study presented by Mr. Roland.

The upper bar chart of this figure shows two years

Figure 8



of the New York Times 50 stock composite, weekly high, low from September 1933 to September 1935. The lower line chart shows four moving averages presented in combination on a scale double size so that intersections of the moving averages may be seen more easily.

The dotted lines at top and bottom of the lower section represent 6-week moving averages of the weekly highs and lows for the New York Times 50 stock average plotted at the eighth week. The solid line is a 3-week moving average of the mean of the weekly range plotted at the third week; while the dot-and-dash line is a 6-week moving average of this mean plotted at the eighth week.

The 3 and 6-week moving averages are equivalent approximately to 21 and 42-day moving averages, which fall moderately above and below the 28-day moving average discussed earlier in the Chapter.

Most of the students who have used combinations of such averages (William Dunnigan published similar studies in 1933) lay down the theory that important signals are given by the 3-week moving average of the mean (the solid line) when it penetrates both the 6-week moving average of the mean, and the 6-week moving average of either the highs or lows (the dotted lines), depending upon whether the reversal is up or down. If the market has been moving upward, the 3-week moving average of the mean must decline to penetrate both the 6-week moving average of the mean, and the 6-week average of the low, or conversely downside. On Figure 8, the important intersections have been connected with the price trend by

vertical lines, so that the reader can check the signals given in the two-year period shown.

Naturally, some of these signals are quite late as compared with signals which would be produced by the penetration of the 3-week moving average of the mean by the price trend. (This difficulty arises as it always does, when an effort is made to eliminate false penetrations.)

However, this study of several weekly moving averages has much to merit the attention of those persons who have an interest in stock price movements as a secondary source of income to be gained from their accumulated capital. Over the course of the last six years, the study has suggested eight completed trades, only two of which have gone to losses, and six of which have resulted in handsome profits netting substantial total gains.

As a mechanical system for stock trading, requiring only one simple study which should not take more than 15 minutes a week, it has turned in an excellent profit during the last six hectic years.

If the average reader had no psychological barrier to hurdle, and confined his trading to not more than five active stocks of leading companies, with a velocity not exceeding 125 per cent of the market (see Chapter XVII), there appears to be ample evidence that the study alone would make him money. The nigger in the woodpile is patience. Few men (and practically no women) are constituted to sit through the long periods when this study provides no suggestion to buy or sell.

Better than most moving average studies, this one showed a profit through the sidewise movement of

1933-1935, with one fairly profitable trade between November 1933 and March 1935, and one trade which went to a small loss, between October 1934 and March 1935. Most other moving average studies piled up losses during this period.

Also, it is to be noted that his study turned in an excellent profit record during the bear market of 1929-1932.

However, it must be understood by the reader that its signals are often so far apart that it is almost a major trend working tool.

It is interesting to note that in March of 1935, when the trading area from November 1934 to March 1935 was penetrated downside, a sell signal was produced not far from the March low (A). But the study recovered from its mistake in April, when the top of the trading area was penetrated (B).

Numerous experiments with similar combinations of moving averages, such as shown on Figure 8, have been conducted with hourly moving averages, with the idea of developing more precise minor trend indicators, which would not be subject to so many false penetrations, and combinations of hourly averages have been observed to determine whether the intersection, for example, of a 21 and 15-hour moving average, or a 21 and 28-hour, might eliminate false penetrations and give more sound signals. But the experiments have not produced results which are consistently worthwhile, or any real improvement on just the simple studies of the hourly price trend and an hourly moving average.

Fitting a Moving Average

In the above discussions, considerable emphasis was placed upon the idea that if a moving average were moved ahead somewhat, or at least plotted at the end of its period (with minimum lead) rather than in the center of its period, as statisticians customarily do in studying economic data, some advantage could be gained. Certain limits were set up wherein it was suggested that a 28-day moving average be moved ahead three days, and it was noted that in the March - September 1935 advance, a 39-hour moving average, moved ahead five hours, smoothed out the false penetrations.

When a new student takes hold of the idea of moving averages, he is prone to believe that by shifting them in relation to the price trend, some combinations can be obtained which will eliminate difficulties that he finds early in his study. Although this author believes that intense research, which would be very expensive, might produce certain formulas which would be useful in adjusting the position of moving averages so that they would be more useful in producing stock market signals, the average trader would do well to confine his experimenting to leading a moving average a few periods ahead. Nothing is to be gained in setting a moving average back, because this will only delay the signals. Also, contrary to some published data on the subject, there is no advantage to be gained in ad-

justing a moving average in the vertical plane, that is, to move it up or down on the price scale.⁹

For example, if we moved the 28-day moving average on Chart 8 up on the price scale so that it would escape being penetrated by the numerous rallies from the February 1934 high to the March 1935 low, we would immediately find that in the March - September advance of 1935, the moving average was in a position where it was above rather than below the price trend.

Any adjustment of a moving average by raising or lowering on the price scale will produce similar uselessness of the whole phenomenon.

Flattening Out of Moving Averages

On many occasions, particularly in the cases of intermediate and major trend moving averages, a pronounced flattening to the horizontal provides the technical student with an important basis of conclusion.

Take for example the situation in 1932, just following that remarkable advance which occurred from July to September (refer to Chart 8). See how, after the September correction, the 28-day moving average which had been trending sharply upward at an angle of approximately 70 degrees, turned over to flatten. A similar situation occurred in the March - July advance of 1935, following the July crack.

This flattening out of the moving averages confirms the probability that the corrective phase of an intermediate cycle is in progress. It shows itself only after the corrective phase has been under way for two or three weeks.

However, there are many periods during trading areas, such as that from October 1932 to February 1933, and again during the period from October 1933 to March 1935, when moving averages have long periods of horizontal movement which provide no conclusions of any value. Note that the flattening out seldom appears while major phases (diagonal trends) are in progress.

Penetration of Moving Averages

One of the vital questions in using moving averages naturally is the subject of penetration. We had the same problem to consider in the study of trend lines. (At this point it is suggested that the reader review the paragraphs concerning trend line penetration on page 248 of Chapter X.)

In considering the penetration of moving averages as applied first to the minor trend, a *penetration of half a point in the hourly average*, experience shows, is about the minimum, which will prevent many false signals. Penetration of less than a half-point are likely to prove false.

In the case of the intermediate trend *moving average ranging from 20 to 40 days*, a full point penetration by the price trend is a fairly safe minimum margin, and this should be *in closing level*, not in the

⁹ CHART TECHNICIANS' MANUAL.

extreme high or low for the day.

In the case of the *major trend moving averages*, at major turning points such as in October 1929 and August 1932, a decisive penetration of 3-4 points is the safest rule.

But all penetrations of moving averages should be considered in connection with the conditions which attend them. These are similar to the conditions which attend the important penetrations of trend lines, as are outlined on pages 241 and 242 of Chapter X.

Usually an important penetration of an intermediate or major trend moving average will occur in conjunction with other technical factors. This will be discussed further at a later point.

Moving Averages and the Dow Theory

Some market students have suggested that false penetrations of moving averages might be guarded against by invoking the Dow Theory principle of confirmation, wherein both the Industrials and Rails produce a buying or selling signal by penetration of their respective moving averages. By applying moving averages to both the Industrials and Rails, this method may easily be employed.

In using this Dow Theory principle, no signal given by either average would be valid unless it was confirmed by a signal from the other average. A study of the subject has shown that like other methods conceived to eliminate false signals caused by false penetrations, waiting for confirmation will result in a delay which outweighs any gain from elimination of false signals. For example, if during 1933 and 1934 a trader had awaited the confirmation of downside penetrations of the moving averages in the Rails or Utilities by similar penetration in the Industrials, upon several occasions Rails and Utilities would have been sold far below their tops, long after they had been trending downward, and not far from the time they reached a bottom.

This brings up an important point in connection with moving averages, applied to the three major groups. If the markets of 1933-1935 are any sample of what we may expect in future years, it will be greatly to the advantage of the trader, in using moving averages, particularly for the intermediate trend, to act upon the penetration signals as they appear in the individual groups, and not await confirmation.

That is, if a bear signal is produced in the Rails, don't wait for a similar bear signal in the Industrials. Possibly during the years 1933 and 1934, the great delay in the Industrials' producing confirmatory downside moving average signals has been caused by the fact that the market during this period was largely an Industrial market, and during most of the period was bullish influenced by Inflation psychology, which in turn was not considered a particularly bullish factor for the Rails.

Moving Averages and the Other Working Tools

It is characteristic of a moving average to follow

the line of the price trend if a diagonal trend is under way. Its angle will be upward in advances, and downward in declines.

When in an intermediate trend a minor supply area is encountered, the angle of a moving average is usually somewhat decreased. If the trend is resumed, it again resumes its direction; while when an intermediate supply or demand area is encountered, it quickly flattens or reverses its trend, according to whether the corrective phase starts with a slow or sharp move.

Trading areas, as *stated before*, are the bugbear of the moving average. Characteristically it moves through the center of these areas, producing buying and selling signals in rapid succession. During a trading area, the moving average is a headache to the trader, because he never knows which penetration is the one preceding either the resumption of the trend or confirmation of its reversal.

One of the problems of using the moving averages as a mechanical trend indicator is that during a corrective phase of an intermediate cycle, unless the trader follows every signal, regardless of what it costs him, he can never be sure he has the most advantageous market position for the next major phase.

Remember that all of the demonstrations shown in the tables of the Appendix of this Chapter are based upon the idea that a trade was made at every penetration. Just as soon as the trader tries to apply judgment, and select or choose such penetrations of a moving average as he feels are more important, the mechanical value of the working tool is lost.

If a trader wants to employ the moving average as a mechanical trading device, he has no alternative but to follow every penetration within the limits suggested above, in the paragraph entitled "Penetration of Moving Averages".

When trading areas develop in the form of triangles, during which a moving average tends to trend through the center part of the triangle, the stock trader has some small advantage in judging which of a series of penetrations of a moving average is the important one. When the triangle reaches its apex, and the market breaks out in one direction or another, and penetrates the moving average, that penetration is likely to be the most important one during the sidewise movement of the triangle's development.

In many instances, penetration of a moving average will occur in close conjunction with the penetration of a trend line. Study, for example, the cases shown on Chart 8. Take the situation from June 1 to October 1, 1932. Shortly after the time when trend line P was penetrated, within a matter of a point, the 28-day moving average was penetrated upside. Similarly, but not quite so near, when trend line S was penetrated downside in September, three days later the 28-day moving average was decisively penetrated downside.

In opening this chapter, it was noted that trend lines and moving averages were more or less related. In mentioning the two working tools here, it might be

pointed out that, although related, they are vastly different.

The straight line requires practically no labor to fit, whereas moving computations take considerable time. The straight trend is relatively inflexible in that tops and bottoms must form before it can be applied, whereas the moving average provides a plotting for every interval for which the price movement is reported. Again, when a straight line is fitted the angle of incline or decline is fixed. If the price movement changes its angle of trend, the straight line must be readjusted. This requires individual judgment and skill and exposes the analysis to the frailties of human judgment.

The moving average, on the other hand, automatically changes its angle of incline or decline as the price varies, and eliminates entirely the element of judgment. While it is true that no stock trader can afford completely to abandon his thinking apparatus in favor of an automaton, there are moments of great indecision in a trader's life when an appeal to a mechanical device for a decision is comforting, to say the least. Because of the variable human element in the fitting of straight trend lines, it would be difficult to make a completely satisfactory test of the relative worth of these two working tools.

In other instances, the intermediate trend moving average will be penetrated in close proximity to a breakaway gap, particularly at the beginning of the major phase of an intermediate cycle, and in such cases where breakaway gaps occur at the beginning of corrective phases (see Chapter XII). Note, for example, the gap between E and F, in March 1935, Chart 8; also the gap 12 days later, which followed closely upon the upside penetration of the 200-day moving average, shown by the solid black line.

The vast majority of important penetrations of major and intermediate trend moving averages, and many cases of minor trend penetrations, are accompanied by a substantial increase in daily volume, either on the day of penetration or during the several days when a sharp advance or decline (markup or markdown) accomplishes the penetration.

In Chapter XIII we will examine a series of studies which the author has chosen to call "Net Change Oscillators". These are frequently used in connection with the observation of moving averages. As the subject is detailed in this later chapter, it is not more than mentioned here.

Moving averages, as we will learn later are also employed in studying the general market statistics, termed Breadth of the Market studies. We will reserve discussion of this branch of moving average application of Chapter XV.

Like all other working tools, moving averages are most useful when they are used in conjunction with the observation of other technical factors. Nevertheless, it is true that perhaps there is no technical working tool used by market students, which in itself can be used mechanically without judgment, with equal success as compared with the moving average

when applied to the intermediate and major trends.

Before proceeding to a very brief summary of moving averages, which ends this Chapter, it is useful to point out one important fact which the reader will find of value in using moving averages. It has been stated that a moving average tends to rise under the price trend in an advance, and recede above the price trend in a decline, and that during a reversal the price trend crosses the moving average.

Numerous observations of the characteristics of moving averages as applied to intermediate trends of stock prices indicate that the position the trend assumes during a minor rally or decline following a reversal, often has an important bearing on forecasting the likelihood of a diagonal trend, rather than a trading area. For example, let us take Figure 9. What is said about an advance applies equally in reverse to a decline. Assuming that an advance has been under way, with the moving average rising under the price trend, and that a reversal takes place which results in the price trend declining through the moving average, if the first minor decline is followed by a minor rally which again rises to penetrate the moving average from the under side, the likelihood is that the diagonal uptrend is to proceed.

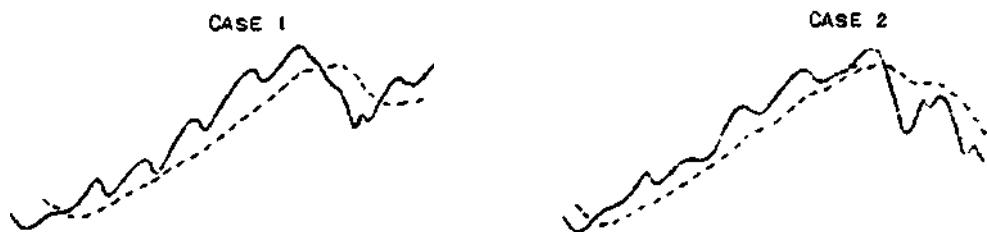
But if, as in the second case shown in Figure 9, the minor rally following the first minor decline which penetrates the moving average downside fails to exceed the moving average, and the decline proceeds, leaving a minor top under the moving average, it is likely that a downtrend of some consequence is in progress. To put it in other words, if a downward zigzag forms under the moving average, after a reversal, it is strong evidence that a new diagonal trend is under way, rather than a sidewise movement or consolidation, from which the old trend is to be resumed.

Summary of Moving Averages

The story of moving averages may be condensed to something like this:

1. The moving average is one method of fitting a trend line. It can be employed in the analysis of any time series, but in stock market studies it is used principally on price data.
2. Two problems arise in fitting a moving average to the trend of stock prices:
 - a. The number of items or units (hours, days, weeks) to be included in the moving average in order to smooth the price fluctuations. The best general rule is to average the number of items making up the important movements. For example, experience has indicated that a good minor trend moving average ranges between 20 and 40 hours, applied to the hourly averages. Likewise, a good intermediate trend moving average is about 20-40 days applied to the daily averages; and a good major trend moving average ranges between 6 and 8 months, or from 150 to 200 days, as applied

Figure 9



to a daily, weekly or monthly chart, b. Next, it is important to locate the moving average with a lead which, by experience, seems to give the earliest reversal signals with the fewest false signals. In stock market studies, we find that the minimum lead is to plot the moving average at the end of its own period.

3. If the moving average is employed as a mechanical trend indicator, commitments must be made every time there is a penetration of a half-point in the hourly averages; one point (closing levels) in the intermediate trend daily averages; and three to five points in the major trend averages.

It is to be understood that the paper-trading which is summarized in the Appendices was based upon *any* penetration, rather than a margin of one point in the case of the intermediate trend average. In some cases, waiting for a 1-point penetration would prove expensive when applied to active stocks, while in other instances it would prevent making commitments on small false penetrations, many of which are less than one point. Unless every penetration is followed, the mechanical advantages of the moving average are lost. To follow every penetration means that there may be months at a time when the trader finds his account in the red. 1934 was a good example. Such periods of loss are always connected with periods of uncertainty in the market, when prices move in broad trading areas rather than in pronounced diagonal trends.

4. When *not* used as an entirely mechanical device, the moving average must be used as one of a number of technical factors which are jointly employed in making a conclusion on the "When" question.
5. After major phases of intermediate cycles have proceeded for some time to a new high exceeding the previous intermediate top in a bull market, or declines to exceed the previous intermediate bottom in a bear market, if a 28-day moving average is being used to observe the trend, it is worthwhile applying a shorter term moving average such as a 15-day moving average, for the final several weeks of the cycle.
6. In applying moving averages to the three major groups (Industrials, Rails and Utilities), it is im-

portant that a decisive penetration in any one of the three major groups be considered a valid bullish or bearish signal as to that group. If trades are based upon a composite average, such as the Standard 90 stock index, alone, there are many times when one of the major groups will be neglected, to the loss of the trader, because by the time the signal appears in the composite average, the individual major group has had a substantial move. 7. As a closing thought, some reference might be made to moving averages applied to individual stocks. This has not been given attention in previous pages, because a careful study of the subject seems to indicate that the vast amount of labor necessary in computing minor and intermediate trend moving averages for individual stocks is not worthwhile; and most certainly it is of less value in the case of major trend moving averages. If a reader is anxious to make a very complete technical study of several individual stocks, to which he is confining all of his trading, and in which he is very active market-wise, the computation and use of moving averages for the individual stocks will provide part of a complete technical background. But the average trader who has another business to attend certainly hasn't the time to give to this branch of technical studies. IN THE NEXT CHAPTER, WE WILL CONSIDER THE LAST OF THE FIVE MOST PROMINENT TECHNICAL WORKING TOOLS, NAMELY THE GAP. FOLLOWING THIS CHAPTER, WE WILL GO ON TO A DISCUSSION OF NET CHANGE OSCIL-LATORS, WHICH ARE RELATED TO MOVING AVERAGES, BUT WHICH ARE ONE OF THE LESS IMPORTANT WORKING TOOLS.

APPENDIX

APPENDIX I

1 Cyclical Data	2 Add	3 Base Data	4	5	6	7	8	9
			Total	3- Item Mov. Av.	Total	7- Item Mov. Av.	Total	5- Item Mov. Av.
A - 102		102						
106		106	318	106				
B - 110		110	324	108			530	106.0
108		108	322	107.3	738	105.4	530	106.0
104		104	314	104.6	746	106.6	530	106.0
C - 102		102	312	104	748	106.9	530	106.0
106		106	318	106	742	106.0	530	106.0
D - 110		110	324	108	736	105.1	530	106.0
108		108	322	107.3	738	105.4	530	106.0
104		104	314	104.6	746	106.6	530	106.0
E - 102		102	312	104	748	106.9	530	106.0
106		106	318	106	742	106.0	530	106.0
F - 110		110	324	108	736	105.1	530	106.0
108		108	322	107.3	739	105.6	530	106.0
104		104	314	104.6	749	107.0	531	106.2
G - 102	0	102	313	104.3	754	107.7	533	106.6
106	1	107	321	107	752	107.4	536	107.2
110	2	H - 112	330	110	751	107.3	540	108.0
108	3	111	331	110.3	759	108.4	545	109.0
104	4	I - 108	326	108.6	774	110.1	550	110.0
102	5	107	327	109	783	111.9	555	111.0
106	6	112	336	112	784	112.0	560	112.0
110	7	J - 117	345	115	785	112.1	565	113.0
108	8	116	346	115.3	794	113.4	570	114.0
104	9	113	341	113.6	809	115.6	575	115.0
102	10	K - 112	342	114	818	116.9	580	116.0
106	11	117	351	117	819	117.0	585	117.0
110	12	L - 122	360	120	820	117.1	590	118.0
108	13	121	361	120.3	829	118.4	595	119.0
104	14	118	356	118.6	844	120.1	600	120.0
102	15	M - 117	357	119	853	121.9	605	121.0
106	16	122	366	122	854	122.0	610	122.0
110	17	N - 127	375	125	855	122.1	615	123.0
108	18	126	376	125.3	862	123.1	620	124.0
104	19	123	371	123.6	873	124.7	623	124.6
102	20	O - 122	370	123.3	876	125.1	624	124.8
106	19	125	375	125	869	124.1	623	124.6
110	18	P - 128	378	126	860	122.9	620	124.0
108	17	125	373	124.3	857	122.4	615	123.0
104	16	120	362	120.6	858	122.6	610	122.0
102	15	Q - 117	357	119	853	121.9	605	121.0
106	14	120	360	120	840	120.0	600	120.0
110	13	R - 123	363	121	827	118.1	595	119.0
108	12	120	358	119.3	822	117.4	590	118.0
104	11	115	347	115.6	823	117.6	585	117.0
102	10	S - 112	342	114	818	116.9	580	116.0
106	9	115	345	115	805	115.0	575	115.0
110	8	T - 118	348	116	792	113.1	570	114.0
108	7	115	343	114.3	789	112.7	565	113.0
104	6	110	332	110.6	794	113.4	562	112.4
102	5	U - 107	329	109.6	795	113.6	561	112.2
106	6	112	336	112	790	112.9	562	112.4
110	7	V - 117	345	115	787	112.4	565	113.0
108	8	116	346	115.3	794	113.4	570	114.0
104	9	113	341	113.6			575	115.0
102	10	W - 112	342	114				
106	11	X - 117						

MOVING AVERAGE COMPUTATION SHEET*

APPENDIX

(1) DIFFERENCE BETWEEN LATEST PRICE AND ELIMINATED PRICE.
 (2) PRECEDING MOVING AVERAGE TOTAL PLUS OR MINUS LATEST CHANGE.
 (3) MOVING AVERAGE TOTAL DIVIDED BY NUMBER OF DAYS, HOURS OR OTHER INTERVALS IN MOVING AVERAGE PERIOD.
 (4) NET CHANGE OF MOVING AVERAGE FROM DAY TO DAY, HOUR TO HOUR OR OTHER INTERVAL TO INTERVAL.

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COPIED BY _____
 COMPUTED BY _____
 CHECKED BY _____
 POSTED BY _____
 INSPECTED BY _____

FORM 251.03

DATE	TIME	LATEST PRICE	ELIMINATED PRICE	CHANGE ⁽¹⁾		MOVING AVERAGE TOTAL ⁽²⁾	MOVING ⁽³⁾ AVERAGE	NET CHANGE ⁽⁴⁾	
				+	-			ACTUAL ⁽⁺⁾	PER CENT ^(+/-)
6	11	58.23							
	12	58.34							
	1	57.76							
	2	57.56							
	3	59.58							
7	11	60.21							
	12	60.75							
	1	60.44							
	2	60.31							
	3	59.77							
8	11	59.50							
	12	59.60							
	1	59.25					1253.38		1253.38
	2	58.48					+ 3.02		÷ 21
	3	60.05					1256.38		= 59.68
9	11	60.34							
	12	58.78	61.25						
	1	58.52	- 58.23						59.83
	2	60.02	3.02						-59.68
	3	61.58							
10	11	61.23				1253.38	59.68		.15
	12	61.25	58.23	3.02		1256.38	59.83	.15	
	13	61.06	58.34	2.72		1259.10	59.98	.13	
	12	61.70	57.76	3.94		1263.04	60.14	.18	
	1	61.96	57.56	4.40		1267.44	60.35	.21	
	2	62.30	59.58	2.72		1270.18	60.48	.13	
	3	61.48	60.21	1.27		1271.43	60.54	.06	
13	11	60.85	60.75		.10	1271.33	60.54		
	14	60.73	60.48	.25		1271.56	60.55	.01	
	1	60.85	60.31	.54		1272.12	60.58	.03	
	2	60.88	59.79	1.11		1273.23	60.63	.05	
	3	60.35	59.50	.85		1274.08	60.67	.04	
14	11	58.83	59.89	.23		1274.31	60.68	.01	
	12	59.92	59.25	.67		1274.86	60.71	.03	
	1	60.48	59.48	.00		1275.96	60.76	.05	
	2	61.44	60.05	1.39		1279.35	60.83	.07	
	3	61.93	60.84	1.59		1278.94	60.80	.07	

APPENDIX III

**Showing Results of Paper Trading Various Intermediate Trend Moving Averages
on the Dow Jones Average of 30 Industrial Stocks
1919-1933**

**Table 1
15-Day Moving Average Traded on the 15th Day**

Year	No. of Trades	Gross		Net Profit Before Commissions		Net ** Profit
		Profit	Loss	Commissions	Commissions*	
1919	26	46.66	27.75	18.91	13.00	5.91
1920	28	48.26	20.04	28.22	14.00	14.22
1921	28	31.82	19.24	12.58	14.00	-1.42
1922	30	22.59	17.53	5.06	15.00	-9.94
1923	32	30.06	16.45	13.61	16.00	-2.30
1924	30	22.66	18.87	3.79	15.00	-11.21
1925	32	49.01	43.54	5.47	16.00	-10.53
1926	23	43.35	23.02	20.33	11.50	8.83
1927	23	51.37	27.62	23.75	11.50	12.25
1928	32	93.34	49.26	44.08	16.00	28.08
1929	26	129.42	111.82	17.60	13.00	4.60
1930	27	156.76	70.97	85.79	13.50	72.29
1931	26	114.66	71.70	42.96	13.00	29.96
1932	23	103.47	30.32	73.15	11.50	61.65
1933	26	67.82	42.55	25.27	13.00	12.27
Total	412	1011.25	590.68	420.57	206.00	214.57

* 1/2-point per trade deducted for brokerage fees and taxes.

** Deficits indicated by minus sign.

**Table 2
25-Day Moving Average Traded on the 25th Day**

Year	No. of Trades	Gross		Net Profit Before Commissions		Net ** Profit
		Profit	Loss	Commissions	Commissions*	
1919	20	40.37	16.60	23.77	10.00	13.77
1920	15	39.46	10.17	29.29	7.50	21.79
1921	23	34.02	14.90	19.12	11.50	7.62
1922	16	19.95	8.41	11.54	8.00	3.54
1923	20	20.62	11.60	9.02	10.00	- .98
1924	16	39.45	12.75	26.70	8.00	18.70
1925	22	47.80	26.06	21.74	11.00	10.74
1926	13	54.94	8.52	46.42	6.50	39.92
1927	17	38.07	28.46	9.61	8.50	1.11
1928	26	79.21	44.55	34.66	13.00	21.66
1929	20	189.95	87.59	102.36	10.00	92.36
1930	21	144.99	35.54	109.45	10.50	98.95
1931	28	114.47	55.93	58.54	14.00	44.54
1932	29	90.96	64.11	26.85	14.50	12.35
1933	12	79.73	13.41	66.32	6.00	60.32
Total	298	1033.99	438.60	595.39	149.00	446.39

* 1/2-point per trade deducted for brokerage fees and taxes.

** Deficits indicated by minus sign.

APPENDIX III

Table 3
30-Day Moving Average Traded on the 30th Day

Year	No. of Trades	Profit	Gross	Net Profit		Net** Profit
				Loss	Before Commissions	
1919	8	45.13	3.62	41.51	4.00	37.51
1920	15	26.19	12.81	13.38	7.50	5.88
1921	19	26.16	9.16	17.00	9.50	7.50
1922	12	28.10	5.12	22.98	6.00	16.98
1923	16	19.75	11.59	8.16	8.00	.16
1924	12	25.05	11.71	13.34	6.00	7.34
1925	18	43.53	17.81	25.72	9.00	16.72
1926	11	50.45	9.37	41.08	5.50	35.58
1927	11	38.83	12.15	26.68	5.50	21.18
1928	24	81.70	47.75	33.95	12.00	21.95
1929	16	171.45	59.63	111.82	8.00	103.82
1930	17	125.01	51.52	73.49	8.50	64.99
1931	24	100.19	59.58	40.61	12.00	28.61
1932	19	88.17	40.59	47.58	9.50	38.08
1933	10	48.77	16.81	31.96	5.00	26.96
Total	232	918.48	369.22	549.26	116.00	433.26

* 1/2-point per trade deducted for brokerage fees and taxes.

** Deficits indicated by minus sign.

Table 4
40-Day Moving Average Traded on the 40th Day

Year	No. of Trades	Profit	Gross	Net Profit		Net** Profit
				Loss	Before Commissions	
1919	9	34.75	4.96	29.79	4.50	26.29
1920	9	24.12	8.39	15.73	4.50	11.23
1921	17	22.55	12.82	9.73	8.50	1.23
1922	12	49.53	7.11	42.42	6.00	36.42
1923	12	18.37	5.99	12.38	6.00	6.38
1924	14	22.54	17.71	4.83	7.00	-2.17
1925	14	45.00	19.43	25.57	7.00	18.57
1926	11	36.95	9.49	27.46	5.50	21.96
1927	5	32.06	3.73	28.33	2.50	25.83
1928	16	68.91	41.75	27.16	8.00	19.16
1929	16	84.97	68.67	10.30	8.00	8.30
1930	13	103.95	54.68	49.27	6.50	42.77
1931	16	99.24	32.04	67.20	8.00	59.20
1932	16	84.32	34.45	49.89	8.00	41.89
1933	19	43.44	33.42	10.02	9.50	.52
Total	199	770.70	354.62	416.08	99.50	316.58

* 1/2-point per trade deducted for brokerage fees and taxes.

** Deficits indicated by minus sign.

APPENDIX III

Table 5
25-Day Moving Average Traded on the 28th Day

Year	No. of Trades	Gross		Net Profit		Net Profit
		Profit	Loss	Before Commissions	Commissions*	
1919	9	44.24	3.17	41.07	4.50	36.57
1920	11	34.64	7.02	27.62	5.50	22.12
1921	15	26.32	5.86	20.46	7.50	12.96
1922	12	31.96	5.02	26.94	6.00	20.94
1923	14	22.38	6.84	15.54	7.00	8.54
1924	12	25.01	10.49	14.52	6.00	8.52
1925	10	51.64	5.19	46.45	5.00	41.45
1926	11	58.67	7.40	51.27	5.50	45.77
1927	7	33.24	5.46	27.78	3.50	24.28
1928	18	87.50	29.93	57.57	9.00	48.57
1929	18	188.68	73.40	115.28	9.00	106.28
1930	11	128.68	28.97	99.71	5.50	94.21
1931	16	105.37	34.54	70.83	8.00	62.83
1932	11	92.07	27.05	65.02	5.50	59.52
1933	7	90.31	1.39	88.92	3.50	85.42
Total	182	1020.71	251.73	768.98	91.00	677.98

* 1/2-point per trade deducted for brokerage fees and taxes.

Table 6
30-Day Moving Average Traded on the 33rd Day

Year	No. of Trades	Gross		Net Profit		Net Profit
		Profit	Loss	Before Commissions	Commissions*	
1919	8	46.68	.43	46.25	4.00	42.25
1920	13	32.13	11.95	20.18	6.50	13.68
1921	15	27.18	3.60	23.58	7.50	16.08
1922	10	28.11	4.23	23.88	5.00	18.88
1923	14	20.21	9.21	11.00	7.00	4.00
1924	12	25.01	11.71	13.30	6.00	7.30
1925	10	47.86	6.41	41.45	5.00	36.45
1926	11	52.33	6.66	45.67	5.50	40.17
1927	7	32.26	5.46	26.80	3.50	23.30
1928	18	85.21	36.28	48.93	9.00	39.93
1929	16	171.80	44.76	127.04	8.00	119.04
1930	11	124.08	33.57	90.51	5.50	85.01
1931	18	101.78	41.29	60.49	9.00	51.49
1932	11	89.58	27.84	61.74	5.50	56.24
1933	11	102.41	13.20	89.21	5.50	83.71
Total	185	986.63	256.60	730.03	92.50	637.53

* 1/2-point per trade deducted for brokerage fees and taxes.

APPENDIX III

Table 7
Comparison of Net Profits

Year	15-Day On 15th Day	25-Day On 25th Day	30-Day On 30th Day	40-Day On 40th Day	25-Day On 28th Day	30-Day On 33rd Day
1919	5.91	13.77	37.51	25.29	36.57	42.25
1920	14.22	21.79	5.88	11.23	22.12	13.68
1921	- 1.12	7.62	7.50	1.23	12.96	16.08
1922	- 9.94	3.54	16.98	36.42	20.94	18.88
1923	- 2.39	- .98	.16	6.38	8.54	4.00
1924	-11.21	18.70	7.34	- 2.17	8.52	7.30
1925	-10.53	10.74	16.72	18.57	41.45	36.45
1926	8.83	39.92	35.58	21.96	45.77	40.17
1927	12.25	1.11	21.18	25.83	24.28	23.30
1928	28.08	21.66	21.95	19.16	48.57	39.93
1929	4.60	92.36	103.82	8.30	106.28	119.04
1930	72.29	98.95	64.99	42.77	94.21	85.01
1931	29.96	44.54	28.61	59.20	62.83	51.49
1932	61.65	12.35	38.08	41.89	59.52	56.24
1933	12.27	60.32	26.96	.52	85.42	83.71
Total	214.57	446.39	433.26	316.58	677.98	637.53

Table 8
Summary

	No. Of Trades	Gross		Net Profit Before Commissions		Net Profit*
		Profit	Loss	Commissions	Commissions	
1919-1926						
15-day on 15th day	229	294.41	186.44	107.97	114.50	- 6.53
25-day on 25th day	145	296.61	109.01	187.60	72.50	115.10
30-day on 30th day	111	264.36	81.19	183.17	55.50	127.67
40-day on 40th day	98	253.81	85.90	167.91	49.00	118.91
25-day on 28th day	94	294.86	50.99	243.87	47.00	196.87
30-day on 33rd day	93	279.51	54.20	225.31	46.50	178.81
1927-1933						
15-day on 15th day	183	716.84	404.24	312.60	91.50	221.10
25-day on 25th day	153	737.38	329.59	407.79	76.50	331.29
30-day on 30th day	121	654.12	288.03	366.09	60.50	305.59
40-day on 40th day	101	516.89	268.72	248.17	50.50	197.67
25-day on 28th day	88	725.85	200.74	525.11	44.00	481.11
30-day on 33rd day	92	707.12	202.40	504.72	46.00	458.72
1919-1933						
15-day on 15th day	412	1011.25	590.68	420.57	206.00	214.57
25-day on 25th day	298	1033.99	438.60	595.39	149.00	446.39
30-day on 30th day	232	918.48	369.22	549.26	116.00	433.26
40-day on 40th day	199	770.70	354.62	416.08	99.50	316.58
25-day on 28th day	182	1020.71	251.73	768.98	91.00	677.98
30-day on 33rd day	185	986.63	256.60	730.03	92.50	637.53

* Deficits indicated by minus sign.

APPENDIX

APPENDIX IV

MOVING AVERAGE COMPUTATION SHEET*

FROM 9/3/35 TO

DATE	TIME	LATEST PRICE	ELIMINATED PRICE	CHANGE ⁽¹⁾		MOVING AVERAGE TOTAL	MOVING ⁽²⁾ AVERAGE	NET CHANGE ⁽⁴⁾		
				+	-			ACTUAL	PER CENT	
3		89.0	88.0	1.0		25276	90.27	.03	.03	
4		90.2	87.7	2.5		25301	90.36	.09	.09	
5		91.1	87.0	4.1		25342	90.51	.15	.16	
6		92.5	88.3	4.2		25384	90.66	.15	.16	
7		93.0	88.9	4.1		25425	90.80	.14	.15	
9		93.4	88.8	4.6		25471	90.97	.17	.18	
10		94.2	88.8	5.4		25525	91.16	.19	.20	
11		94.6	89.1	5.5		25580	91.36	.20	.21	
12		93.8	91.2	2.6		25606	91.45	.09	.09	
13		93.7	92.1	1.6		25622	91.51	.06	.06	
14		93.5	92.1	1.4		25636	91.56	.05	.05	
16		93.0	92.7	.3		25639	91.57	.01	.01	
17		93.1	92.7	.4		25643	91.58	.01	.01	
18		93.8	91.7	2.1		25664	91.68	.08	.08	
19		91.9	92.5		.6	25658	91.64	.04	.04	
20		89.4	92.9		3.5	25623	91.51	.13	.14	
21		89.8	90.7		.9	25614	91.48	.03	.03	
23		90.5	90.9		.4	25610	91.46	.02	.02	
24		91.7	91.7		-	25610	91.46	-	-	-
25		92.1	92.0		.1	25611	91.47	.01	.01	
26		92.0	91.8		.2	25613	91.48	.01	.01	
27		91.8	89.9	1.9		25632	91.54	.06	.06	
28		91.9	91.0	.9		25641	91.58	.04	.04	
30		92.0	88.3	3.7		25678	91.71	.13	.14	
1		91.1	88.1	3.0		25708	91.81	.10	.10	
2		88.1	88.6		.5	25703	91.80	.01	.01	
3		89.4	89.2		.2	25705	91.80	-	-	-
4		90.2	89.9		.3	25708	91.81	.01	.01	
5		90.9	89.0	1.9		25727	91.88	.07	.07	
7		91.6	90.2	1.4		25741	91.93	.05	.05	
8		91.0	91.1		.1	25740	91.93	-	-	-
9		91.4	92.5		1.1	25729	91.89	.04	.04	
10		93.2	93.0		.2	25731	91.90	.01	.01	
11		93.3	93.4		.1	25730	91.89	.01	.01	
14		94.3	94.2		.1	25731	91.90	.01	.01	
15		95.0	94.6		.4	25735	91.91	.01	.01	
16		94.6	93.8		.8	25743	91.94	.03	.03	

DIFFERENCE BETWEEN LATEST PRICE AND ELIMINATED PRICE.

PRECEDING MOVING AVERAGE TOTAL PLUS OR MINUS LATEST CHANGE.

MOVING AVERAGE TOTAL DIVIDED BY NUMBER OF DAYS, HOURS OR OTHER INTERVALS IN MOVING AVERAGE PERIOD.

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FORM 251.03
Standard 90 28-day Moving Average

APPENDIX V

Showing Results of Paper-Trading
 28-Day Moving Average, Plotted
 With a 3-Day Lead,
 on The Standard 90-Stock Index,
 1930-1935

Table 9

Year	No. of Trades	Gross		Profit Before Commissions	Net Profit
		Profit	Loss		
1930	14	86.00	16.60	+ 69.40	+ 62.40
1931	16	67.25	28.00	+ 39.25	+ 31.25
1932	15	72.40	38.15	+ 34.25	+ 26.75
1933	10	42.25	8.75	+ 33.50	+ 28.50
1934	18	17.25	24.00	- 6.75	- 15.75
1935*	11	21.50	19.45	+ 2.05	- 3.45
Total	84	306.65	134.95	171.70	129.70

*9 Months

APPENDIX VI

Showing Results of Paper Trading
Major Trend Moving Averages
on The Dow-Jones, Etc.

Table 10
125-Day Moving Average on the 125th Day

Year	No. of Trades	Gross			Net Profit	
		Profit	Loss	Before Commissions	Net Profit*	
1919	10	21.80	15.25	6.55	1.55	
1920	4	13.27	2.66	10.61	8.61	
1921	9	28.09	4.37	23.72	19.22	
1922	6	25.82	4.79	21.03	18.03	
1923	2		11.94	-11.94	-14.84	
1924	2	3.37	.59	2.78	1.78	
1925	5	29.59	1.77	19.82	18.82	
1926	5	40.50	4.82	35.68	33.18	
1927	5	1.66	37.34	-35.68	-33.18	
1928	8	15.09	19.68	-4.59	-8.59	
1929	5	108.43	27.22	81.21	78.71	
1930	8	62.89	41.13	21.76	17.76	
1931	2	84.13	10.40	73.73	72.73	
1932	4	116.15	5.06	111.09	109.09	
1933	13	59.87	7.04	52.83	46.33	
Total	89	589.66	194.06	395.60	351.10	

Table 11
200-Day Moving Average on the 200th Day

Year	No. of Trades	Gross			Net Profit	
		Profit	Loss	Before Commissions	Net Profit*	
1919	7	20.79	8.50	12.29	8.79	
1920	3	1.14	2.09	- .95	- 2.45	
1921	3	30.43	1.29	29.14	27.64	
1922	2	23.15	.34	22.81	21.81	
1923	2	8.85		8.85	7.85	
1924	4	.08	2.75	2.67	- 4.67	
1925	6	46.62	20.66	25.96	22.96	
1926	2	1.25	5.18	- 3.93	- 4.93	
1927	No Trades					
1928	No Trades					
1929	3	163.09	33.68	29.41	27.91	
1930	2	31.22	24.06	7.16	8.16	
1931	No Trades					
1932	11	202.03	21.28	180.75	175.25	
1933	4		6.35	- 6.35	- 8.35	
Total	49	528.65	126.15	402.50	378.00	

*Deficits Indicated by Minus Sign.

CHAPTER XII

GAPS

REFERENCES

"Stock Market Theory and Practice"
"Technical Analysis and Market Profits"

We now come to the fifth working tool used by technical students in the study of stock price movements. In the previous four Chapters, we have discussed Supply and Demand Areas, Triangles, Trend Lines and Moving Averages. It has been reiterated several times that the various working tools are used in conjunction with each other. The same is true about Gaps, which will now be considered.

We study Gaps because they express a decided intensification, or change, in trading sentiment, resulting in a sharp increase, overnight, of supply of or demand for shares of stock.

As research in stock price trends has broadened in more recent years, the investigation of various market phenomena which earlier students little understood, has brought to light this particular phenomenon, visible especially on bar, or vertical line, charts.

The Gap especially emphasizes the psychological factor of "willingness" of buyers and sellers of shares, to buy or sell. As we learned in Chapter I, it is this "willingness" which lies in back of supply of and demand for all economic goods, and by the same token, shares of stock.

For the most part, such willingness depends upon, and is controlled by (with particular reference to individual stocks) what interested persons *believe* to be the prospects for a stock at a given time, or during a given future time period. Notice that the word "believe" is used to emphasize the psychological factor which enters into price-making. Belief that accentuates purchase or sale of shares may involve well-informed judgment, or almost complete ignorance. It may result from sober investment judgment, feverish speculation or panicky fear.

One of the best indexes of this willingness of buyers and sellers to come into the marketplace, is the appearance of a gap in the price trend.

Gaps Defined

Taking the gaps which appear on the daily chart as the examples for discussion, and classifying the phenomena for advances and declines, we may say:

1. *An upside gap* appears in the price trend when the lowest level of one day is above the highest level of the previous day (see diagram A, Figure 1); and
2. *A downside gap* appears in the price trend when the highest level of one day is below the

R. W. Schabacker
R. W. Schabacker

lowest level of the previous day (see diagram B, Figure 1).

Thus, a gap is an open space in the price trend, which appears on bar charts. Unless it is especially annotated, as shown on the Industrial average on Chart 11, the phenomenon does not show up on line charts. However, the author recommends that market students make a practice of annotating gaps as shown on Chart 11.

Gaps and the Three Trends

In discussing the working tools in the four previous Chapters, in each instance we have related the working tool to the major, intermediate and minor trends. It is not practical to do so in the case of gaps, because they are primarily a phenomenon, indicating an overnight change in sentiment. Thus, they are essentially of the minor trend. However, gaps will appear on both weekly and monthly bar charts, used in the study of major and intermediate trends, providing the phenomenon develops over a weekend, in the case of weekly charts, or over a month-end in the case of monthly charts. Thus, although they appear on charts used to study both the intermediate and major trends, they cannot be properly classified as intermediate or major trend working tools.

To understand this point better, let us look at Figure 2. The large dotted boxes represent the monthly range for two successive months, wherein, over the month-end, a downside gap appeared, and showed as an open space. A fair example of this may be seen on Chart 5, between July and August of 1931.

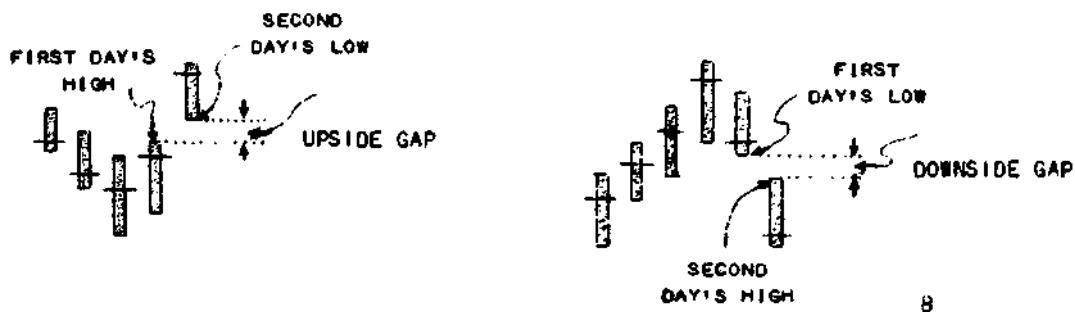
Figure 2 also illustrates, by means of the small boxes at the corners of the larger ones, the manner in which a gap may develop on a weekly chart, when a gap appears between the ranges of a Saturday and the following Monday. As we will learn in the following discussion, the theory and practice of gaps as a working tool, is confined largely to the study of daily charts.

Theory of Gaps

When a gap occurs in the direction in which a trend has been proceeding, it indicates increased intensity of the movement; while if it occurs immediately after a reversal of trend, following a top or bottom, it indicates a drastic change in sentiment.

When a gap occurs in a trend which has proceeded

Figure 1



for some time, in an advance or decline of substantial amplitude, it frequently indicates the final demonstration of uninformed buying or selling, and represents the exhaustion of the movement. Public participation is usually substantial at these inopportune times.

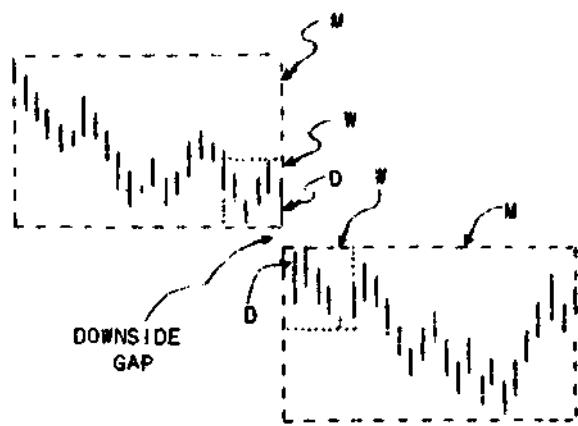
Three Types of Gaps

Thus, technical students have come to classify gaps as follows:

1. Breakaway gaps,
2. Midway, or measuring, gaps, and
3. Exhaustion gaps.

This classification is according to the position wherein gaps occur in a diagonal price trend. In our study of gaps, we will place greatest emphasis on the sequence of their appearance in the intermediate trend, because it is assumed that the reader is interested chiefly in this trend.

Figure 2



Sequence of Caps in an Intermediate Trend

In considering the sequence of the appearance of gaps in intermediate trends, let us remember that intermediate cycles are divided into major and corrective phases (see Chapter V, page 113). The normal sequence, which we are about to describe, makes its appearance more often in major phases than in corrective phases.

Let us turn to the period from the March high to the September high in 1932, as shown on Chart 7.

Here we see the last downward major phase, (which turned out to be the last half-cycle in the 1929-1932 bear market), and the major phase of the first upward cycle in the new bull market.

From these examples of major phases, we may say that the sequence of the three types of gaps listed above, appears as follows:

1. When a corrective phase of an intermediate cycle comes to an end, and prices resume the direction of the major trend, a breakaway gap (B G, Chart 7) appears, and denotes the beginning of the major phase of the next cycle.
2. After the new major phase has proceeded for some time (usually several weeks), and has approached or exceeded the previous intermediate top or bottom, another pronounced gap appears, which when the major phase is completed, we find lies about midway in the trend. Such gaps are designated as midway, or measuring gaps. (We will learn later why the term "measuring" is used.) These have been marked M G on Chart 7.
3. Then, after the major phase has proceeded for some time, usually to new high or low ground, a third gap appears, just preceding the end of the major phase, and the reversal of the price trend. This gap is termed the exhaustion gap, because it represents the final movement, before the trend ends. These are designated E G on Chart 7.

Frequently, the willingness to buy or sell is so pronounced that a series of two, or even three, of each type of gap will occur in the course of a major phase. (See the advance of March - July 1933, on Chart 7.)

Sequence Not So Apparent in Corrective Phases

As corrective phases are far more irregular in their development than the characteristic diagonal trend of major phases, and frequently include trading areas, it appears to be only a coincidence if the above sequence of gaps happens to appear in the corrective phase of an intermediate cycle. Although breakaway and exhaustion gaps often appear in corrective phases, both are seldom present in the same corrective phase, and the measuring, or midway gap, is conspicuous by its absence.

In a long trading area during a corrective phase,

such as that from October 1932 to April 1933, it is not unusual to see gaps in a great many individual stocks (not always in the averages), which appear as breakaway gaps practically every time the price trend moves away (in either direction) from the horizontal limits which mark a broad trading area. Study the period from October 1932 to April 1933, on Chart 7.

Close Laps Often Equivalent to a Cap

Frequently, particularly on the charts of the averages, and especially in the case of the composites including a large number of stocks, a close lap in the price trend will appear between two days when many individual stock charts show open spaces which are gaps. The experienced chart student learns to regard these close laps as equivalent to a gap, when they occur in a position in a trend which he feels may be significant.

Some financial writers have called these laps "hidden gaps", and have indicated that "they exercise much the same effect as the ordinary gap". The author's study of the question, however, leads him to believe that the comparative importance of a close lap with an actual gap depends largely upon whether the lap, or "hidden gap", occurs at a logical point in the trend where a gap might be expected, according to the theories laid down in the following pages.

There are many gaps which appear at the opening on a particular market day, and which by the closing no longer exist, because of a minor rise or fall in the price trend, which extends across the open area which was apparent at the opening of the day's business. There are many such situations in pronounced diagonal trends. The safest attitude is to remember that an overwhelming majority of gaps which appear at the opening are closed before the day is over. The really important gaps are visible at the end of the day.

Now let us proceed to a brief discussion of the three types of gaps, and the all-important question of their identification.

Breakaway Caps

The breakaway gap probably occurs as a result of buying or selling by alert and well-informed people, who courageously and suddenly decide that a minor reversal is apt to become an intermediate reversal as well, and attempt to anticipate an expected intermediate movement. A drastic change in sentiment is indicated. As these alert and well-informed persons are usually confident that a reversal of substantial importance has occurred and as they are of substantial means, their commitments are relatively large as compared with the offerings. Often such buying or selling programs are initiated toward the middle of a given day and before the close all nearby bids or offers are taken with the result that at the opening the next day, a substantial premium must be paid or sacrificed to complete the intended program. However, this does not deter the shrewd operator because a worthwhile move is anticipated and a few points more or less on a

substantial total position are not usually a consideration. The fact that stocks are hard to buy or sell often only confirms the correctness of the timing of the program of accumulation or distribution.

When the trader is watching minor reversals, in an endeavor to catch an intermediate reversal, the appearance of a breakaway gap is strong evidence that an important reversal has occurred. If a breakaway gap is covered in several days by a rally or decline which halts short of the previous minor bottom or top, another gap in the same area may be expected (see Figure 3).

After an intermediate reversal in a long major downtrend such as that from 1929 to 1932, if a series of upside gaps occurs, the phenomenon should be considered as a possible indicator of a major as well as intermediate reversal (see July 1932, Chart 7).

Breakaway gaps are probably most easily recognized because they usually follow a fairly distinct top or bottom. They are particularly easy to see if, as in Figure 4, they follow the development of a minor rounding bottom or top. The connection of breakaway gaps with other phenomenon will be discussed later.

Figure 3

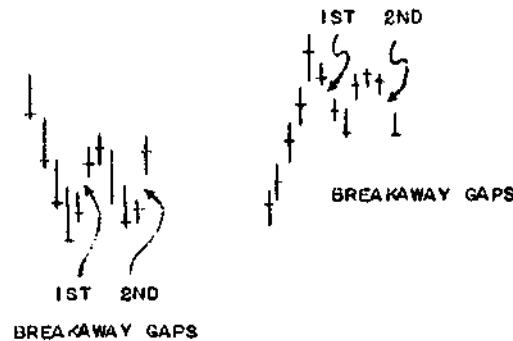


Figure 4

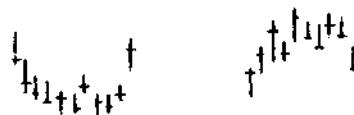
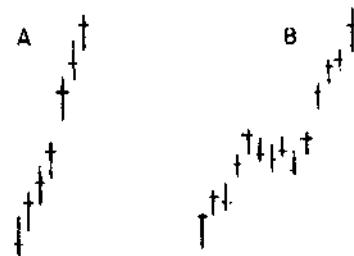


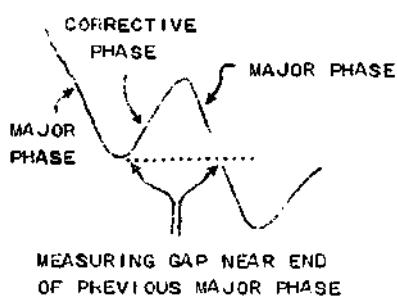
Figure 5



Midway, or Measuring Caps

The most difficult to identify, and at the same time the most useful, is the midway, or measuring gap, which derives its name from the fact that it frequently

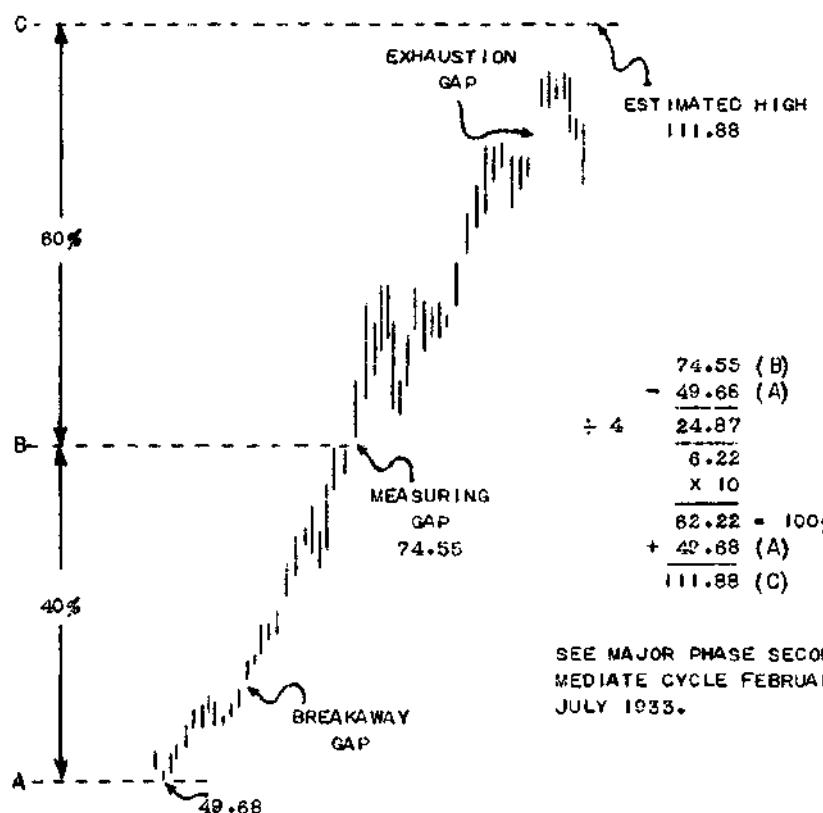
Figure 6



the proximity of the reversal area of the previous major phase (see Figure 6).

The great value of the midway, or measuring gap, is, as noted above, its use as a measuring instrument. A study of the major phases of intermediate trends, over many years, in the case of both the averages and individual stocks, shows that there is a pronounced tendency for this type of gap to appear when the major phase is about half completed. Tabulations of many cases show that the measuring gaps appear when the major phases have proceeded from 30 to 60 per cent of

Figure 7



occurs about midway in a diagonal trend, particularly the major phases of intermediate cycles, and thus enables the market student to estimate, or measure the extent or amplitude or the remaining part of a given intermediate trend which is in progress.

A study of a great many measuring gaps indicates that they occur, or develop, in two quite different ways. This perhaps may be attributed to the fact that some diagonal trends like, for example, the advance in the summer of 1932 (see Chart 7), are rapid mark-ups; while others are gradual, but persistent advances such as, for example, the rise from the March lows in 1935. In an advance of the first type, a measuring gap will appear as in the case of A, in Figure 5, while the second type, the measuring gap quite often will appear away from a minor consolidation, or sidewise movement, such as in B, Figure 5.

Many midway or measuring gaps, which occur in the major phase of an intermediate cycle, develop in

their total amplitude. Many occur 50 per cent of the way through. The majority, however, have been found to occur when the phase is about 40 per cent developed. Hence, we may use what appears to be a measuring gap to estimate the extent of the ensuing advance or decline, and to indicate the level where an intermediate reversal may be expected.

The formula for applying this theory is simple.

Let us assume, for example (as shown in Figure 7), that a composite average makes a low of 49.68, which is followed by a reversal, and a pronounced upward trend. After several weeks of advance, buying becomes enthusiastic, and between two successive days an upside gap appears, between 74.10 and 74.55. As this gap is in the neighborhood of the culmination, or reversal point, of the previous major phase, we assume that it is of the measuring type. Therefore, we take the *extreme low point, of the lowest day's range* (not the closing), and subtract it from the *upper side of the gap*

which is the low of the second of the two days between which the gap occurred, in this case 74.55. This difference we assume to be theoretically equivalent to 40 per cent of the whole major phase under way.

The rest of the formula is a matter of simple arithmetic. As a short-cut we divide the 24.87 difference by 4 (thus finding 10 per cent of the movement, instead of dividing by 40 and finding 1 per cent). This we find to be 6.22, the equivalent of 10 per cent of the advance. Now we multiply by 10, to determine 100 per cent of the advance, which we find to be 62.20. As the advance began from an extreme low of 49.68, we add the total estimated advance (62.20) to the low (49.68), and find that the estimated high level for the movement (C) is 111.88.

We know by experience, in dealing with stock price trends, that any purely mathematical estimate is but merely a general approximation. Therefore, when the measuring gap develops, at 74.55, we estimate a high of 111.88, and if an exhaustion gap appears several points under this estimated level, and what appears to be a top pattern develops subsequently, in the neighborhood of the estimated level, the measurement of the midway gap, we assume, has been fulfilled.

More often than not, a given trend will exceed, rather than fall short of an estimate made in this way by a matter of several points.

Occasionally, two, or even three, gaps will develop in close succession in the course of a pronounced advance or decline, as for instance in the downward major phase from June to October 1931, and the upward major phase from March to July in 1933. If a pronounced upward trend proceeds beyond the second or third such gap, experience indicates that the procedure of estimating the remaining part of the movement can be usefully varied by making two or three separate estimates, employing the successive gaps, in the manner indicated above (Figure 7), and averaging the results, using the combined estimates rather than one of the two or three individual estimates.

This brings up the real problem in connection with the entire theory of gaps. When several gaps, such as those which appeared in the March-July advance of 1933, develop, there is always a question in the mind of the technical student as to whether one of these gaps might not be an exhaustion gap instead of a measuring gap.

If the second or third of a series of such measuring gaps develops while the price trend is still in the proximity of the previous intermediate top, in a strong upward movement, it is not likely to be an exhaustion gap, although at the time it is often hard to believe that the trend is to be so far extended as to make it merely a measuring, or midway gap. A patient study, including many hundreds of cases of gaps, does not indicate that there is any absolutely reliable means of knowing, beyond question, that a gap which develops after an extended diagonal trend is definitely a measuring gap, rather than an exhaustion gap. But at least, the technical student who makes a conscientious

study of his charts, is in a position, at an early time, by means of other technical factors, to determine that a reversal has occurred, and that a gap which was first classified as a midway or measuring gap, is really an exhaustion gap.

The identification of a measuring gap is the most difficult problem connected with the entire gap theory. Nevertheless, the measuring gap is a useful technical phenomenon, when employed by an experienced student in connection with other technical factors.

Occasionally, the measuring gap will mark the area in an intermediate major phase, where the subsequent corrective phase meets resistance, and ends. Or, to put it another way, the area where a series of measuring gaps occurs will mark the end of the re-tracement level of the subsequent corrective phase.

Referring again to Chart 7, note that the lower line of the seven months' trading area, from October 1932 to April 1933, was in the neighborhood of the measuring gap of the July-September advance in 1932. Likewise, the demand area which appeared from the October 1933 low, to the March 1935 low, was in the neighborhood of the second measuring gap in the April-July 1933 advance.

Exhaustion Gaps

Like the breakaway gap, the exhaustion gap is somewhat easier to identify, in that it develops at the end of an extended advance or decline, during a period when the "error of optimism" or the "error of pessimism" has reached an extreme point.

Informed technical students look to the exhaustion gap as a reliable danger signal. Providing a substantial new low has been reached, they do not interpret the weakness which produces a gap, when it occurs following a long decline, as anything but a signal that the end is nearby. On the other hand, when an upside gap occurs after an advance has proceeded for some time into new high ground, they do not interpret it as reason to become increasingly bullish. On the contrary, they study the market pattern with an eye to seeing the formation of a top.

Downside exhaustion gaps frequently occur from one to two or three days prior to a selling climax reversal (see the case in early October 1931, on Chart 7).

In many cases, the exhaustion gap is a matter of question until after the reversal is formed.

Exhaustion and Breakaway Caps Closely Related

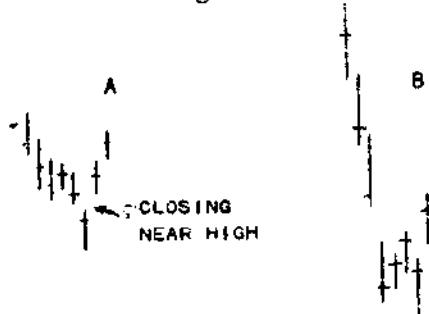
Many reversal patterns are set off by an exhaustion gap followed several days or two or three weeks later by a breakaway gap in the new trend. Take, for example, the situation in June and July of 1932, on Chart 7. In this case, the two were separated by 20 trading days. Frequently, they both occur in the neighborhood of the same price level.

This brings up another interesting phenomenon in connection with gaps.

Island Reversals

In Chapter VIII, we learned that some reversal patterns find their actual termination in a formation lasting from one, to three or four days, which is separated by gaps. (See Figure 24, page 215, Chapter VIII) Although some of these island reversals occur in a single day, as shown in Diagram A, of Figure 8, there are also many instances such as shown in Diagram B, wherein the "island" is separated by gaps which are several days apart. And in a few instances, an intermediate reversal will show gaps two, or even three, weeks apart, such as the case of June-July, 1932 (Chart 7) cited above. In a one-day island reversal, of a downtrend, the closing level is likely to be near the high of the day, such as shown in the Diagrams of Figure 8. The opposite is true in the case of a top.

Figure 8



Many Caps Unimportant

Innumerable gaps occur on the charts of individual stocks, which are of no importance. This is particularly true in the cases of inactive issues, where as a general rule, the specialist's books have relatively few open orders entered at a given time. Take, for example, the case of Delaware & Hudson, as shown on Chart 25, from January to September 1932. Here was a case of a relatively inactive Railroad stock, at a time when a long bear market had put it in a position where there was little or no speculative interest, and investors as well were inactive.

In a case of this kind, gaps are so numerous that they are only confusing and utterly useless as technical working tools.

"Ex-dividend" gaps, which appear on the downside, are usually of little significance, in that they merely reflect the write-off approximating the dividend which is paid, and which is subtracted on the open order books of the specialist.

The Glass-Steagall Cap

Occasionally, during a trading area, usually representing the corrective phase of an intermediate cycle, in a period of considerable market uncertainty, a pronounced gap will occur which is confusing to the technical student, and later proves to have little or no value as a technical factor. An excellent example of this occurred in middle February 1932 (see Charts 7, 8 and 25), when a surprise announcement concerning

the Glass-Steagall Banking Bill, which was conceived to patch up the strained banking situation, temporarily caused a sharp rally. Several days later, when sufficient time had elapsed to study this important legislation, this advance petered out, and in the course of the next four months one of the most drastic declines in stock market history developed.

By any orthodox interpretation of the theories concerning gaps which have so far been presented, this particular gap necessarily had to be interpreted as a breakaway gap and decidedly bullish. Thus, we see an excellent example of a false signal produced by a gap. And so gaps join the other working tools in that none of them are infallible. Curiously enough, when the banking situation was really straightened out, as a result of the emergency legislation which followed the Bank Holiday, a tremendous upside gap appeared (see March 1933, Chart 7), which signalled one of the sharpest advances in stock market history.

Caps Connected With Company Reports

Upon rare occasions, a pronounced gap, sometimes of two or three points, will occur on the chart of an individual stock because of some particular development concerning the company, which has little or no bearing upon the market as a whole — an unexpectedly bad earning report, or some other *unexpected* event which is *believed* to have an important future influence on a particular stock. A good example of this appeared on the chart of Celanese early in March 1935, when overnight there was a downside gap, from 28 3/8 down to 26 5/8.

Another interesting example occurred back in 1931, on the chart of American Tobacco "B", just as the Hoover Moratorium rally in June, ended. Here a tremendous gap of some eight points upside developed as the result of a surprise overnight announcement that the wholesale price of cigarettes had been sharply advanced.

This type of gap is usually very confusing to the technical student, because he finds it difficult to appraise whether the reaction of public opinion to a specific announcement is likely to be sound or not. In the event of special gaps of this kind, which appear in individual stocks, those which appear downside, and are bearish, are more likely to be correct interpretations of surprise news than those which occur on the upside.

Caps and the Minor Trend

As we noted early in this Chapter, the gap phenomenon does not show up on single line charts, such as the hourly averages, as shown on Chart 11, unless they are annotated in some fashion. However, it is possible to apply the theory of gaps to the minor trend, and the sub-minor trend, if the trading day is divided and the range for a shorter period is computed. Take, for example, Chart 26, which shows intra-day gaps.

Here we have a picture of American Can for the 14 days ending September 6, 1931, showing the range for

each half-hour's trading during the period. In an active market, a chart of this kind would require considerable labor. It is interesting to note, however, that on this chart, the typical gap series consisting of the Breakaway, Measuring and Exhaustion gaps, appears in the minor trends. It is very doubtful whether the value of the gap phenomenon is sufficient to warrant the preparation of this type of chart, unless it is used for the study of other minor trend phenomena.

Occasionally, gaps may be used to considerable advantage by the minor trend trader, in the case of an island reversal. Take, for example, the picture in the diagram to the left of Figure 9.

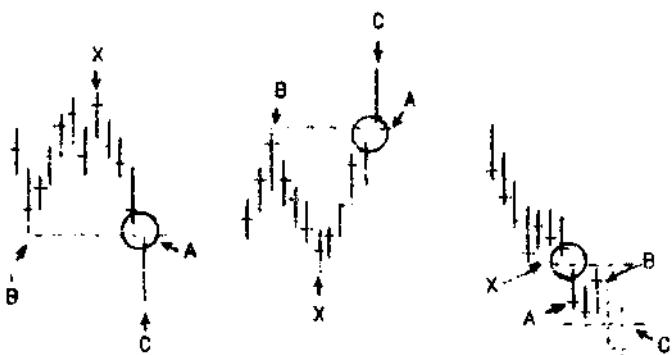
Here, after several days' decline, a downside gap occurs, penetrating the previous minor low at B; but during the day a sharp reversal occurs at C, leaving the closing near the top of the day's range, at A. The same thing, in reverse, is shown in the center diagram of Figure 9. In both cases, if the next day's opening, as shown by the hourly averages, or the opening quotations in individual stocks, indicates that a gap has occurred in the reverse direction, the minor trend trader is provided with a good signal to buy, in the first case, and sell in the second case, in the belief that an island reversal has occurred and a minor rally or decline will cancel at least half of the preceding minor movement, from X to C.

From time to time, the situation shown in the third diagram on Figure 9 will develop, wherein a slow rally, of two to three days, approaches, but does not advance through the open space of the gap area. When this occurs, unlike the previous cases, it is a sign that the gap is likely to be a continuation indicator, rather than one of reversal.

"Covering" or "Filling" Gaps

In the minor trend, we often meet the situation

Figure 9



wherein a rally or decline will cancel part of the previous movement, to approximately a gap level, and then the trend in force will be resumed.

Occasionally, we will read in the financial column of a newspaper a phrase such as "Now that the recent gap has been 'covered', the market may be expected to proceed". This brings us to a subject concerning gaps, which cannot go without some discussion.

A gap is said to be "closed", "covered" or "filled" when a subsequent rally or decline carries the price trend completely across the open space of the gap. Numerous cases of this will be seen on Charts 7 and 8.

There seems to be a general opinion among market students who have not made a thorough study of the gap phenomenon, that every gap is closed soon after it occurs. This is not at all the case. Obviously, breakaway gaps in intermediate movements, marked B G on Chart 7, may not be closed for many months, or even years. As examples, take the breakaway gaps in August 1932, and April 1933.

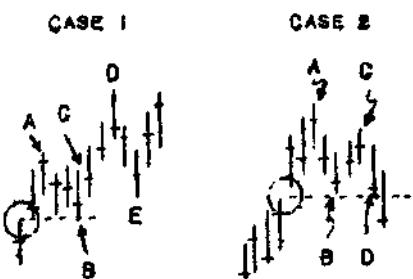
On the other hand, by their very nature, exhaustion gaps are invariably covered in short order, as soon as the succeeding counter trend gets well under way. In the case of measuring gaps, of intermediate trend importance, which appear in the major phases, about half remain uncovered, while the other half are covered by a margin of usually not more than a point or two, in the subsequent corrective phase. We have commented on this (page 283) above. Such truth as there is, in the general impression that all gaps are covered, arises from the fact that there are many gaps, in minor movements, which are covered by a fraction, or not more than a point or two, within the course of from 5 to 10 or 15 trading days.

In about 90 per cent of the cases where a breakaway gap which appears in the major phase of an intermediate trend is covered, it is of no importance, and may be disregarded (the Glass-Steagall gap was an exception), because it will be followed by another gap shortly afterward, at somewhere near the same price level.

The minor trend trader can often profitably employ the idea that once a gap is covered, the previous trend will be resumed, providing he is alert to the phenomenon. Take, for example, the situation shown in Figure 10. In the first case, an upside gap develops, prices rally for another day (to A) and then back and fill for three days. On the third day, the gap is covered by a fraction (at B), and the next day, prices show a tendency to advance (C).

The minor trend trader is justified in making a purchase as soon as there is a tendency shown to rise from the gap level. If, subsequently, an upward zigzag develops, such as A, B, D, E, he has reason to believe that the commitment has been well made, because the gap has been "tested" at B, and it is evident that buyers continue "willing" to make purchases at approximately the gap level.

But, if, on the other hand, as in the second case in Figure 10, after the gap level has been tested at B, the ensuing minor rally forms a top at C under that at A, long commitments not only must be disposed of, but short commitments should be made as soon as the gap level, which has been once defended, is penetrated, as for example at D. For then it is likely that the gap represents exhaustion of the previous upward move. In the first case, the evidence is all in favor of the fact that the gap is not an exhaustion.

Figure 10

Holidays and Caps

In Chapter VI, page 166, it was mentioned that pronounced movements frequently occur on Mondays, following the weekend, and after various holidays. This holds true concerning Caps, and is the reason why many important gaps occur following a holiday, particularly if it is a period wherein the Stock Exchange is closed two or three days.

Apparently, a holiday period provides the great mass of people interested in stock price movements, with the time to survey market conditions, and decide that they are "willing" to buy or sell. Thus, apparently a large number of market orders frequently bunch together, and appear in the opening hour on a trading day following a holiday period.

Thus, technical students can often anticipate a gap, providing other market phenomena preceding a holiday indicate the possibility that one may develop, particularly if news events contribute to trading sentiment.

Caps Closely Related to Other Technical Phenomena

Caps are frequently a great aid in studying other market phenomena, chiefly because they give emphasis to the observer's conclusions.

Breakaways from reversal patterns, trading areas, Dow Theory "lines", triangles, penetrations of trend lines, moving averages, if they occur accompanied by a gap, are definitely enhanced in the mind of the technical student.

If the area estimated by a measuring gap has been approached, the technical student looks to the pattern of the market to determine whether a reversal is developing. Thus, he combines other working tools with the gap phenomenon.

Before proceeding to a brief summary of the practical application of the theory of gaps, it seems important to remind the reader that, if used without the aid of other working tools, gaps have definite shortcomings, as is the case in most instances, in using any other working tool by itself.

Shortcomings of the Cap as a Working Tool

Lack of reliability, in the case of this phenomenon, may be ascribed to such factors as the following: 1. Frequency of occurrence constantly occurring in less active issues, and in various averages, quite often without significance.

2. Suddenness of occurrence develops overnight, and must be appraised immediately, for primary usefulness. Other phenomena develop with relative slowness, permitting more lengthy appraisal.

Theoretically, we may summarize the use of gaps as a working tool, as follows:

1. Gaps are particularly valuable in emphasizing the importance of breakaways from various technical patterns;
2. They are excellent indicators of intensification or reversal of the "willingness" to buy or sell;
3. They often indicate important potential resistance areas, where the ensuing trend will meet supply or demand; and
4. They (the measuring type) enable projective measurement of the advance or decline which is in progress, often with remarkable accuracy.

Practically, the experienced trader learns that the important factor in the study of gaps is the circumstances preceding and surrounding the development of a gap. In making intermediate trend commitments, the study of gaps is considered in terms of major phases and corrective phases of intermediate cycles.

First let us take breakaway gaps. If a corrective phase has proceeded for some time, and evidence of a reversal to a new major phase has been gathering, and an apparent breakaway gap occurs, the experienced trader takes it as his final signal, and steps right into the market, by taking a position for a new major phase. Waiting for a reaction in a bull market, or a rally in a bear market, frequently proves costly. In about half the cases of intermediate reversals from a corrective phase to the next major phase, during the last ten years, the best policy has been to buy or sell in the first or second hour, as soon as it could be fairly determined that a breakaway gap had probably occurred.

In the other half of the cases, the first gap which appeared and was closed in the same day, proved to be a premature signal of a new major phase, sometimes only several days too early, other times a matter of a month.

If stops are used to protect positions taken as the result of what appears to be a breakaway gap, the risk can be limited to a small loss, if the gap proves premature, and a re-entry can be made when the next apparent breakaway gap develops, because almost always, if one apparent breakaway gap develops, and proves to be premature, it is followed by another breakaway gap somewhere near the same level.

Reviewing this practice, let us look at Chart 7. Here a breakaway gap at the very beginning of the bull market appeared late in July. It will be noted that if immediate purchases were not made, that is if the trader waited for a reaction to do his buying, a real opportunity was lost.

Take, on the other hand, the case of the upside gap in the second week of February 1933, which is marked "premature breakaway gap". It was followed by an island reversal, and if stops were put under the minor

low which preceded it, marked "X", the false decline caused by the panic preceding the Bank Holiday, would have been avoided.

Five weeks later, after the Bank Holiday, when the market re-opened, a substantial upside gap occurred, which marked the beginning of one of the largest and sharpest advances in stock market history. Purchases made on the second gap, although they would have shown small paper losses for several days in the April reaction, would not have been stopped out if similar stops had been placed at Y, and the trader was then in line to enjoy the substantial advance from April to July.

Thus, we have a concrete illustration of the practice laid out above. The same practice may be applied, in reverse, in a major downward phase during a bear market.

Now let us consider measuring gaps. When what appears to be a major phase has proceeded for some time, and bullish enthusiasm is stimulated, so that what appears to be a measuring gap develops, the trader uses the phenomenon *to increase his line of commitments*. Here the practice of making purchases on the next minor reaction is likely to prove to be the best trading policy, particularly if a small trading area develops, which tests the gap.

Take, for example, the situation shown in the case of the first two measuring gaps, in May and June, in 1935 (Chart 7). Subsequent reactions permitted the purchase of stocks at about the gap levels, during subsequent minor reactions. After these reactions had terminated, and the market had resumed its upward movement, the bullish value of the gaps was enhanced, and the trader had reason for increased confidence in the future upward movement.

The location of the measuring gap is usually a good level to increase a partly invested position to a wholly invested one. Also, a trader who has been out of the market for any reason has a good opportunity to enter when what appears to be a measuring gap develops. If it later proves to be an exhaustion gap, he can get out without much loss.

When purchases are made on the basis of a measuring gap, it is good practice to carry stops at the previous minor low, such as, for example, those marked X and Y in May and June of 1935. *The same practice may be applied, in reverse, in a major downward phase during a bear market.*

Finally, let us consider exhaustion gaps. First, we must remember that exhaustion gaps in uptrends appear in the presence of rampant bullishness, with trading activity at a high level. They usually precede the top by from 3 to 15 or even 20 days.

Conversely, exhaustion gaps in downtrends appear in the presence of despairing bearishness, with trading activity stepped up to a relatively high level, as the force of liquidation pushes prices lower. They are usually quite close to a bottom, sometimes only a day or two before.

Thus, when the trader sees what he believes to be an exhaustion gap develop, particularly if it is in the

neighborhood of the estimate provided by the previous measuring gap, he scrutinizes the market situation from the angle that a top or bottom is developing, and moves up his stops close to each successive minor low or high, realizing that, although they might be caught a few days before and somewhat under the actual high or low, it is best trading policy to let the other fellow take the risk of the last few points.

As a practical example, let us take the case of the July 1933 top. After the two exhaustion gaps appeared, shrewd traders put their stops first under the minor low marked 1, and secondly under that marked 2 (still on Chart 7), with the result that commitments were stopped out in the second day of the July crack, mighty close to the real top.

In corrective phases, of intermediate cycles, the measuring gap, which appears only infrequently, is of little value. However, the breakaway gap (also infrequent), when it develops, is a real aid to the trader in confirming the fact that the corrective phase is under way.

Occasionally, an exhaustion gap will appear at the end of a corrective phase, particularly in bull market cycles, as part of a bull market selling climax. A good example may be seen on Chart 7, in October 1933. When they develop, they are a real aid to the trader, in that they tie up with the subsequent breakaway gap in the new major phase.

Other than the respects just cited, gaps are not particularly useful in the corrective phases of intermediate cycles.

IN THE NEXT CHAPTER, WE WILL CONSIDER THE SUBJECT OF NET CHANGE OSCILLATORS. THESE ARE CLOSELY CONNECTED WITH MOVING AVERAGES AND HAVE A DEFINITE PLACE IN THE "WHEN" QUESTION OF PRICE TREND STUDIES.

CHAPTER XIII

NET CHANGE OSCILLATORS

REFERENCES

"Investor's Handbook"
"Inter-Cycle Barometer"

In the previous Chapters (VIII-XII), the five most used working tools of the technical student have been reviewed in detail. It was mentioned in Chapter XI, that additional studies of Moving Averages were to be outlined in this Chapter.

Also, it will be remembered that in Chapter I, it was emphasized that upon frequent occasions, stock market statisticians are more interested in price changes than in the levels of prices themselves.

A usual basis of reasoning is that a sudden change in supply of or demand for shares will cause a sudden and sometimes sizable price change in the course of one or several market days. Thus, pronounced changes in trend, which, it is assumed, are caused by a reversal in the preponderance of supply of or demand for shares, are often marked by a notable increase in the size of daily or weekly changes in price. These are measured by the difference between one closing price and the next, or between such other intervals as may be under observation.

A study of such changes often affords a helpful clue in forecasting price trends, if such fluctuations are systematically studied.

Perhaps the market student who has done the outstanding work in this field is Mr. H. J. McCurrach, of Brooklyn, New York, who has devoted considerable time to this branch of technical study during the past seven or eight years. To the best knowledge of the author, none of his remarkably interesting work has been published.

Definition

The author has chosen to call this group of studies, which concern a systematic study of price changes, "Net Change Oscillators". Many other terms have been used to designate them. For instance, C. W. Floss, in his valuable study, which we will discuss in detail later, calls one branch of the study an "Inter-Cycle Barometer". Another author with a flare for catch phrases has termed this type of market approach as a "Selectimeter". Frequently such studies are designated merely as "Price Change Studies". Other market students have referred to them as "Center Line Studies".

Evolution of the Study

To define the term "Net Change Oscillator", we might start with the idea that net change oscillators are based upon closing prices, rather than ranges. The word "net" in the title is used to denote that a change

William Dunnigan
Carl W. Floss

(daily, for example) represents the final loss or gain which results from a period of trading, regardless of what the range of fluctuations may have been during that period.

The word "change" is included to designate that the difference between one closing and the next, or one level and the next, is being used; and the word "oscillator" is a term used by the author to designate the manner in which the study appears when plotted on charts.

When we think of net changes of price, the first qualification which comes to mind is that such changes are either plus, when advances occur, or minus when declines take place in relatively few instances the period of trading will end with no change.

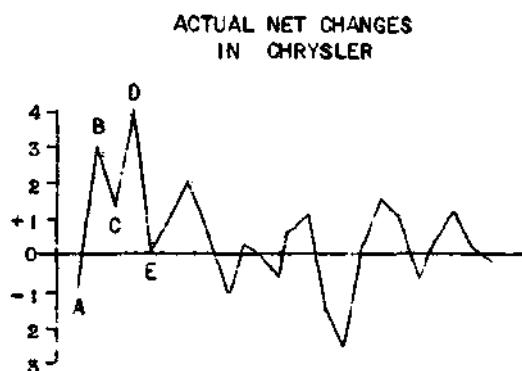
When any statistical data which includes both plus and minus figures is to be plotted on a chart, if a series of differences are the phenomena desired, rather than a continuous price line, for example, then the plottings must be started from a zero line, or some other line designated as the base to which all other fluctuations of change are related. This line we call the "center line". In observing stock price changes, the line is designated as zero. Frequently the economic statistician uses a center line which he designates as 100, to stand for the standard which he has set up, usually based upon an average of the phenomena he is studying, for a period of 5-10 years.

For example, on Chart 2, the upper series, which shows the *Annalist* Business Curve, is plotted on a center line, designated as 100, which stands for an average period which is theoretically designated as normal. As the business indices fluctuate from month to month, their composite difference is determined, and this is plotted in relation to the normal. In the course of time, this monthly figure can be either plus or minus. While business activity is below normal, the figure is below 100. When it is above normal, the figure exceeds 100.

Whenever a series of net changes are plotted from a center or zero line, the resulting diagram is a curve which oscillates back and forth, through the center line, as the differences in price changes vary from plus to minus and vice versa.

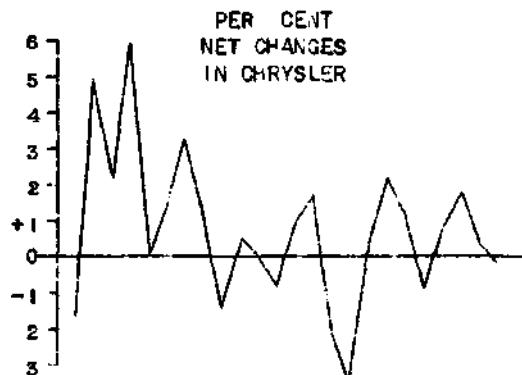
To illustrate our definition, let us take the daily net changes, during the month of September, for Chrysler, which appear below. From this tabulation, we may note that during the month of September 1935, the actual net changes on the plus side ranged from $1/4$ to 4 points; while the minus net changes ranged from $1/8$ to $2 \frac{1}{2}$ points. Interpreted as per

Figure 1



DATE	CLOSING PRICE	ACTUAL	PER CENT
Sept. 3	60.4	1.	1.62
4	63.4	3.	4.95
5	64.7	1.375	2.16
6	68.7	4.	5.80
7	68.7	---	---
9	69.7	1.	1.45
10	71.6	1.875	2.68
11	72.5	.875	1.21
12	71.5	1.	1.37
13	71.7	.25	.34
14	71.7	---	---

Figure 2



16	71.2	.625	.86
17	71.7	.625	.87
18	73.0	1.125	1.56
19	71.4	1.5	2.05
20	69.0	2.5	3.49
21	69.2	.25	.36
23	70.6	1.5	2.16
24	71.5	.875	1.23
25	71.0	.625	.87
26	71.3	.375	.52
27	72.5	1.25	1.75
28	72.7	.25	.34
30	72.6	.125	.17

cent, the plus changes range from .34 to 5.8, while the minus changes range from .17 to 3.49.

Now let us look at Figure I, which shows the plot-tings of the actual figures which appear in the tabulation:

Note that the first net change of the month was 1, as Chrysler declined from the closing of August 31, which was 61 1/2, to the closing at 60 1/2 on September 3.

In Figure I, this change was plotted at 1, starting from the zero line downward. On the next day, an advance left the closing at 63 1/2, a gain of three points for the day. The plotting was made at the 3 level, above the zero line, and the previous day's plotting (-1) was connected by a line. On September 5, the advance continued, and Chrysler closed at 64 7/8, for a further gain of 1 3/8 points. This was also plotted from the zero line upward. As this was a smaller gain, the connecting line on the graph was downward.

On the next day, September 6, a further sharp gain occurred, and Chrysler closed at 68 7/8, with an advance of 4 points. This gain was again plotted above the zero line at 4, and an upward line drawn to connect the last plotting at 1 3/8.

The day following, September 7, Chrysler closed with no change, with the result that the plotting on Figure I was at 0. A line was then drawn connecting the previous plotting of plus 4 with the 0 line. On the 9th, 10th and 11th of September, three more gains took place, of 1 1/8 and 7/8 respectively. These were all plotted upward from the 0 line.

On the next day, September 12, the closing was down 1 point, with the result that the plotting on Figure I was below the line. The next day, a small gain occurred, and Chrysler closed at 71 7/8, 1/4 up. This, of course, was plotted above the 0 line. And so the graph goes on.

Long experience with this type of graph has indicated that for the small amount of work involved, it is advantageous to study per cent changes, rather than actual changes. In Columns 5 and 6 in the above tabulation, the daily changes of Chrysler during September are tabulated, in terms of per cent. Naturally, these fall into both plus and minus columns, depending on the actual changes.

Figure 2 shows these changes, plotted on the same arithmetic scale as Figure 1. Naturally the two graphs follow each other exactly. However, it will be noted that the picture of the percentage changes oscillates

over a wider range than that of the actual changes. This is one of the advantages of studying the percentage changes in that in active stocks which are market leaders, they show up more emphatically.

Similar curves or graphs for both price and volume changes, covering various time periods, are used by technical students. For example, on Chart 5, which illustrates a weekly study of American Can from 1929 to 1935, a weekly *actual* (not per cent) net change oscillator is shown. On Chart 14, a 20-minute oscillator of U. S. Steel appears.

Another type of oscillator, which will be discussed later, appears on Charts 27, 28, 30, 31 and 32. The study which is shown on Figure 2 is part of the oscillator which appears on Chart 41. A similar study of U. S. Steel appears on Chart 42. Both of these are per cent change oscillators.

In connection with plotting oscillators, the inexperienced reader might ask: Why not plot the changes progressively, starting from the zero line? The answer is simple. If this were done, we would have nothing more than a graph of the price trend.

The important thing to remember in plotting net change oscillators is that the whole scheme is based upon starting from the zero line with every plotting posting the plus changes above the line, and the minus changes below the line, with the unchanged at the zero line.

Net Change Oscillators and the Three Trends

It is not possible to classify net change oscillators definitely as major, intermediate or minor trend. However, such studies may be applied to the major trend in connection with monthly charts. For example, Figure 3 shows a picture of the monthly range of American Can, with a monthly net change series. This is based upon the changes in the monthly closing prices of American Can, and might be classified as a major trend oscillator study. Chart 27, which shows another type which will be discussed later, may also be called a major trend oscillator study.

Oscillator studies which fall in the classification of the intermediate trend, are shown on Charts 30, 40, 41 and 42. In each case, the oscillator study is the graph on the bottom of the chart.

The oscillator study which appears as the middle line on Chart 5 straddles the classification, and is both a major and an intermediate trend study.

Examples of the minor trend oscillator study appear on Charts 14 and 28.

Several Types of Net Change Oscillators

In order to divide logically a discussion of the theory of interpretation of net change oscillators, it is first necessary to list and describe the several types of these studies commonly used by stock market technical students.

We may list the most common net change or center line studies as the following:

1. Studies of *actual* net changes, such as are shown in Figure 1 and on Charts 5 and 13.
2. Studies of *percentage* net change oscillators,

such as those which appear in Figure 2 and on Charts 40, 41 and 42.

3. Studies of the net changes of *moving averages*, such as may be seen on Charts 27 and 28.
4. Studies of *velocity*, the relative fluctuations of individual stocks compared with the market, in movements of 10% or more, such as are discussed in Figures 5-9 inclusive, Chapter XVII.
5. Studies of *price-volume* relation, such as the lower series on Chart 30, wherein the net changes of price-volume figures are observed.
6. Studies of general market data, such as may be seen on Charts 31 and 32.

The method of plotting actual and per cent net change oscillators has been outlined above, in connection with Figures 1 and 2. As a discussion of velocity charts (4) appears in Chapter XVII, and as price-volume net change studies (5) are reviewed in Chapter XIV, in connection with Chart 30, and as the plotting of general market statistics (6), such as number of advances and declines, and number of new highs and lows, is presented in detail in Chapter XV, the only remaining plotting suggestions which might be offered here, are those in connection with the plotting of net changes of moving averages.

Plotting the Net Changes of Moving Averages

The plotting of net changes of moving averages is not at all complicated, and is conducted in the same way as plotting the actual or per cent net changes, as has been discussed in connection with Figures 1 and 2 above, the chief difference being that instead of plotting the change of the raw data, the change of a moving average of such data is plotted, and studied. Let us take, for example, Chart 28. The price line on this chart is that of the Dow Jones Average of 30 Industrials, plotted hourly. The dotted line is a 21-hour moving average of these figures. Naturally, this moving average changes from hour to hour.

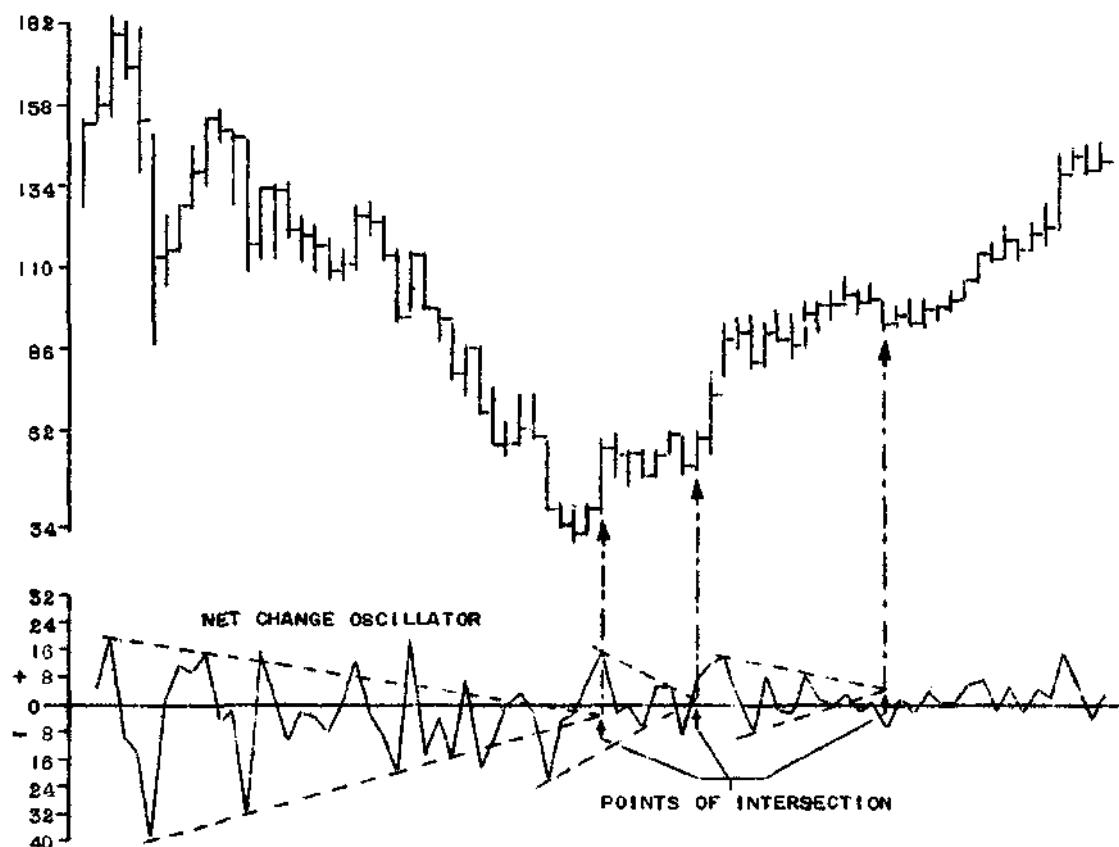
Let us turn to Appendix I of this Chapter, where we see tabulated the 21-hour moving average levels from 11 o'clock January 2 to 3 o'clock January 21, inclusive, a period of 76 trading hours. The period is marked on the net change oscillator in the lower part of the Chart, as 1-2-3. It will be noted that the range of the net changes in the 21-hour moving average is from +24 to -22, and that during this period, it declined from 24 to -22, and then rallied to +11. From observation of the columns 5 and 6 of Appendix I, it will be noted that these net changes tended to move gradually, quite differently from the rapid oscillations of the actual or percentage changes of raw data, such as those described in connection with Figures 1 and 2. This is the chief difference characteristic of the net change oscillator applied to moving averages, as compared with those applied to raw data.

The oscillator on Chart 27 is that of the 12-months moving average of the closing levels each month of the Dow Jones Industrial average.

Theory of Net Change Oscillators

The interpretation of net change oscillators is somewhat different in the case of those which concern

Figure 3



raw figures, and those which concern refined figures, in the form of moving averages. Let us, therefore, discuss the theory in two parts, beginning with that applied to the raw data of actual and percentage net changes, using as our examples Charts 5 and 40.

The characteristics of the weekly net change oscillator of American Can, as shown on Chart 5 from October 1929 to July 1932, illustrates the first use of net change oscillators as applied to raw data. Note that the sharp fluctuations in October and November 1929 caused the weekly oscillator to fluctuate in a very wide range on either side of the center line, because the weekly price changes were very wide.

From November 1929 to July 1932, there was a distinct tendency for these weekly fluctuations to diminish. This tendency is suggested by the dotted lines indicating the trend of contraction.

One of the theories suggested by McCurrach is to project trend lines across two successive peaks, in much the same way as trend lines applied to price and volume, as outlined in Chapter X. Note that these two lines converged in the last week of July, 1932, and at their point of intersection the bear market terminated (1). From this we might conclude that the early fluctuations in October and November 1929 set up a kind of pendulum movement of the net changes, which gradually contracted in its arc, until the bear market was over. Naturally, there are always irregularities in the trend of such series, as we see several peaks which rise above and fall below the lines marking the contraction of the net changes.

Frequently, during shorter periods, such as that

from September 1932 to February, 1933, the trends of net changes stay well within trend lines which are established at an early time. Note in the case just mentioned, how from the September intermediate top in 1932, to just before the Bank Holiday, the trend of weekly net changes in American Can contracted in very regularly decreasing oscillations. When a point of equilibrium was reached (2), the major trend was resumed. A similar series is visible between April 1933 and February 1934 (3), another between March and September 1934 (4), and still another between December 1934 and July 1935 (5).

From these five net change pictures, we see immediately that there is no consistent relation between the net change oscillator and the major or intermediate trends, or between major or corrective phases of intermediate cycles.

Long study of such oscillators leads to one generalization, which appears to be the first factor in interpretation. This may be summarized as follows:

When a well-marked converging trend appears in an oscillator series, as it reaches its convergence it is likely that the trend which has been in progress in the latter part of the development of the converging lines will be reversed.

For example, in Case 1 on Chart 5, a bear market was in progress, marked by the oscillations set up in October and November 1929. When the trends of these converged, that major trend terminated.

In Case 2, the convergence of the oscillations of net changes developed from a beginning in the major phase of the first upward cycle, and reached a conver-

gence as the corrective phase of that cycle terminated. In Case 3, the convergence of the net change lines appeared at the end of an upward movement, wherein American Can had moved contrary to the general market. This convergence was followed by a small minor rally in April 1934, and then a sidewise movement to September, where the 4th case of convergence appeared, and denoted a change of the sidewise trend, pointing to an upward movement, which was indicated when the price advanced from the convergence in October.

In Case 5, a convergency appeared after the extended movement from the lows in August of 1934. At this writing (October, 1935), no conclusion can be drawn.

Frequently there will be a pronounced breakout in trend, prior to the actual convergence. This is illustrated in Case 5 on Chart 5, wherein, in the July 1935 advance, the net change convergence which had been going on since December 1934, was broken out in a substantial manner, by the advance in the second two weeks in July. The interpretation in this case, therefore, would be that the movement from the convergence would be on the upside. This is quite evident from the subsequent market pattern.

Now let us look at the oscillator on Chart 40, which shows the daily percentage changes in Chrysler. We have projected 15 convergences during the two-year period shown, which are numbered and marked with arrows, on both the price trend and the oscillator series.

The theory in using such oscillators is that the first percentage movement, whether it be rally or decline, which causes an oscillator to cross the center line following the point of convergence, is a buying point if it is up, and a selling point if it is down.

To emphasize them, we have shaded in the areas on the oscillators, following such signals on Chart 40. It will be noted that the majority of the 15 cases represented good minor, if not intermediate buying and selling areas. The shaded areas under the center line represent the downside signals, while those above the line indicate the upside signals.

From cases 2 and 3 5, 6 and 7 and 8 and 9, it will be noticed that sometimes there are two or more series of converging lines, similar to the development of triangles, as described in Chapter IX. (A further discussion of these oscillators appears in Chapter XVII, in connection with Chart 40, under the caption "Per Cent Net Change Oscillator, Chart 40".)

Also, it will be observed again that the development of the converging trends and net change oscillators appears to have no relation to the major and corrective phases of intermediate cycles. Note, for example, that on Chart 40 they formed in both phases, with part of the oscillator convergence in one phase, and part in the next. For a time, the author was of the opinion that such oscillator convergences might be confined to just the major phase or the corrective phase. But considerable research has indicated otherwise.

In addition to the theory just described, net change oscillators are valuable in showing unusually large fluctuations, which occur during markups and mark-

downs. They can be usefully employed as follows:

1. If prices have been declining for some time, and the daily or weekly oscillator shows a change which represents an extreme, as compared with the previous peaks and valleys of the oscillator, that is often the mark of a selling climax.
2. The appearance of extreme peaks during the early part of an advance is often a strong bullish signal that a pronounced upward diagonal trend is under way.
3. Frequently, although not as often as in the case of a selling climax, on the downside, the oscillator will show a notable peak as a top forms, but this cannot be relied upon, unless, after the peak forms, the price trend moves sidewise with heavy volume, and then turns downward. A good signal to sell is provided under these circumstances, when for the first time the oscillator dips sharply to the minus side, because this frequently indicates the beginning of decline which corrects the preceding advance.

This mention of watching the extremes of an oscillator brings to light the most valuable use of the phenomenon in connection with the net changes of moving averages and general market statistics (Breadth of the Market Studies).

In a further discussion of the convergence of net change oscillators, let us look at Chart 41. Here are displayed two different series of net change oscillators at the bottom of the chart. The upper one is the weekly per cent net change of Chrysler, while the lower one is a very much refined net change oscillator of Chrysler, as compared with the Standard 90-stock index. In the latter study, the weekly changes of Chrysler in percentage, as compared with the weekly changes of the Standard 90 are shown, instead of just the weekly net changes of Chrysler. This refinement is shown to illustrate how the rapidly oscillating curve of the per cent net change of Chrysler, with meaningless fluctuations, can be refined to a point where it may be interpreted under the theory of convergence, as suggested above.

Let us look first at the upper series, showing the weekly per cent net changes. Here we see that there are three well-defined convergences, which do not consistently or consecutively mark any turning point of importance. But the lower series, showing comparative net changes, which is a study somewhat similar to the Trendograph on Chart 30, shows three buying and selling signals, which conservatively used, developed great profits.

This refined study of the Chrysler oscillator represents the advanced work in this field, and in the opinion of the author represents the type of study which will be more commonly used by advanced students in the future. The study requires more work than the average reader can perform, but should be useful in the technical laboratories of large corporate investors. Now let us consider the theory and interpretation of the other branches of oscillators.

Interpretation of Moving Average Oscillator

Let us take first Chart 28. As noted previously, here we have an oscillator study of the 21-hour moving

average. This is far more useful than a study of the 21-hour moving average itself (refer to Chapter XI). This study is classified as a minor trend project. Above, we have just stated that by watching the extremes of an oscillator, we can sometimes determine good buying and selling points. This is particularly true in the case of moving average oscillators.

For example, on Chart 28, we have drawn two horizontal zones, showing the extremes of the plus and minus movements. The theory of interpreting this is simple, and may be described as follows:

1. Whenever the 21-hour moving average oscillator is in the zone of + 20 or more for a period of 3 or more hours, the first time it declines .5 from a top, it is time to sell stocks.
2. Conversely, whenever the 21-hour moving average oscillator is in the zone of -20 for a period of 3 or more hours, the first time it moves .5 upward is a place to buy stocks.

These various signals during the period from January to October 1935 are clearly marked on Chart 28, from which the reader can see the operation at work. (The buying signals are marked "B", and the selling signals as "S".)

In a pronounced uptrend such as that from the March lows, there are times when selling signals are very early, such as, for example, those on April 25, June 15, July 11. But experience with the study shows that, although it may miss a substantial part of a move, it habitually turns in a good profit record on an annual basis for the trader who is willing to follow it implicitly, as a mechanical trading device.

However, the reader is warned that there is always a definite danger in using this mechanical device as a substitute for effort, study and judgment. It will be remembered from Chapter I that oftentimes a mechanical system will proceed for some time very efficiently signalling buying and selling points, and then suddenly go haywire. The device just described might well be subject to such a change. For example, when we analyze the extremes of this oscillator as applied to the 21-hour moving average, from October 5, 1932, to October 1935, we find that instead of a plus extreme in the neighborhood of + 25 and a minus extreme in the neighborhood of -22 (apparent in 1935), the plus extremes reached in March and April of 1933, just following the Bank Holiday, were + 60 and + 62 respectively. If stocks had been sold when the extreme of + 25 had been reached in the advances which caused these extremes at 60 and 62, an excellent long-side opportunity would have been lost, and sales would have been made at just about the worst possible time.

Conversely, in the minor declines during the March-July advance in 1933, minus extremes were reached in March and June of -30 and -36 respectively. Thus, if purchases had been made when the oscillator reached the current low extreme of 22, they would have been early in both cases. And in addition, in the drastic break in July of 1933, the minus figures reached 90 and 99, coincident with the selling climax.

The contraction of the extremes in 1934-1935 has been attributed to regulation by one technical student. However, it seems more likely that the extreme created by the March-July 1933 fluctuations were abnormal in

that they occurred during a period when economic conditions caused some of the largest movements in the history of stock prices. Thus, to take this period as a basis, and say that the fluctuations in 1934 and 1935 have decreased because of regulation, appears to be false reasoning, unless it could be proved that the wide extremes in the 1933 period were a common phenomenon for a number of years previously.

Unfortunately, we do not have the data to provide such proof, as the hourly averages were not available prior to October 5, 1932.

Thus, in using the signals suggested above, to buy when the oscillator reached -22, and to sell when it reaches + 25, may prove in the future to be unreliable, because the amplitude of the extremes, which has been so regular in the past 18 months, may change. Thus this mechanical forecasting device would fall down badly.

The Inter-Cycle Barometer of C. W. Floss

The theory just presented, as far as the author can learn, was first used by Carl W. Floss,¹ between 1924 and 1926. But he applied it to the long term trend, as is shown in Chart 27. Let us look at this chart now,

Here we see a 12-month moving average oscillator of the monthly closing prices (the final figure the last day of each month) of the Dow Jones Industrial average. This chart covers a period from 1898 to 1935.

The theory of interpretation is similar to that just described in connection with Chart 28. However, Floss lays down a more comprehensive theory of interpretation which he summarizes as follows:

1. *Buy* when the Derived Cycle,² after reaching a bottom in a downward direction, has moved upward 1% from that bottom.
2. *Buy* when the Derived Cycle, after crossing 'zero' downward, and before reaching a -1% value, has turned upward again and has reached the first positive value.
3. *Sell* when the Derived Cycle, after reaching a top in an upward direction, has turned downward 1 % from that top.
4. *Sell* when the Derived Cycle, after crossing 'zero' upward and before reaching a plus 1% value, has turned downward again and has reached the first negative value.

By noting the buy signals which are annotated with dotted lines, and the sell signals which are annotated with solid lines (Chart 27), the reader can check the results of these theories, which have shown an excellent 35-year record.

Floss has also developed a Secondary Trend Barometer, which he applies by using a 3-week moving average of the per cent changes of the weekly mean of the Dow Jones average which received attention in Dunnigan's *Investors Handbook*.

THE INTER-CYCLE STUDY WAS FIRST PUBLISHED BY WILLIAM DUNNIGAN IN 1933. CHART 27 IS REPRODUCED BY COURTESY OF MESSRS. FLOSS AND DUNNIGAN.

A TERM USED BY FLOSS FOR A NET CHANGE OSCILLATOR OF A MOVING AVERAGE.

Oscillators of Volume

Net change oscillator studies may also be applied to the volume of trading figures, in the same fashion as described in connection with Figures 1 and 2. Considerable experience with volume oscillators, however, indicates that their implications are almost always coincident with indications of the price trend at the same time. Therefore, a detailed discussion of them is not offered in this work.

Center Line Studies of General Market Statistics

On Chart 32, we see a kind of oscillator study which is somewhat different from those described above, although it also employs a center line for the plotting. We refer to the study of the daily number of advances and declines, and daily number of new highs and lows, which are the second and third graphs on Chart 32. In these cases, the advances and new highs series are plotted upward from a zero line, while the declines and new lows are plotted downward from the respective center lines.

Thus the data do not cross the center line as in the case of regular oscillator studies. What happens in this type of chart is that the minus series (declines and new lows) are plotted upside down. Thus this study should properly be termed a center line study, rather than a net change oscillator. At first glance, however, the two types of studies look a great deal alike.

Again in this type of study, we find that the primary means of interpretation is based upon studying the extremes of the various curves. For example, we see that when the number of advances in the second series on Chart 32 declines to a level between 40 and 50 for a single day, while at the same time the number of declines rises to between 550 and 600, a buy signal is produced. Conversely, we see in studying the declines that when the declines recede to only between 80 and 100, and the advances for the same day rise to 600, a sell signal is produced.

Charts for Net Change Oscillators

From the above discussion of the theory and practice of net change oscillators, the reader will note that no special charts are needed, as the studies may be made as a supplementary graph on ordinary price charts.

Summary

In the opinion of the author, the average market student can afford to devote only a limited time to the general subject of net change oscillators. However, there are a few studies which involve only a limited effort, and are considered worthwhile. These are therefore recommended, particularly if the data are available.³ If prepared data are not available, the amount of work involved in making the per cent computations of changes and of moving average should not be attempted, unless the market student has ample time.

If the trader is interested in the minor trend, there is no doubt that a chart like Chart 28 is very useful, if used in the manner described above. But if he has to do all of the work connected with computing such a

study, it will quickly become burdensome.

Next, careful consideration should be given to the keeping of a major trend study, such as that shown on Chart 27. This requires very little effort, in that there is only one plotting a month.³

Daily and weekly oscillator studies of individual stocks such as shown on Charts 40 and 41 should not be attempted unless the prepared data are available, because the buying and selling signals provided are not sufficiently numerous or decisively clear, for the effort involved.

Practical Use of Oscillators

In using actual or per cent net change studies for individual stocks, it must be clearly understood that only very well-defined converging trends are likely to signal important reversals of trend, at the time of convergence. Where fluctuations of the net change oscillator tend to cross and re-cross a pair of converging lines applied to previous fluctuations, the signals are much more uncertain than in the case where a well-defined contracting series of oscillations appears. In breaking out of such convergence, remember that the first pronounced movement following the convergence of the oscillator is the buying or selling signal. The shaded areas on the oscillator at the bottom of Chart 40 illustrate this point.

In using net change oscillators of moving averages, remember that their only value lies in having the patience to wait until the oscillator reaches an extreme. For example, applying it to the minor trend, as shown on Chart 28, from 2-3 hours at the extreme level must be followed by a reversal of .5 before a buying or selling signal is provided. If the trader will adhere to this procedure, and stop his commitment under or above the nearest resistance area, according to whether it is a purchase or a sale, many profits with limited risk can be made. From the major trend viewpoint, the same thing applies, except that more patience is required in using a study such as that shown on Chart 27.

As has been suggested, many times in previous Chapters, net change oscillators, like other working tools, must be employed in conjunction with the use of other technical phenomena. As net change oscillators are primarily a phenomenon used at reversal points, the market student can expect to find other evidence of a top or bottom pattern at the time they are signalling a change in trend.

³ THE GARTLEY DAILY DATA SERVICE PROVIDES ALL THE IMPORTANT NET CHANGE DATA NECESSARY FOR THE PREPARATION OF DAILY, WEEKLY AND MONTHLY NET CHANGE OSCILLATORS SEE APPENDIX I, CHAPTER II.

APPENDIX I

Tabulation of Dow Jones Hourly Average
of 30 Industrials, Including 21-Hour
Moving Average and its Net Changes

Date	Dow Jones	21-Hour	Net Change In		Date	Dow Jones	21-Hour	Net Change In	
	Hourly	Moving	21-Hour	Moving		Hourly	Moving	21-Hour	Moving
	Level	Level	+	-		Level	Level	+	-
Jan. 2	11 103.91	102.13	.15		Jan. 11	11 104.69	105.27	.04	
	12 103.51	102.27	.14			12 104.92	105.22	.05	
	1 103.52	102.42	.15			1 104.04	105.13	.09	
	2 103.84	102.58	.16			2 103.47	105.02	.11	
	3 104.51	102.78	.20			3 103.35	104.89	.13	
3	11 104.43	102.97	.19		12 11	102.40	104.72	.17	
	12 104.49	103.14	.17			12 102.30	104.59	.13	
	1 105.28	103.37	.23		14 11	102.73	104.47	.12	
	2 105.20	103.61	.24			12 102.70	104.35	.12	
	3 105.16	103.80	.19			1 102.91	104.24	.11	
4	11 105.00	103.97	.17			2 103.04	104.14	.10	
	12 104.64	104.10	.13			3 102.76	104.04	.10	
	1 104.66	104.21	.11		15 11	102.98	103.93	.11	
	2 104.59	104.28	.07			12 102.00	103.77	.16	
	3 104.69	104.32	.04			1 101.11	103.59	.18	
5	11 104.62	104.35	.03			2 100.71	103.39	.20	
	12 105.56	104.44	.09			3 100.50	103.17	.22	
7	11 106.13	104.55	.11		16 11	101.35	102.99	.18	
	12 105.74	104.64	.09			12 101.40	102.82	.17	
	1 105.86	104.72	.08			1 101.44	102.65	.17	
	2 106.17	104.82	.10			2 101.49	102.49	.16	
	3 105.88	104.92	.10			3 101.54	102.34	.15	
8	11 105.07	104.99	.07		17 11	101.76	102.19	.15	
	12 105.24	105.07	.08			12 101.44	102.07	.12	
	1 105.25	105.15	.08			1 101.33	101.96	.11	
	2 105.28	105.19	.04			2 101.54	101.88	.08	
	3 105.03	105.22	.03			3 101.92	101.85	.03	
9	11 104.97	105.24	.02		18 11	102.13	101.85		
	12 105.16	105.23	.01			12 102.10	101.82	.03	
	1 105.36	105.24	.01			1 101.98	101.78	.04	
	2 104.84	105.23	.01			2 102.39	101.76	.02	
	3 105.05	105.23				3 102.36	101.73	.03	
10	11 105.01	105.25	.02		19 11	102.59	101.72	.01	
	12 105.10	105.27	.02			12 102.96	101.72		
	1 104.98	105.29	.02		21 11	103.05	101.77	.05	
	2 105.06	105.30	.01			12 103.31	101.87	.10	
	3 104.87	105.31	.01			1 102.90	101.98	.11	
						2 102.98	102.09	.11	
						3 103.35	102.19	.10	

CHAPTER XIV

VOLUME OF TRADING

"Is it Volume which causes Price Changes, or do Price Changes cause Volume – the Hen or the Egg, which came first?"

REFERENCES

"Stock Market Theory and Practice"
 "Technical Analysis and Market Profits"
 "Tape Reading and Market Tactics"
 "The Dow Theory"
 "Methods of Dealing in Stocks"
 "Trendographs"
 "Investor's Handbook"

In the preceding six Chapters, the subjects of discussion have been the working tools which applied chiefly to price phenomena. Now we will turn to a study of Volume, before we proceed to consideration of the "What to buy or sell" question.

It will be remembered from Chapter I, that Volume and Volume changes were designated as the second of the four materials or factors which are used in the study of stock price trends.

Compared with the amount of material which has been published concerning the theory of prices and price changes, which were designated as the first of these four factors, the available published information concerning Volume is indeed small. Many financial writers have, more or less vaguely, referred to the activity on the Stock Exchange (which we call Volume), but detailed analyses are, for the most part, lacking. Perhaps the reason is that a detailed study of volume of trading is a tedious and laborious task, the results of which frequently do not seem worth the effort.

In recent years, the more advanced technical students and statisticians have been devoting a very substantial part of their time to Volume research and analysis. The relation, or as statisticians term it, the "correlation", of price and price changes with volume and volume changes has occupied an important place in their research efforts. Nevertheless, only a few of their findings appear worthy of attention when they have been published.

Chiefly, the study of volume may be classed in the "When to buy or sell" category, although there are times when the activity in an individual stock is helpful in judging the "What" question.

A Measure of Supply and Demand?

Theoretically, the reason we study volume is because it is believed that it is a measure of supply of and demand for shares. Some financial writers have referred to volume as a gauge of market pressure. Others have pointed out that it is the quantitative side of stock price analysis.

R. W. Schabacker R. W.
 Schabacker H. R. Neill
 Robert Rhea J. H. Kerr,
 Jr. E. S. Quinn William
 Dunnigan

As a primary principle of economics, it is assumed that if a large number of shares are offered, the price will be depressed; or conversely, if there is a substantial demand for shares, the price will rise. However, a study of the subject indicates that this theory does not always hold during short periods of time, although in the large and long term trends, there is no doubt of its validity.

For example, there are many instances wherein substantial price advances occur accompanied by very small activity, while in other cases, substantial price declines develop in the presence of comparative dullness. At other times, very substantial turnover is accompanied by very small price advances or declines.

As we study volume, we will find that quite frequently the negative implications are the ones from which we gain our most useful conclusions. That is, if a sharp increase occurs in volume, after prices have been rising for some time, and the price advance stops or slows down, we deduce that supply is being encountered; or conversely, if after an extended decline, activity shows a definite decrease, the deduction is that demand is being encountered.

It is important to point out immediately that the vast majority of volume studies have produced only a few general conclusions. The more deeply one studies the subject, the more evident it becomes that very specific conclusions are quite impossible.

Volume Defined

Every price change occurs as the result of a transaction consisting of the sale and purchase of shares of stock. *The number of shares involved in such a transaction constitutes volume.*

Every transaction is the result of the meeting of demand, on the one hand, with supply on the other. When demand exceeds supply, prices tend to rise. Conversely, when supply exceeds demand, prices tend to fall. Therefore:

1. Volume which occurs during advances may be designated as *demand volume*.

2. Volume which occurs during declines may be termed *supply volume*.

Primary Conception

Through long experience, it is generally conceded by technical students that:

1. When volume tends to increase during price declines, it is a bearish indication.

demand for stocks comes in fair volume from optimistic people who have money to "invest", but as successive waves of liquidation occur, their optimism and pocketbooks are steadily depleted, until demand is very low. By that time, the force of liquidation is spent, and the extreme dullness of a terminating bear market sets in (see July 1932, Chart 7).

Average Daily Volume

Bear Market Bottoms Year	Volume	Bull Market Tops Year	Volume
1897	170,000	189	500,000
1900	300,000	190	1,000,000
1903	500,000	190	1,600,000
1907	500,000	190	2,000,000
1911	1,000,000	191	700,000
1914	130,000	191	1,850,000
1917	600,000	191	1,700,000
1921	600,000	192	1,200,000
1923	800,000	192	4,500,000
1932	600,000		

2. When volume tends to increase during advances, it is a bullish indication.
3. When volume tends to decrease during price declines it is bullish.
4. When volume tends to decrease during price advances it is bearish.

It is important to note that the above definitions or premises are concerned with *the changes* in volume. They do not refer to volume at a particular level. The reason for this is that, over long periods of time, the general level of activity so changes that it is not possible to select a permanent base from which to make observations for an indefinite period.

Historical Characteristics

Anyone who reads the newspapers knows that in periods of prosperity, stock markets are generally active, while in periods of depression, they are generally dull. In prosperous times, demand for stocks is stimulated by rising earnings and rising stock prices, and this demand grows increasingly effective as people have more money available which they use for stock purchases. The supply to meet this demand increases readily enough from the strong boxes of the sophisticated holders as they sell stocks to take profits and be out of issues which they believe are overpriced, and from corporations issuing additional shares as new flotations are offered to the public.

In periods of depression, volume of trading tends to diminish, because the trend of prices is downward, and the public is never attracted by falling prices. Activity in bear markets arises primarily from the force of liquidation, which starts with a tremendous burst of activity (see October, 1929, Chart 7) and continues, to a lessening but persistent degree, until the bear market is nearly ended. Early in a major downtrend, such as from November 1929 to April 1930,

Volume and the Four Trends

Let us first examine the record of volume in the four trends, the long term, major, intermediate and minor, and then endeavor to ascertain the usual characteristics of volume in the formation of some of the patterns which serve as working tools in technical study. The Long Term Trend

A study of the activity at bull market tops and bottoms from 1897 to 1932 indicates that the long term trend of volume was definitely upward in that period. The following table shows the average daily volume of trading at bear market bottoms and bull market tops, as shown on Chart 10, from the bottom of 1897 to the major upward turn in July, 1932.

It will be seen from the above Table that at bull market tops, activity increased from an average daily volume of 500,000 in 1899, to an average of 4,500,000 in 1929, an increase of 800 per cent. At bear market bottoms, where public participation is always lacking, the average daily trading increased from 170,000 in 1897 to between 600,000 and 1,000,000 in later years, with the notable exception of the low of 130,000 in December of 1914, when the Stock Exchange was reopened after a long suspension of trading.

From the Table it will be noted that with the exception of the 1911-1912 comparison, the average daily volume at the culmination of bull markets was several times that at the bottom of previous bear markets, showing that dullness characterizes the end of bear markets and the beginning of bull markets, whereas pronounced activity marks the end of bull markets and the beginning of bear markets. More will be said on this point presently.

The rising trend of volume from 1897 to date is a reflection of the growth of the corporate form of business enterprise, increased public interest in such

corporations, the great expansion in security holding effected by the war-time Liberty Loans, the tremendous growth in American industry and wealth, and the spread of stock trading activities to all classes in the latter years of the past decade.

The long term trend of volume can be studied to best advantage on charts such as Charts 4 and 21, which are plotted on a monthly basis.

Effect of Regulation on Volume

While this "mushrooming" public interest brought hitherto unheard-of activity and prosperity to the Stock Exchange community from 1926 to 1929, it might be said that "Wall Street" was then "sowing the wind" with little thought that some day it would "reap the whirlwind". When public interest was small, stock market debacles affected only the wealthier classes to any extent (Rich Man's Panic of 1907, for example, see Chart 1), and there was little outcry. But in 1929-1932, hundreds of thousands of citizens suffered financial paralysis, if not destruction, and others who did not lose directly, blamed the depression on the much-publicized stock market. Strong public demand for regulation did not go unheeded by the legislators, and while specific changes occasioned by regulation cannot be assessed at this writing, it is probable that in the future a repetition of the final stages of the feverish activity of the 1923-1929 bull market is less likely to occur.

If legislative restraints were not applied, the normal long-term trend of volume would no doubt continue upward, for, despite the ravages of the 1929-1932 bear market, trading in the advance of March-July, 1933, was tremendous, and activity in May of that year broke all records for that month. But this was prior to the S.E.C.

Major Trends

The sequence of volume characteristics in major trends may be summarized as follows: (see Chart 7)

Bull markets usually start out of the terminating dullness of the preceding bear market. The first intermediate upswing is accompanied by a *crescendo* of activity which continues through the culmination of the advance and the abrupt start of the intermediate correction. (See August and September, 1932, and April to July, 1933, Chart 7) As the latter proceeds, however, volume diminishes and the correction normally terminates in dullness, from which the next intermediate advance starts. (See October 1932, to February 1933, Chart 7) As the bull market progresses, each intermediate advance is apt to occur on bigger volume than the previous one (see 1923-1929, Chart 4). Finally, a long period of heavy trading fails to produce a rise worth mentioning, and a moderate decline occurs, with volume remaining active. This is the start of the ensuing bear market, as previously mentioned.

Summarizing, it is generally true that: *Bull markets usually begin in pronounced dullness, and end*

in prolonged, *intensive activity*.

Bear markets naturally show the opposite tendency, and begin with a fairly moderate decline in prices wherein volume tends to increase instead of to decrease as in bull market price declines. As bearish characteristics develop, fear quickly grows to panic, and selling causes activity to rise to a point where daily trading for a time exceeds any seen in the preceding bull market. The selling climax (see Chapters VIII and XV) of the panic produces a rally which shows a tendency to lose volume as prices advance. Before very long, the major downtrend in prices is resumed, finally running into another selling climax. On this decline, volume increases again, but rarely equals that which appears in the first selling climax. This sequence continues through the bear market, with each climax showing somewhat less volume than the previous one, the tendency of activity to lessen being quite clearly marked.

In time, of course, the force of liquidation becomes spent. Demand, however, is light, because buying power is severely depleted and capital is timid. At this stage of the bear market, which is generally the final one, prices decline but activity is listless. Finally, activity becomes so light that the price trend flattens out and the bear market is about terminated, as in July 1932 (see Charts 4, 5 and 7).

Bear markets, therefore, show volume tendencies diametrically opposite to bull markets, they begin in great activity and end in pronounced dullness.

Intermediate Trends

Volume characteristics of intermediate cycles depend upon the prevailing major trend.

In bull markets, the first major phase, as we have just seen, gains in activity as it progresses. Volume does not actually reach a peak simultaneously with the price trend. Rather, the peaks of volume in the major phase usually occur during the mark-ups. At the actual top, activity is heavy, but usually it is not as great as on the previous mark-ups. When the over-bought price structure collapses, daily volume rises until it often exceeds anything seen in the previous major phase. This high volume is temporary, however, and as the corrective phase develops, volume tends to dwindle, until dullness is pronounced at the termination of the corrective phase. (See July 1932 to February 1933, Chart 7)

Thus, bull market *major phases* occur on *rising volume*, which frequently reaches a maximum on the last mark-up prior to the top. The *corrective phase* following starts in heavy trading, often heavier than any seen in the major phase, but this is soon supplanted by a *steady decline* in activity.

In bear markets, the major phase of the first cycle is, of course, the decline which starts the bear market. (See September-November, 1929, Chart 7) Activity is heavy and rises to a tremendous degree as the selling climax occurs. The ensuing corrective phase (rally) begins from the climax, but loses activity as it pro-

gresses, until the advance practically "dries up" and a new major (downward) phase starts. This gains in velocity and activity as it descends until the selling climax is reached and the corrective rally occurs.

The corrective phase of the first downward cycle in the 1929-1932 bear market stands out as an exception to this general rule. In this case (see Chart 7), it will be noted that from January through early April, 1930, activity steadily increased. On the other hand, notice how volume decreased from middle December 1930 to early February 1931. Here again we find an exception, in that activity picked up at the end of a corrective phase (February 7-27, 1931). During this sixteen-day false rally from the apex of the triangle (see Chart 7), Wall Street gossip held that the bear market had ended with the December 1930 lows.

Thus, in bear markets, intermediate major phases occur on rising activity until their selling climaxes initiate corrective phases. Remember that there is *one exception*, namely, the major phase of the final bear cycle, wherein volume does *not* increase, but tends to dry up. The first major phase of a bull market, therefore, does *not* come out of heavy trading but out of dullness, and in this phase volume does *not* dry up as in the previous rallies in the bear market, but increases as the rally continues. This important technical factor contributed substantially to the author's shift from a bear to a bull market view early in August 1932.

At this point, it is suggested that the reader turn immediately to page 130 of Chapter V, and review the volume discussion presented there, before proceeding.

In studying intermediate trend volume, daily and hourly charts, such as Charts 7, 11, 15, 29, 30 and 32 are very useful.

In the study of intermediate trend volume, it must be understood that the trend of activity for a period of two or three months, or at least several weeks, must be surveyed, as a whole. Conclusions concerning intermediate trend volume should not be drawn from the activity during a period of several days.

In the vast majority of cases, the trend of volume in individual issues will closely parallel the market as a whole, during major and intermediate trends. On the other hand, there are numerous occasions wherein, for special reasons, the trend of volume over a period of two or three weeks in an individual stock will differ greatly from the market as a whole.

Minor Trend

Minor trend volume, like minor trend fluctuations, is tricky and often difficult to analyze. Safe *general* rules to follow in observing minor trend phenomena are:

1. In *bull market major phases*, volume is more on the upward price movements than the declines, with trading light at the start, but increasing. As the culmination of the major phase is reached, volume spreads more evenly over up and down periods until minor volume is less on rallies than on declines and the correction

begins.

2. In *bull market corrective phases*, volume usually appears early on the downside, but, as the correction proceeds, activity lessens and minor trend volume tends to shift from declines to advances.
3. In *bear market major phases*, the tendency at first is only slightly toward increasing activity on declines, but as the price decline develops, volume appears more and more on the down side.
4. In *bear market corrective phases*, the early tendency is toward activity on strength, but as prices advance in the corrective phase, volume tends to grow lighter and occurs more on dips than on rallies.

Generally speaking, the first and last hours in each day are the most active, in all types of markets.

Hourly Studies of Minor Trend Volume

If the technical student desires to make a detailed study of volume, it is essential that intra-day activity be scrutinized constantly. The most convenient way to do this is to observe hourly volume. Since May 19, 1933, the New York Stock Exchange has published the total volume of trading hourly, which permits a more detailed study of volume for the market as a whole. Refined study, however, requires short interval volume data for individual stocks, and these data are not available at the present time unless they are compiled directly from the ticker tape. Such tabulations are extremely laborious. This is one reason why volume research has lagged.¹

Caution

Students are warned that minor trend volume shifts rapidly and must be observed with skepticism. Remember that in minor declines during intermediate advances, volume may quickly develop bearish symptoms, but these can change to bullish indications with lightning rapidity. Conversely, during intermediate declines, volume may suddenly appear bullish, but just as quickly turn bearish. Minor trend volume on daily charts can be very deceptive, but it presents an even more difficult problem to the student who is going beyond daily figures and studying, say, hourly,

¹ THE NEW YORK STOCK EXCHANGE HAS CONSISTENTLY REFUSED TO INSTRUCT FRANCIS EMORY FITCH & Co., PUBLISHERS OF ITS OFFICIAL SHEET, TO SET OFF EACH HOUR'S TRADING IN ALL STOCKS, ON THE GROUND OF ADDED COST AND CERTAIN DELAY IN PUBLICATION. INVESTIGATION INDICATES THAT THE PUBLISHERS HAVE SEVERAL TIMES URGED THE STOCK EXCHANGE TO SEPARATE THE HOURLY TRADING ON THE OFFICIAL SHEET. ALSO, IT IS REPORTED AS A FACT THAT THE REPORTERS ON THE FLOOR OF THE STOCK EXCHANGE HABITUALLY MAKE UP THEIR REPORTING SHEETS WITH THE TRADING IN INDIVIDUAL STOCKS EACH HOUR SET APART. YET STOCK EXCHANGE OFFICIALS ARE BACKWARD IN AUTHORIZING THE PUBLICATION OF THIS IMPORTANT INFORMATION. WITH BOTH HOURLY TOTAL AND INDIVIDUAL STOCK VOLUME AVAILABLE, IT SEEMS PROBABLE THAT MUCH MORE USEFUL MINOR TREND VOLUME STUDIES COULD BE MADE.

half-hourly or twenty-minute volume figures. Analyzing volume minute by minute on a moving tape is a job for a veteran. With the proper background of experience, close study of this kind often permits early decisions at important turning points.

Before proceeding to a further study of volume characteristics, a discussion of sources of data, and some of the mechanical difficulties in plotting volume may be useful.

Sources of Data-Plotting Volume

Each day's individual stock volume is published in the larger daily newspapers. Excellent sources of weekly volume are *The Annalist*, and the Monday morning editions of the New York Times and New York Herald-Tribune, which cover the previous week. (The Sunday editions include the figures for Saturday only.)²

A convenient source of monthly figures is the *Commercial and Financial Chronicle* (Quotation Supplement). Total market volume figures are available in the same sources.

Hourly volume of trading is published on the New York Stock Exchange ticker tape, in the Wall Street Journal and other metropolitan dailies. It is very useful in studying the hourly averages. At present, there are no published sources of less than daily volume for individual stocks (see Note 1, below).

Customarily, chartists plot volume along the lower side of their charts. Some prefer to use bars, such as shown on Charts 4 and 7, while others prefer a line type of plotting, such as shown on Charts 11 and 13.

In studying total market volume, such as shown for example on Chart 15, many market students prefer to double Saturday volume, on the theory that it is a short day, and if volume is not doubled, meaningless valleys will occur at weekly intervals. Also, doubling volume on Saturdays tends logically to emphasize any substantial increase of activity during the short day. The volume on Chart 15 has been doubled for Saturdays, while that on Chart 7 is not doubled.

As we discussed in Chapter II, there is a great difference of opinion as to whether volume should be studied on the ordinary arithmetic scale, or on the ratio, or semi-logarithmic, scale. Students favoring the arithmetic scale argue that the ratio scale, in compressing plotted figures in its higher ranges, just naturally defeats the easy study of volume, in that it is the volume peaks or sharp rises which are significant, and if they are compressed on the semi-logarithmic scale, it is a real handicap.

The other group who favor the semi-logarithmic scale, of which the author is emphatically one, present the counter argument that it is impossible to select a series of convenient arithmetic scales which will permit plotting of the wide ranges necessary in the study of a large number of individual stocks. Most

chartists who use arithmetic scales for volume are in the habit of so changing the scales that only a few of the individual stocks they are studying may be compared one with the other. The use of the ratio scale eliminates this difficulty, and makes it possible to make accurate comparisons of the volume of any number of stocks, regardless of wide range in the statistics.

The argument that the ratio scale compresses volume peaks is not at all true. The difficulty most of the time is that a logarithmic scale of proper size, selected particularly for the purpose, is not employed, with the result that volume is difficult to plot and to interpret. Long experience with many hundreds of charts plotted on the special chart sheets which were designed for the purpose by the author, indicates no difficulty on this score. We will learn more about this in Chapter XVII. A more complete discussion of the subject of plotting volume appears in its proper place, in Chapter II.

Volume and the Dow Theory

It will be remembered that, in outlining the seven precepts of the Dow Theory, in Chapter VII (page 173), number 6 was volume. As outlined by Hamilton, it was stated:

.. When the market is oversold, activity goes dull on declines, and increases on rallies.
When the market is overbought, activity goes dull on rallies and increases on declines.

All of the Dow Theorists observe volume phenomena in connection with the other six tenets of the theory. When a previous high or low point is penetrated, they regard the penetration as more significant if it occurs accompanied by an increase in activity. The same is true when the price trend breaks away from either side of a Dow Theory "line". About two-thirds of the published conclusions of Rhea and Collins, the contemporary writers concerning the Dow Theory, contain some mention of volume.

Dow Theorists look for volume to be at a high level at the culmination of bull markets, and at a low level at the termination of bear markets. Similarly, they expect to see volume at a relatively high point at the end of major phases of intermediate cycles, and conversely at a low level at the end of corrective phases.

Charles Dow himself, in speaking of volume, said: "In a bull market, dullness is generally followed by an advance; in a bear market by a decline."

The reader might review page 192 of Chapter VII, which summarizes Robert Rhea's use of volume as part of his Dow Theory analysis.

Volume and the Other Working Tools

In Chapters VIII-XII, inclusive, frequent mention was made of the relation of volume to the other working tools. In each case, it was emphasized that as volume showed a marked increase in the direction of the trend, as indicated by other technical factors, it was a significant confirmatory signal worthy of note; while conversely, if volume failed to point in the same

¹ ALL OF THESE DATA, FOR 230 OF THE MORE IMPORTANT STOCKS, ARE AVAILABLE IN THE GARTLEY STOCK MARKET DATA SERVICE (SEE APPENDIX I, CHAPTER II).

direction as the trend indicated by the other working tools, there was just reason to question the indications. With some fear of repeating too much, let us now consider some general relations between volume and the other working tools.

Volume and Supply and Demand Areas

Briefly, a supply area forms when an advancing trend runs into more supply volume than it can absorb without losing headway. While there is sufficient demand volume to take all offerings, prices rise. When selling becomes too persistent, and buying power wanes, either a trading area or a top forms.

Conversely, a demand area forms when a declining trend runs into more demand than is needed to absorb all offerings. As soon as sufficient demand appears to accomplish that, the downward direction of the price trend ceases, and a trading area or bottom forms.

Intermediate demand areas in a bull market are naturally at the end of corrective phases, when activity is at a relatively low level, as compared with the previous top, for example. Conversely, the intermediate demand areas in a bear market are at the end of major phases, and in most cases activity is high, usually running into a selling climax.

Intermediate supply areas in a bull market are also at the end of major phases, and are usually accompanied by a substantial increase in activity, as compared with the intermediate low. Conversely, intermediate supply areas in a bear market appear at the tops of intermediate corrections, and are accompanied by less volume than was seen at the previous selling climax intermediate bottom.

In some cases, there is a tendency for volume to expand during the corrective areas of intermediate cycles in a bear market. A good example of this appears in the period from October 1929 to April (see Chart 7).

The final supply area in a bull market, at the end of the last half-cycle (see Chapter V), is usually accompanied by sustained activity during both diagonal and horizontal trends, while the final half-cycle in a bear market usually develops with activity at an extremely low level in both diagonal and horizontal trends.

As a general proposition, the volume characteristics of minor supply areas in both bull and bear markets, and in both major and corrective phases of intermediate cycles are all about the same. Minor tops in uptrends are usually accompanied by increased volume, and conversely in downtrends, by a drying up of activity.

Minor bottoms in uptrends are usually accompanied by a drying up of activity, and conversely in downtrends, by an increase in volume. Occasionally, a minor bottom in an uptrend will be accompanied by a sharp increase in activity, as a selling climax forms.

Volume and Triangles

Characteristically, the triangle pattern (see Chapter IX) is accompanied by a well-defined de-

crease in volume as it develops to its apex. This is probably caused by the fact that the initial mark-up or mark-down which forms the third side of the triangle, being a dynamic movement, is accompanied by a sharp increase in volume, which sets up a peak. Then, as price fluctuations narrow down in the formation of a triangle, volume dwindles as uncertainty grows.

Of great importance is the fact that when the price movement breaks away from the apex of a well-defined triangle (remember that only well-marked cases are worth following), if the breakaway is accompanied by an increase in activity, it is less likely to be a false start than in the case of a rally or decline which develops in dullness.

It makes no difference which of the three types (ascending, descending or symmetrical) of triangle may develop—the declining volume characteristic is similar in all three, as it denotes the withdrawing from the market of persons interested in price fluctuations, because of growing uncertainty.

When dynamite triangles, covering a period of from three to five days develop, particularly in individual stocks, if there is a sharp step-up in activity early on the day when the price trend breaks away from the apex, it is a fairly reliable sign of a good buying or selling signal, according to the direction of the price trend, trend.

Volume and Trend Lines

When an important trend line is penetrated, it frequently happens that volume increases immediately after the penetration. It is likely that in recent years no small part of such volume arises from the activities of technical students who take positions promptly as the penetration occurs. When their guesses prove wrong, the volume soon dwindles and remains quiet. If their forecast is correct, volume continues at an active pace.

As most important trend lines, both intermediate and major, are penetrated during or by means of a mark-up or mark-down, it is to be expected that activity at such penetrations will increase as compared with that immediately preceding such an area. Where penetrations occur as a result of a sidewise movement, volume is likely to be notably small. Such penetrations are usually of doubtful significance.

Horizontal trend lines are usually penetrated on dull volume with activity picking up if the move is important and continuing at a low level if the move is a false one.

Volume and Moving Averages

In the penetration of moving averages applied to the price trend, particularly those used in connection with intermediate trend observation, a sharp step-up in volume is a sound confirmation of the importance of a penetration. As most of the more significant moving average penetrations occur as sharp mark-ups or sharp mark-downs, it is quite logical to see an increase in volume either coincident with the penetration, or a

day or two following.

Volume phenomena in connection with the penetration of the minor trend moving averages is not sufficiently reliable to be very significant. There are many cases where a minor trend moving average is penetrated sharply for an hour or two, accompanied by an increase in hourly volume, which later prove to be false penetrations, and commitments made upon them prove unprofitable.

Volume and Gaps

Experience shows that when an important gap occurs in the general price structure, as reflected in the composite and major group averages⁵, volume increases sharply in the first hour's trading on that day. If the gap occurs at a point in the trend, where a breakaway, or measuring or exhaustion gap might be expected, its importance is emphasized if activity increases in the first hour. // *the price movement breaks out from a triangle with a gap and heavy volume, the move is likely to be even more significant.*

An upside breakaway gap is usually the point at which the notable increase in volume begins after trading has dwindled at a bottom. Upside measuring gaps more frequently than not appear in the price trend when volume has already increased substantially. Thus, they frequently occur without any notable increase in activity. Upside exhaustion gaps are almost always accompanied by a burst of volume which misleads the untrained observer to believe that the top is still much higher. As the exhaustion gap is usually part of the final mark-up formation, substantial trading is to be expected as it occurs.

The volume which accompanies the downside breakaway gap varies, and is not a dependable sign. In some declines, volume, already at a high level, increases sharply as the first part of the mark-down which follows a top gets under way. In other cases, where downside gaps occur, activity slows down, giving a temporary bullish pattern. It is not until prices continue their decline that the volume increases to its characteristic peak in the reversal mark-down. Downside measuring and exhaustion gaps are almost always accompanied by a substantial increase in volume.

Before proceeding to a discussion of the refinements of volume studies, some emphasis should be directed to the phenomena of volume in connection with selling climaxes, which occur in both bull and bear markets, more often, however, in bear markets.

To the trained technical student, the selling climax represents such an excellent opportunity to make stock market profits, that it is important for the reader to be aware of the conditions which usually attend a selling climax.

Selling Climax Bottoms

The sequence of events in a selling climax, particularly in a bear market, is fairly consistent, and may be summarized as follows:

- 1 . After the market has declined for some time, it closes at the bottom on a given day with ample evidence that the decline is not over. The news is predominantly bearish, things look badly and appear to be getting worse, the "Street" is blue, customers' men know many specific reasons why prices should go lower.
2. On the next morning, there is a gap on the downside, substantial selling, prices fading away, thin bids, specialists with little on the "buy" side of their books.
3. On the tape 5,000 shares of this leader and that possibly at substantial concessions, but frequently at only small concessions from previous prices. Frequently, reports come up from the floor indicating that one or more leading stocks, such as Steel, Can, Telephone, or du Pont "are offered for a bid".
4. Then practically without warning, large blocks of the same stock are very much in demand, advancing half and full points, sometimes two points, between sales.
5. This advance often carries to the close, with no important setbacks, and with heavy volume on the upside, quite contrary to its behavior in the preceding decline.
6. At the end of the day a study of the day's trading almost always shows an unmistakable sequence that confirms the intra-day phenomena (see Chapter XV).

These are the marks of a selling climax.

The last intermediate bottom at the end of the last half-cycle in a bear market is, of course, different from its predecessors in that it has bull market characteristics, chief of which is the tendency of volume to dry up on declines. Also, when fairly extended corrections (advances) are under way in bear markets, minor bottoms frequently occur on slackening volume, but these characteristics are counter to the underlying trend.

There is a real and difficult practical problem in connection with getting the most out of a selling climax, particularly for the average person who is interested in the market as a sideline, thus finds the majority of his time engaged by his regular business. Briefly, the problem is this:

A selling climax is a phenomenon which often occurs in the course of two or three trading hours. The low prices are reached in hectic trading with markets in many stocks changing rapidly so that a bid or asked price of one moment is no good in the next.

The most advantageous purchases have to be made when selling has reached its peak, usually in the first two hours of the day. Remember that the selling climax is an excellent example of mob psychology operating to its own discomfort. Because nearly everyone interested in stock prices is bearish at the same time on the morning of a selling climax day, bids are far and few between, and prices drop a half, one, or even two points between sales.

It is a matter of mere guesswork or chance if the average individual happens to pick a price somewhere

near the bottom in the case of an individual stock during a selling climax. In most cases, open orders placed below the market do not offer a means of getting in at the right place, because it is anyone's guess as to where the panic of a selling climax will carry a price level, before the recovery sets in.

In planning purchases in a selling climax, it is important that the trader keep clearly in mind that a point or two in the purchase price won't make much difference (except in low-priced issues), because the rebound from the selling climax is likely to retrace one-third or one-half of the decline which preceded it. But this does not mean that a careful effort should not be made to make purchases somewhere near the bottom.

Probably one of the best methods available to the average trader is to assume that when prices have dropped sharply, in the first two hours, and reports are coming up from the floor that leading stocks are offered for a bid, the time is ripe to make the purchases.

Perhaps a peculiar experience which the author witnessed may help the reader to make some well-timed purchases in a future selling climax. When leaders were offered for a bid on the morning of a day which appeared as a possible selling climax day, orders placed one-half or one point above the last sale in two selling climaxes in the 1929-1932 bear market, obtained better executions than market orders for the same stocks, placed at the same time. It seems like an irrational procedure, but in a selling climax the bid and asked fluctuate so rapidly that a buyer stands a far better chance of getting a good purchase price, when the selling climax is at its height, by being willing to pay up a little from the last sale. This margin provides the broker on the floor with a peculiar psychological stimulus which, in many actual cases in the past (believe it or not, Ripley), obtained mighty good executions.

Above, it was stated that there are selling climaxes in bull markets. These usually appear at the end of the corrective phase of bull market cycles. They are not so pronounced as in the case of a bear market, because the force of liquidation is less acute, due to the fact that if the underlying major trend is upward, the large bulk of stocks are being comfortably held for the long pull.

Nevertheless, the selling climax in a bull market provides one of the best opportunities for the stock trader to take his intermediate trend long positions. Worthwhile knowledge of these bull market selling climaxes may be obtained by studying the October 21, 1933 and July 26, 1934 reversals (see Charts 7 and 15).

There is no exact counterpart of the selling climax bottom, in the way of a buying climax top. Although it is true that many intermediate tops are accompanied by sustained activity at a high level, volume does not run up to a new high peak as it does in a selling climax bottom. There is no frenzied buying, which compares with the panic selling during a selling climax. Probably this is because there is no force which makes people buy stocks, such as the relentless force of liqui-

dation which often makes even the strongest holders sell their stocks in a bear market.

Usually, at the top of the major phase of an upward cycle, the trend of volume shows a tendency to flatten out, even though it is at a high level, as prices show a stubbornness to move forward any further. For example, look at the July 1933 top on Chart 7.

Volume of the Major and Minor Groups

Some students attempt to divide the study of total volume, and make observations of the aggregate daily and weekly volume in various groups of stocks, such as the Dow Jones 30 Industrials, 20 Rails and 20 Utilities. Others further subdivide the study of volume by observing the volume figures for minor groups, such as, for example, the Herald-Tribune average of 15 Manufacturing, the 10 Oils, or the 6 Steels, etc., for which the daily figures are published.

Although the author has made very comprehensive price studies concerning minor groups, no equally complete studies of minor group volume have as yet been attempted, because of the voluminous computations necessary in making a comprehensive survey of group volume, for a sufficient period of time to provide worthwhile conclusions. Those readers who may desire to conduct a broad research program, might well focus their attention toward the study of minor group volume, particularly by means of volume ratios (about which we will hear soon) of minor group volume, about which we will learn more later.

A study of group volume of the major and minor groups is undoubtedly useful, in that it contributes more detailed data with which to apply the premises suggested above. But it is the author's considered opinion that unless one has ample time, the study involves more work than it is worth, particularly because numerous experiments have shown that unless major and minor group volume figures are reduced to some standard, by means of ratios or logarithms, their value is decidedly limited.

Now let us proceed to a more advanced study of volume.

Refined and More Advanced Studies of Volume

Up to this point, all of our considerations of the volume of trading in shares of stock may be designated as studies, conclusions and premises based upon the statistics "in the raw". As many market students become more experienced, they soon find that the wide fluctuations in volume figures tend to confuse volume studies, to such an extent that precise conclusions are quite impossible.

Among the numerous methods which have been employed by statisticians and stock market students, for the purpose of eliminating the difficulties which arise as the result of these fluctuations, those which have come to the attention of the author may be classified in four general categories, as follows:

1. *Moving Averages of Volume*, wherein

fluctuations in activity are smoothed, in order to observe their trends more closely. Chiefly, these studies have been with 5-10 day moving averages of daily volume, and 4-6 week moving averages of weekly volume.

2. *Volume Ratios*, wherein daily and weekly volume figures for individual stocks are expressed as a percentage of the total trading in the market, and studied in these terms.
3. *Correlations of Volume and Price*, wherein the two phenomena are in some way combined to make related observations. The methods used in doing this are numerous, with the observations quite varied. Some are simple; others very intricate.
4. *Special Group Studies*, wherein the volume of investment stocks and/or speculative stocks is studied in relation to the total trading. The "Pressure Indicator", published by Trendographs, Inc., is an example of this type of study.

Moving Average of Volume

Following the publication of hourly volume figures by the Stock Exchange in May, 1933, technical students began to make hourly comparisons of activity in order to supplement their daily studies. The fluctuations in hourly volume were found to be so wide (anywhere from 40,000 to 3,320,000 shares; the range from January 2 - October 15, 1935 was between 40,000 and 960,000, the latter figure being reached in the Gold Clause rally on February 18), however, that some method was necessary to smooth out the rapidly moving curve, such as may be seen on the bottom of Chart 11. Naturally the moving average was the first instrument employed. Because daily studies of volume were so commonly used, a five-hour (one day) moving average was adopted by the author.

On Chart 13 is a 5-hour *moving average* of hourly volume used with the 15-stock aggregate plotted at 20 minute intervals. This 5-hour moving average is obtained by adding the volume for five consecutive hours, and dividing by five. When a new hourly figure is available the earliest figure in the previous five figures is dropped, and the new one added, then the total is again divided by five, and so on. The plotting is made at the end of the 5-hour period (see Chapter XI).

Moving averages of volume show a smoothed curve of the trend of activity and permit more trustworthy identification of excessive volume. This smoothed curve shows an even distribution of the day's volume. When the actual volume line appears above or below the moving average line, the resulting peaks or valleys are considered relatively more significant than during the periods when volume and its 5-hour moving average are much alike.

If a substantial peak above the moving average accompanies a price advance, it is reasonable to assume that important progress is being made through substantial resistance, and further gains are indicated. If, on the other hand, a peak accompanies a decline, in-

creased supply is indicated, and a further recession may be expected.

Conversely, if a peak forms and prices strike supply and fail to progress despite excessive volume, a top may be forming. Or if a price decline is checked despite a volume peak, demand is indicated and a bottom may be forming. It is suggested that this method be observed at great length before commitments are based upon it. Decidedly, it is a minor trend study for the advanced student.

Volume Ratios

As the stock market student progresses in his learning, he finds that relative figures are almost always more useful than raw data (actual figures). The more advanced observers thus study, not only actual volume of trading in a stock, for a given period, but also the ratio or per cent which that volume represents of the total volume of trading. If both series are plotted on the same scale, it is advantageous to use lines rather than bars, although some chartists prefer to use bars for the actual volume, and a line for the volume ratio, both plotted on the same scale (both methods are illustrated in Chapter II). On Charts 40 and 41, it will be noted that lines are used for both series. *The study of volume ratios applies specifically to individual stock observation.*

Why Volume Ratios Are Important

Let us illustrate the reasoning why volume ratios are a necessary refinement in the study of individual stock volume by considering the simple tabulation which follows:

Chrysler	Total Market Volume	Per Cent of Total Volume (Volume Ratio)
150,000	1,500,000	10.0
100,000	1,000,000	10.0
150,000	1,000,000	15.0

If 150,000 shares of Chrysler are traded on a particular day, when the total market volume is 1,500,000, the ratio would be 150,000/1,500,000, or .10, meaning that the trading in Chrysler was 10 per cent of the total trading on that day. If, on the next day, 100,000 shares of Chrysler were traded, and the total market decreased to 1,000,000 shares, the activity in Chrysler would still be 10 per cent, and there would be no relative change in the activity in Chrysler, notwithstanding the fact that there had been an actual change from 150,000 to 100,000 shares, or a decrease of 33 1/3 per cent. As the total volume in the market was decreased by the same amount, there was not a relative change in the Chrysler activity. It merely followed the market.

But if, on the other hand, on the third day, the trading in Chrysler totaled 150,000, while the total volume remained at 1,000,000, the percentage of trading in Chrysler would have advanced from 10 per cent to 15 per cent, or an increase of 50 per cent over

the previous day. This would be construed as very significant, because the trading in Chrysler would have been relatively *more* active, while the total trading was *less* active.

The value of volume ratios lies in the fact that they show the relative trend of volume. To the uninformed observer, an increase in the volume of trading looks significant, regardless of whether it is in line with the fluctuation apparent in the market as a whole. To the trained observer, volume is significant only when it shows a change in relation to the total volume.

The study of relative volume by means of ratios (percentages of total volume) is particularly important when a noticeable peak or valley or trend in the ratio is apparent coincident with some other technical factor, which may be confirmed or denied by the action of volume—for example, a break away from a triangle, the penetration of a trend line, or the breaking of a previous high or low point.

A study of several hundred volume ratios, over a period of several years, clearly shows that there is no significant peak in actual volume which does not show up in relative volume (the ratio to the total trading). On the other hand, there are numerous occasions where a notable increase or decrease is not discernible in the raw figures, which is clearly apparent in the relative figures. That is, there are many occasions where the raw figures show nothing significant, while the ratio figures develop important indications; but there are no occasions where a significant indication shows itself in the raw figures which is not equally apparent in the refined data.

If this writer had his choice of watching charts of the actual volume figures, or charts showing the ratio of volume figures, he would select the ratios, and drop the actual figures, unless trading operations were large enough to require a knowledge of the actual number of shares traded. Some of the corporate investors and very large individual investors, of necessity must follow the actual figures in order to plan their accumulation and distribution, because the number of shares they buy and sell is large enough to influence the market. The same is true of some of the large investment counsel organizations.

One of the advantages of using volume ratios, instead of the actual figures, for volume, is that they can be plotted on arithmetic charts without any of the difficulties of changing arithmetic scales. Ordinarily, the daily trading in the 700-800 most active stocks varies in the range from about .05 per cent to 10 per cent. Although this range at first seems very wide, it is relatively small compared with the range of actual figures, which vary from 100 shares to 300,000-400,000 shares a day.

One Great Value of Volume Ratios

Perhaps the greatest value, however, in studying volume ratios versus the raw figures, is that when they develop a peak comparable to the highest two or three peaks in the previous year or two, an important development in the price trend is almost always under

way; whereas in the raw figures, numerous peaks which appear to the eye as possibly important, are of no significance whatsoever.

Usually, in the course of 18 months, in a fairly active stock, there will only be three or four important peaks in a volume ratio, 7 out of 10 such peaks will be signals of importance to the technical student; whereas during the same time period, 15 or 20 peaks, of which only a third or a half later prove to be of importance, will develop in the actual volume line. Chart 40 illustrates this fact (see the discussion of this Chart in Chapter XVII).

Price-Volume Correlation, Price-Volume Studies Correlation of Volume and Price

The discussion from this point to where the summary begins, on page 317, is presented for those readers who are interested in some of the research developments in price-volume relations, being employed by more advanced students. The vast majority of the studies in this category require considerable labor in their preparation, and unless they are used in connection with the operation of a large trading fund, they are hardly worth the effort involved.

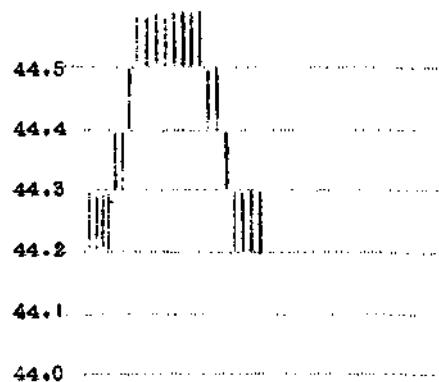
For years, market students have toyed with the idea that a given amount of advance or decline in price could be measured in terms of turnover or volume. The premise usually adopted is that in an advance, for example, if for each one point of rise, 10,000 shares are traded with a rise of only one point or less. At first this system of measurement appears very logical, simple and direct. But when it is studied for a while, it is quickly found that there are many occasions where the method falls down badly and causes many losses if used in actual trading.

Essentially, most of the price-volume studies are devices which have grown out of an old type of bar chart used before 1900, by tape-readers. If a trader were operating then in Steel, he would watch the tape for all the shares traded in the stock. When a sale of 100 shares came out, at 44.2, he drew a vertical line at the 44.2 level on this chart, as illustrated in Figure 1. If the next sale was 300 shares at the same price, he drew three more lines at the 44.2 level. Following this, let us say, 200 shares of Steel sold at 44.3, 100 at 44.4, and 500 at 44.5. The trader then drew two lines at the 44.3 level, one line at the 44.4, and five lines at the 44.5 as shown.

Three sales of 100 shares each were then made at 44.5; 100, 100 at 44.4; 100 at 44.3; 300, 100 at 44.2. For each 100 shares sold, the trader drew a line at the appropriate price level, securing the graph illustrated. This type of chart enabled the trader to recognize important supply and demand areas by the volume which occurred at such levels. In the example cited here, Steel was readily in supply at 44.5.

The Principle Applied to the Standard 90 Stock Index

An interesting example of graphic correlation of price change and volume is given on Chart 29. The

Figure 1

series in the upper left-hand corner shows high, low and closing prices (closing prices connected by continuous line) for the Standard Statistics 90 stock average from May to October, 1932. This period covers the bear market low, the major phase of the first intermediate cycle, and the early part of the correction of this major phase. The lower series shows the major phase of the second intermediate cycle, from March to July 1933. Both series are plotted on the same ratio price scale.

Time Scale Based on Volume

The reader will immediately note that, unlike the usual high, low and last bar chart, the bar plottings on Chart 29 appear at unequal intervals. This is because the bars were spaced in relation to volume rather than to predetermined horizontal time units, customarily standing for a day. The usual spacing assigned to a time unit was given to the unit of 1,000,000 shares of stock, as shown on the Arithmetic Volume scale shown at the lower right-hand side of the chart. On June 13, 1933, for example, 6,300,000 shares were sold. The high, low and last bar for this day is plotted, not one unit of horizontal distance to the right of the bar representing the price range for June 12, as in ordinary daily interval bar plotting, but 6.3 units of horizontal space, representing 6.3 millions of shares of volume. In the same way, the volume on June 17 was 1,570,000 shares. The high, low and last bar for that day is plotted 1.57 units of horizontal space to the right of the bar standing for June 16. The plotting thus combines price and trading activity in one series.

Interpretation of Chart 29

In order to interpret Chart 29, it is necessary to recall the following axioms about volume, stated in somewhat different phraseology than in the early part of this Chapter:

1. When prices are *rising* and volume is *increasing*, the advance is impressive. Conversely, if prices are *rising* and volume is *decreasing*, the advance is questionable in importance.
2. When prices are *falling*, and volume is *increasing*, the decline is impressive. Conversely,

when prices are *falling* and volume is *decreasing*, the decline is questionable.

3. If an advance halts, or if little progress is made on the up-side, with activity *large*; a possible *top* is signalled.
4. If a decline halts, or if little progress is made on the down-side, with activity large, a possible *bottom* is signalled.

All experienced students view the market with these axioms in mind. With the customary chart (such as Charts 7 and 40) showing daily price range in one series and volume in another at the bottom of the chart, it is necessary to correlate the two series with the eye, in order to apply these volume axioms. In Chart 29, however, both price and volume phenomena are graphed in one series.

In July 1932, at the bottom of the bear market, it will be noted that stocks traded in a narrow range or Dow Theory "line" (A) on very light volume, denoted by the close spacing between the bars. Shortly after this line was broken on the up-side, volume picked up (the spaces widened), giving evidence that the breakout was probably important. A slight recession occurred between A and B and volume declined, giving a bullish signal (the spacing between the bars contracted again). This was confirmed following B, when activity increased on the sharp mark-up (spacings expanded). Throughout the mark-up from A to C, volume continued to expand. At C, volume was very large, and little progress was made on the up-side, indicating the nearby possibility of a reversal. On the decline from C to D, however, volume tended to dry up, suggesting the end of a reaction. When prices rebounded to E, volume again picked up, but decreased on the set-back to F, once more signalling strength. From F to G volume continued heavy, but the price gain was smaller proportionate to that made from A to E.

The increased space between the high and low bars, together with the slowing up of the advance, clearly indicated that the market was running into supply. At G, activity was extremely great, with no price gains, and the forecast correction to H on high volume followed. After the bottom at H had formed, volume decreased on the small reaction which took place at I. This bullish indication was confirmed by an expansion of volume on the rally to J. Further confirmation developed as activity dwindled from J to K, but the downside break at L on high volume abruptly reversed this bullish signal, and gave indications that the corrective phase was to continue. At M, volume again tended to dry up, suggesting the possibility that the corrective phase was over.

From M on the upper series to AA on the lower series, there occurred a long trading area on relatively light volume. Volume signals during this period were relatively unimportant.

In the lower series, after the formation of the low at AA in March 1933, activity increased sharply on the advance to BB following the Bank Holiday. This increase compares with point B in the upper series, except that in the lower series the expansion of volume

was more pronounced. On the decline from the top at BB, activity dwindled, denoting strength. The rally from CC was marked with a gradual increase in volume until the previous high (BB) was approached at DD, when volume expanded sharply on the upward penetration, to give an important buying signal. The decline in volume on the small reactions at EE and FF confirmed the signal, and additional bullish evidence was furnished by the tendency of volume to dry up on the declines from GG to HH and II to JJ.

From JJ to KK, volume expanded on the rally, but from KK to LL the advance slowed up on increasing volume, indicating the possibility of nearby reaction. The high volume from LL to MM was decidedly bearish, for, unlike the previous reactions at CC, FF, HH and JJ, activity increased on the decline. Subsequently, however, volume again increased on the rally to NN, and declined on the reaction to OO, giving bullish indications which were justified by the advance from OO. As the top PP was reached, high volume continued with virtually no price gains, and the market broke sharply to QQ on an avalanche of selling. This situation compares with that in the upper series from G to H, in September 1932. On the rebound from QQ to RR, volume declined, continuing the bearish indication.

Thus, on Chart 29, which combines price movement and activity in one series, we are able to see fairly consistent phenomena from which deductions as to important market reversals can be made.

Trendographs A Further Refinement

Chart 30 shows a further development of a price-volume correlation study. It illustrates what is probably the greatest current development of graphic correlation of price and volume, and is the work of Mr. E. S. Quinn, Vice-President of Investographs, Inc.³ Trendographs, Inc., a division of Investographs, Inc., published a series of 60 such charts, which are issued weekly. The reproduction on Chart 30 was furnished by Mr. Quinn.

The studies which Quinn has made of price-volume correlations of individual stocks are employed as part of a comprehensive program of studying volume in the market as a whole. He begins with consideration of the relation of volume in certain investment and speculative groups, for the purpose of determining what we have termed the "When" to buy or sell question. He then carries the study through a process of examining the individual volume characteristics, both actual and relative, of a picked group of stocks, to the point where the price-volume relation of these stocks is made the basis of answering the "What" question.

But let Mr. Quinn tell his own story, in the following quotations which he has kindly furnished the author.

The Economic Principles Employed In the Use and Interpretation of Trendographs By E. S. Quinn

Trendograph procedure is founded upon the proposition that rising prices follow investment buying of values; that declines are caused by gambling in intangibles.

Whenever the sales price of an article in general demand descends to the point where a sufficient number of prospective purchasers recognize its *fundamental, economic* value and would rather own the article than the cash required to buy it, it will not go lower. This reasoning holds whether the article in question is real estate, commodities, stocks or anything else. But there is a significant distinction here which should be understood. It is economic values which provide a base *not* speculative possibilities.

Similarly, whenever the price of an article exceeds its fundamental value, either on the basis of reproduction cost or intrinsic investment or economic value, its market position is weak and its prices cannot be long maintained.

A familiar practical example is represented in the Florida land boom of some years ago. Before prices started to rise so spectacularly, properties could be acquired at figures reasonably close to basic values and, just so long as the spread between price and values was small, the land situation was sound. As Florida became a fad, however, and prices skyrocketed far beyond the levels of values, it was impossible to secure adequate returns on land investments. People were buying properties not because they wanted to keep them, but solely in the hope of selling out to someone for more money than they paid. Financing loans could not be supported and it was only a question of time before the inevitable collapse occurred.

Other well-known instances include the unsuccessful attempt of Brazil to hold the price of coffee at levels which were economically unsound and Britain's effort to peg the price of rubber, both of which brought disastrous results. Another example, equally doomed to failure, is the program our Government is currently carrying on in trying to maintain the price of cotton above world values.

When a general market decline is in progress, it will continue, irrespective of previously held conceptions of values, until prices reach the point where they represent values at that time, under the new conditions which then prevail. When a sufficient number of interested persons recognize the existence of sound values, prices will not decline further because such offerings as are made will be absorbed, so that the trend will be reversed and prices will rise. The natural question here is; 'How can one know with reasonable accuracy when stock prices are forming a 'value' base?' The answer to this is found in analysis of the character of general trading, which discloses whether stocks are largely being purchased for value or for speculation.

We know that the point has been reached where true values are being recognized, when value stocks, such as American Telephone, Union Carbide, Allied Chemical, Woolworth and other like them, are being bought. Their purchase is not being stimulated because of their speculative appeal because, normally, they are slow movers and, percentagewise, gain less than the market as a whole in a general advance. They are being acquired because, at current yields and according to balance sheet values, they are worth more than the cash required to purchase them. Moreover, as a class, the individuals who buy these stocks are not speculatively inclined in the sense that they do not make their purchases on borrowed money. They pay outright for their shares. Such purchases at such times are economically right and supply the force which stops market declines.

Concentration of trading in investment stocks means

³ 3¹ GIBBS STREET, ROCHESTER, NEW YORK

that there has been a proportionate shrinkage of transactions in speculative shares. Lack of offerings in the latter classification is evidence that such necessitous liquidation as may have been overhanging the market, as the decline originally got under

way, has been completed; that accounts which were vulnerable have either been sold out or strengthened. Obviously, when speculative holdings are no longer being pressed for sale and there is an active demand for investment stocks, the market is basically healthy and prices will not go lower.

After the market has formed a base and starts to rise, it will continue its forward move until prices run too far ahead of intrinsic values, whereupon it will fall of its own weight. Here, too, we recognize the approach to a turning point by analyzing the relationship between investment and speculative trading in the market as a whole.

As the market moves ahead, investment stocks become less attractive, so that the demand for them begins to taper off. And this demand becomes proportionately less as prices move further away from values. Somewhere in this phase the small gamblers start coming in, attracted by the gains they have been watching from day to day. Their number is legion and their lack of knowledge of market affairs is nearly as great. Their combined purchases carry prices still higher. But while they are buying, so-called wise money is being withdrawn. Soon the stock market loses its character as a common ground for the exchange of values for currency. It becomes a meeting place for gamblers, big and little, whose purchases are largely made on borrowed money, purely in the hope of quick, easy profits. Such purchases, because of their temporary nature, constitute a constant threat to the health of the market as a whole because, on the first sign of serious price-weakness, dumping begins. As the decline continues, it compels added selling for the protection of margins and thus feeds on itself until weekly-held accounts are cleaned up and prices reach the point where values establish a new base.

These are the economic principles used in measuring the degree of underlying strength or weakness of the market. Character of general trading, as between investment and speculative issues, is measured and an index number, called a "Pressure Indicator", has been developed as part of Trendo-graph service which is published each day.

The Pressure Indicator for Measuring Volume Changes in the Market as a Whole

In observing the action of the "Pressure Indicator", we are analyzing character of trading, and indirectly observing net judgment concerning all knowledge on all the influences which affect market movements. When transactions are pre-ponderately among investment stocks, we know that individuals of large means men who as a class have become successful in business and may, therefore, be credited with better-than-average intelligence and judgment are appraising stock prices as cheap. When buying of values becomes largely restricted, and transactions are centered principally in intangibles, it can be assumed that intrinsic values are no longer being recognized and that the market, therefore, is weak.

In making use of the volume relations used in constructing the "Pressure Indicator" as a means of measuring the underlying strength or weakness of the market from day to day, we must give cognizance to certain factors. Volume does not expand in *all* investment stocks as bottoms are being formed nor does activity broaden out in *all* speculative issues as tops are being approached. At different times, because of the varying influences and conditions which exist, public interest frequently ignores some investment stocks at bottoms just as it refuses to see outstanding appreciation possibilities in certain speculations at tops. Thus, in analyzing character of trading, it is necessary to use a group of investments and a group of speculations, each representative of our leading industries, in order to construct a reasonably accurate barometer.

Accordingly, as prices rise in an advance, it is possible to watch the development of weakness under increasing speculation until it reaches proportions which will cause a

decline and then either sell or place stop-loss orders to insure profits before the break actually comes. Similarly, as prices fall, it is possible to observe the growing pressure of

investment buying as it supplies the strength which later on brings about a rise and purchases are not considered until a favorable underlying condition is thus shown.

Interpretation of the Pressure Indicator

As investment strength begins to appear in a declining market and speculative weakness in an advance, it has been found that about six days' pressure of these forces is required to turn the trend. For this reason, two index numbers are given for the Pressure Indicator each day. One is an average of the last six trading days (moved forward each day), and is called a six-day moving average. This is our general forecasting medium. The other figure is for the current day alone and is reported principally to show whether the market is inclining toward strength or weakness. As a consequence, it is almost always possible to watch the approach of significant strength or weakness over a period of several days, thus allowing sufficient time to plan a program of purchases or sales.

In the development of the Pressure Indicator formula, it was necessary, naturally, to establish a balance between our investment and our speculative groups. When this was done, it was found that certain logical and dependable rules could be established for its interpretation.

In practice, the Pressure Indicator is published weekly in chart form, supplemented in the interim between mailings by a daily report. In the Pressure Indicator charts, a line is drawn showing the path of the market, supported by bars reflecting each day's Indicator reading. The degree of preponderance of investment trading is expressed by the height of bars above an oscillator line; weakness below. An irregular, connected line, superimposed upon the bars shows the path of the six-day average. Readings above the line are designated as "plus" while those below the line are called "minus". Readings at the line, called "zero", show a condition of balance between our investment and speculative groups.

In a bear market, the natural trend of security prices is downward. As a consequence, when zero, or "balance" is approached by the Pressure Indicator, the prices of stocks will fall, since this is their normal tendency. *In a bear market, zero is a selling point.* It is only when the pressure of unusual strength is applied an Indicator reading of plus 150, or more that the trend is temporarily turned.

In a bull market, the trend of stock prices is upward. As the zero line of the Indicator is approached and balance is established, prices move up because this is their natural direction. *In a bull market, therefore, zero is a buying point.* The trend is not turned until significant weakness appears. Usually, the Indicator reading must be minus 150 or more. For this reason, our Indicator bars in a bear market will generally be above the line; in a bull market, below.

As zero is approached in a bear market and stock prices begin to fall, it is customary for strength to build up gradually until it reaches proportions which bring about a temporary reversal in the direction of stock prices. In a bull market, an approach to zero forecasts rising prices and, as the market begins to advance, it is customary for weakness to appear, becoming increasingly great until a reaction develops. As a consequence, it is unusual for the indicator bars to extend below the zero line in a bear market. When they do, unusual weakness is shown. Likewise, one seldom sees the bars extending above the zero line in a bull market and, when they do, impressive strength is present. In following this explanatory material one should bear in mind that in using the terms "strength" and "weakness", we are not referring to rising or falling stock prices but to the underlying condition of the market as a whole as reflected by the investment-speculative relationship in total trading.

An approach to zero, in a bull market, tells us that sufficient strength is present to cause stock prices to rise. Zero need not actually be reached. A figure of about minus 25 or less serves notice that, in all probability, better things are ahead and, if the daily index shows that

the trend is continuing

toward zero, purchases should be made at the first indication of an upward turn in prices.

Once the trend has started up, the advance should continue under its own momentum until an opposing force of speculative weakness has been built up to the point where prices are likely to be turned. Until this point is reached, "buying signals" (described later), as appearing in the individual Trendograph charts, are valid and may be followed.

In a bull market, a weakness index of about minus 150 is usually the minimum required to be considered at any time as a forecast of reaction. As this figure increases, however, the probability of a temporary turn becomes increasingly great.

There is, however, a definite relationship between the amount of weakness required to bring about a reaction in a bull market and the extent and duration of the preceding rise. A weakness index of minus 150 is much more likely to be followed by a fall in prices if the advance which preceded it was of minor character. Alternatively, the momentum developed by a major advance requires a figure between minus 200 and minus 300, or even more, to turn the trend.

Accordingly, those "long" of the market should be prepared to sell whenever significant weakness develops. At such times, the daily Indicator figures should be followed closely because of their influence on the six-day average. Sales should be ordered promptly if the advance appears to be halting or has actually turned. Under any condition, however, an indicator index of minus 200 to minus 300 for the six-day average warns that the general market is dangerously weak and stocks should either be sold or protected with close stops. New purchases should never be made.

Those in the habit of selling stocks short can do so with reasonable security at the first sign of price weakness in the market when, after a minor advance, the Indicator has descended to about minus 150 or more or, after a major advance, accompanied by weakness of about minus 200 or more. Short sales, once made, should usually be covered or protected with stop-loss orders when the index reaches minus 100 or less.

In using Trendograph Service, the Pressure Indicator is the starting point. It suggests whether stocks may be bought, held or sold. The actual selection of stocks to be used is made from observation of the performance of individual issues. Price-Volume Factors Must Be Relative

The proper analysis of the operation of the law of supply and demand within individual stocks serves two essential purposes. Not only does it reveal the trend of public interest; it also discloses whether such interest is favorable or unfavorable. In Trendograph charts, a study of supply and demand is employed as a means of showing the trend and character of public interest in the various stocks.

The volume of trading in any particular stock will normally represent a certain percentage of the volume of trading in the market as a whole. This is an axiom which many chartists, who base their conclusions upon absolute volume, have entirely overlooked. Seeing volume in a stock increase substantially, they look for some reason to buy or sell, not realizing that if general volume has increased in proportion, the situation is of no significance.

Obviously, a stock which merely drifts along, consuming only its normal volume of trading from day to day, is without particular public or private interest and for this reason does not offer good trading prospects. But when any stock shows a large increase in relative volume; when it suddenly begins to consume more than its usual percentage of total trading, only one conclusion can be drawn. Some individual or group has decided and their judgment is being backed up by their own case that the stock is selling either too high or too low.

This leads to two conclusions. First, *that it is impossible to interpret the meaning of volume fluctuations in a stock unless these are tied up percentagewise with total market volume.*

Second and this is important *the percentage relationship provides a means of recognizing instantly any unusual activity in a stock.* Whether such unusual activity is buying or selling may be determined by considering the coincident price action.

Just as volume in a single stock must be considered in relation to total trading, price movements of individual stocks are misleading except as they are compared with the trend of the market as a whole. Simply because a stock may gain 2% in value in a day is not necessarily favorable. It is if the market as a whole gained 1%. It is not if the market as a whole has gained 3%. Similarly, it is not necessarily unfavorable if a stock declines 2% on a given day. If the market at the same time lost 5%, then the stock is showing strength merely in resisting the general decline.

Construction of the Trendograph Chart

In a standard Trendograph chart (see Chart 30), the upper rectangles coordinate daily price ranges, vertically, and relative volume, horizontally. Wide rectangles mean greater relative volume; narrow ones, less. Since relative volume is the interest-indicator, we look for any sudden broadening out in the horizontal dimensions of the rectangles. If, on increased activity, a stock moves ahead of the market, a plain indication is given that the demand for that stock is greater than the supply as compared with the relationship of these forces in the market as a whole. This, under certain conditions, would be interpreted as a buying signal, particularly if underlying conditions in the general market, as reflected by the Pressure Indicator, are favorable.

To permit direct comparison of relative price movements, two connected, irregular lines are superimposed upon the pattern of the price-volume chart of the stock. The heavy line is the general market as represented by the daily changes in the sum of the three Dow Jones averages Industrials, Railroads and Utilities. This combined average provides the basis upon which all relative price movements in individual stocks are computed. The lighter, broken line gives the trend of average stock prices in the specific industrial group classifications (such as Agricultural Implements, Chemicals, etc.), to which each stock is assigned. Accordingly, it is possible, at a glance, to analyze price action in any given stock, both with respect to the general market and its particular group.

The supplementary chart, at the bottom of the page, is really more important than the price-volume curve which it supports. The zero line represents the market "straightened out". The black vertical bars, extending both upward and downward from it, provide a breakdown of the daily price action of the stock in comparison with the price action of the market as a whole. The vertical distance of a bar above the line shows the percentage by which the price of the stock exceeded the averages on a given day; comparative losses are reflected below the line. The width of these bars indicates relative volume.

The cross-hatched (shaded) areas between the vertical lines, marking calendar weeks, show the net percentage gains and losses of the stock, by weeks, in excess of the market.

In practical use, it will be found that the upper section of the Trendograph chart is valuable principally as a means of gaining an accurate perspective of both near term and long term price habits and volume characteristics. Obviously, if a particular stock displays a constant repetition of price-volume habits throughout rallies and declines and at tops and bottoms, a knowledge of these factors is most useful in predicting what the future might bring.

The lower section of the chart form provides a detailed breakdown of comparative action, which is another way of saying a representation of the daily operation of supply and demand. This section of the chart is used in analyzing current action in order to determine whether or not the underlying condition of a stock is strong or weak. This subject will be taken up later.

Volume Habits of Stocks at Tops and Bottoms

Stocks are like people in that they have varying and, in many cases, definitely established habits. It is for this reason that Trendograph charts going back to January 1932 have been prepared. By studying these, one is able to recognize what a given stock normally does at tops and bottoms and in rallies and declines, and is thus in a position to attempt a forecast of future action which is almost certain to be more accurate than if this knowledge were not available.

As has already been explained, the general market forms a base under pressure of investment buying; tops are seen to the accompaniment of gambling in intangible speculations. In the practical use of Trendograph procedure, analysis of the current position of a stock usually begins with consideration of its relative-volume characteristics at tops and bottoms.

Accordingly, in an investment stock, we recognize the approach to a base and a buying level, while market prices are still declining, when we see our charted rectangles begin to expand horizontally, evidencing increased investment demand. Once a purchase has been made, we watch volume as the general market moves ahead. When volume begins to shrink, we know we must begin to think about selling, because the operation of the law of supply and demand is telling us that intrinsic value has become questionable. Repurchases of investment stocks are not made until relative activity again broadens out after a decline. Trendograph charts of many investment stocks over a period of years show that American Can, American Telephone, du Pont, U.S. Steel, Union Pacific and others display a surprising consistency in volume characteristics. Relative volume expands as such stocks approach buying areas and narrows down at tops.

In similar fashion, we follow the general swings in a speculative stock, except that the opposite interpretation applies. The approach to a buying point can be seen as volume dries up, indicating a lack of selling pressure. A purchase is made as soon as price action shows the stock to be in a position to rise, as will be explained later on. As our stock advances, again we watch volume, but this time we look for increased activity as an indication of the probable termination of the advance and get ready to sell. Striking examples of small volume bottoms and large volume tops are seen in Trendograph charts of Columbia Gas & Electric, Douglas Aircraft, Electric Bond & Share, Montgomery Ward, Radio, U.S. Smelting and others.

While, up to this point, our discussion of volume habits at tops and bottoms has been confined to the two general classifications of investment and speculative issues, we have, for greater accuracy, divided our index of the stocks we cover into five groups. The majority of the first two groups comprises speculative stocks; groups 3 and 4, investment stocks. The symbols, in parentheses, designate volume characteristics and are carried on our current chart forms. The groups are as follows:

1. (S) With but rare exceptions relative volume of stocks in this group dries up at bottoms and broadens out at tops.
2. (S-t) Relative volume shows a *tendency* to dry up at bottoms and broaden out at tops.
3. (I) With but rare exceptions relative volume broadens out at bottoms and dries up at tops.
4. (I-t) Relative volume shows a *tendency* to broaden out at bottoms and dry up at tops.
5. (X) This group has no marked volume characteristics.

The segregation outlined above is based entirely upon observation of the charted volume habits of the various stocks; not upon analysis of balance sheets as a means of determining, fundamentally, whether a given stock should be classed as investment or speculative. The reason for this is that some stocks, which are of investment nature, when judged by their balance sheets

alone, display speculative

volume habits throughout certain phases of the business cycle. Similarly, some speculative stocks, which, under certain conditions, are lacking in speculative appeal, occasionally show investment volume characteristics for an extended period. The chart of Chrysler which we shall discuss later illustrates this. Because volume habits of all stocks are not fixed, a permanent list is not published. Instead, current listings are supplied from time to time.

As has already been mentioned, volume does not expand in *all* investment stocks as bases are being formed nor does activity broaden out in *all* speculative issues as tops are being approached. Public interest frequently ignores some stocks so that they do not perform in their customary manner. That is why the Pressure Indicator is used with Trendographs. By giving the relationship of trading from day to day in groups of investments and groups of speculations, an adequate check is provided on individual stock action. Accordingly, purchase of an investment stock should normally require that it be reflecting increased relative volume as indicative of an active investment demand and that the Pressure Indicator at the same time be appraising the general market as healthy. A speculative stock is not required until small relative volume shows that selling pressure has subsided and the market, as a whole, is ready to move ahead.

Determination of selling points depends, in general, upon a similar check. If one is carrying an investment stock in which relative volume has dried up significantly, it is frequently wise to dispose of it even though the Pressure Indicator may not yet be reflecting impressive weakness. Lack of current interest suggests that further gains will probably be small. Likewise, speculative stocks are let go when volume broadens out to the point where a typical top formation is recognized, or if the Pressure Indicator is warning of an impending general reaction. Whether increased activity in group 5 represents accumulation or distribution is usually determined by noting whether the Pressure Indicator is appraising the general market as strong or weak. Finally, irrespective of whether a top formation is developing in stocks being carried, they should be sold whenever the Pressure Indicator has reached a point of weakness sufficient to bring about a change in general trend.

Buying and Selling Points in Individual Stocks

Naturally, background charts of various stocks must be studied to provide a means of studying and classifying the various issues according to their velocity characteristics in rallies and declines and their volume habits at tops and bottoms. With a knowledge of these factors, when the Pressure Indicator is ascending toward strength and a buying point as market prices are declining, purchases are determined upon in the following manner:

Where stocks of investment caliber are to be acquired, the charted record for various issues in this category are studied on three points.

1. Has price performance during the past year or more been satisfactory in comparison with the rest of the market?
2. From a price standpoint has the stock stood up better - than-usual in the last decline?
3. Has relative volume expanded to the point where one may reasonably conclude that this particular stock is one of those which is being singled out as representing better-than-average values?

If the answer to these three questions is in the affirmative, purchases may be made with reasonable assurance.

A similar procedure is followed in determining upon the purchase of speculative stocks except with respect to point No.3. Speculative stocks normally make bottoms to the accompaniment of small relative volume and, as a consequence, we look for a significant narrowing down in our rectangles as evidence of lack of selling pressure. It is important, too, in studying the record for

approximately the past year to

determine whether or not it embraces a period of major distribution at a level above that at which the stock is currently priced. Where a condition of this kind exists, an approach to the past distribution area will in all probability encounter so much supply as seriously to impair the forward move. Points of major distribution are recognized by extreme width in the daily rectangles.

When the general price trend turns upward after a base has been formed, speculative stocks are purchased as so-called "buying signals" are seen. These develop under increased activity and favorable price action and usually are found within a single day's performance. If, after a decrease in relative volume in a decline, activity broadens out on a single day to the accompaniment of a percentage increase in price greater than that seen in the market as a whole, we can conclude (a) that there is a trend of interest toward this stock, and (b) that this increased interest is favorable. Usually, but not always, relative volume in a dependable buying signal will be greater in any of the five preceding days.

The comparative price gain one should look for depends upon the stock's velocity characteristics. If it is a fast mover, a comparatively large gain in excess of the market say, 5% or more should be seen. Just what this percentage should be can best be determined by checking the past record and noting these patterns which later on proved to have been dependable.

Those who are carrying investment stocks watch relative volume as prices advance. In a major move, it will frequently be found that one issue, upon reaching certain levels, will lose its following, as evidenced by a continued decrease in relative activity. If the Pressure Indicator is appraising the market as still strong, funds in such issues can often be switched advantageously to other situations which have been late in getting started, but currently are showing a more active investment demand. When, however, the point is reached where the market is given over largely to speculation and the Pressure Indicator is warning of a probable reaction, all investment stocks should either be sold or profits protected with stop-loss orders.

In speculative stocks we know that tops normally are seen to the accompaniment of a broadening out in relative volume. Just so long as this widening out in the charted rectangles is supported by proportionate comparative price gains, it may be assumed that the supply-demand situation is satisfactory. As the time approaches when, perhaps under still greater activity, comparative price gains are insignificant or lacking, then it is obvious that the supply-demand relationship has deteriorated and profit taking is impeding a continuation of the advance.

Under these conditions, if the Pressure Indicator is showing the market as a whole to be reasonably healthy, it is usually desirable to protect profits with stops or to switch funds to other speculative situations in which supply has not yet been encountered. If the Pressure Indicator is reflecting weakness, sales 'at the market' are in order.

A Practical Application of Trendograph Procedure

Chart 30, covering the daily market action of Chrysler from December 2, 1933 to October 15, 1935, identical in construction with standard Trendograph charts except, for the purpose of this study, we have added the Pressure Indicator at the top (this is ordinarily published separately), as a means of coordinating Indicator readings with the interpretation of supply and demand as revealed in a given stock. Chrysler was not selected by us; instead it is being used as an example upon Mr. Gartley's request because the action of this stock is discussed in relation to other technical theories. There are many other issues in which volume habits at tops and bottoms are marked; such as those classified in groups 1 and 3 as mentioned page 313. At the present time, Chrysler is classified in group 2, wherein volume shows a 'tendency*' to narrow down at bottoms and broaden out at tops.

Each black rectangle in the center of the form is

drawn

vertically according to the price range for the day and horizontally to the width necessary to show relative volume. The dotted line, passing through these rectangles, connects closing prices. The heavy, irregular line, labeled 'General Market', indicates daily price changes in the combined Dow Jones Industrial, Rail and Utility averages. The lighter dot-dash line shows relative price changes in our Automobile group, which is made up of Chrysler, General Motors and Auburn. The use of a 'ratio' scale permits superimposition of these comparative lines without distortion.

The zero line of the lower oscillator chart is the market 'straightened out'. The height or depth of each black bar shows the percentage by which the stock gained or lost on the general market from day to day. The width of these bars is relative volume. The shaded areas between the vertical lines, marking the weeks, chart the percentage by which the price of the stock gained or lost on the market from the previous week as a base.

On the top of the chart form, the six-day moving average of the Pressure Indicator is drawn as an irregular, connected line. The daily bars, already mentioned, have been omitted in the interest of simplification. Zero or 'balance' is a buying point, since the period chart falls within a bull market. The extent of weakness or strength existing in the Pressure Indicator from day to day may be read from the scale. As a matter of information, general buying and selling points according to the Pressure Indicator are shown.

While it is not intended that individual stocks be bought and sold blindly purely on the basis of the Pressure Indicator, it is interesting nevertheless to note that from the beginning of the period covered by the chart through our last completed transaction, which was a sale on June 26th, purchases and sales of Chrysler, based upon Indicator readings alone, would have yielded profits totaling 44 7/8 points against losses of only 1 1/4 points. On December 2, 1933 the stocks closed at 49 1/4 while on June 26, 1935 its price was 48 1/8. A continuous long position during this time would have shown a slight loss. In this computation, taxes and commissions have not been deducted.

In order to establish a proper background for consideration of the chart, it should be mentioned that the Pressure Indicator showed a buying point to have been reached on October 21, 1933 when Chrysler was selling below 40. Accordingly, a gain of about ten points from its last low had been established as our chart begins and warning of the approach to a top was being signaled by a broadening out in the daily rectangles. Through December 30, 1933, however, comparative price action was satisfactory. Underlying strength and a good supply-demand relationship will be seen in studying the lower or supplementary section. On December 30, good price gains were established under increased activity and comparative losses on volume are conspicuous by their absence.

Trouble developed in the week ended January 6, 1934 after a new high had been made. See the comparative price-volume performance as revealed in the first three trading days of that week. Despite a broadening out in activity, little or no comparative price progress was being made, showing that while there were a large number of buyers, there were also a large number of sellers. On the following day a clear-cut selling signal developed. The width of our rectangle was greater than on any day for nearly two years, or as far back as our own records have been projected. Because the stock lost nearly 3% more than the general market, it was obvious that large scale distribution was going on. In cases like this, sales 'at the market' are advised. Thereafter, for a period of several days, the width of our rectangles reflects a continuation of heavy offerings. Patterns such as this represent areas of primary distribution.

At this particular time the Pressure Indicator stood at approximately minus 150 but, because the general market had made a substantial advance, this amount of weakness would not turn the trend. Accordingly, while Chrysler stock should

then have been sold, it did not follow that long positions generally should be abandoned. Instead, funds in Chrysler could have been shifted to other stocks which were still displaying strength. Electric Bond & Share, for instance, gave a positive buying signal on January 10, when it was selling fractionally above 13 and, in the four weeks which followed, it moved to a high of 23 1/2.

Primary distribution in Chrysler appears to have been completed during the two weeks ended January 13. Thereafter, instead of moving faster than the averages, as it had been heretofore, it merely paralleled the market as it moved forward to its February peak and, failure of relative volume to expand shows that during this phase the stock was being appraised as lacking in speculative appeal. Penetration to a new high of 60 3/8 was, therefore, without significance. The stock was merely being carried forward with the tide.

As the averages reached their high point on February 6, 1934, the Pressure Indicator had descended to minus 265 and was definitely forecasting lower prices. As a matter of fact, we assumed that if the Indicator were available at that time, we should have recommended that long positions be closed out and short sales made after the close on January 27.

Observe that in the rallies and declines, which marked the path of the averages from December 30, 1933 through April 28, 1934, Chrysler, contrary to custom, was showing greater activity in declines and a tendency toward smaller relative volume in advances, justifying the conclusion that such interest as was present in this situation was largely unfavorable. As a consequence, when on April 28 the stock broke through the 50 support level, established in the week ended December 23, 1933, on January 13, 1934 and again in the week ended March 24, 1934, it was not surprising that a new wave of offerings drove the stock down faster than average prices. Because of previous weakness in the Pressure Indicator and the fact that it had not yet returned to a point of strength sufficient to justify the conclusion that the established downtrend would soon be halted. Chrysler was an excellent short sale on May 28 as it closed at 48 1/8. Within a little more than two weeks it could have been covered at a profit of about ten points.

From this point on until May, 1935, Chrysler shows selling rather than buying pressure. Previously, this stock habitually made bottoms to the accompaniment of small relative volume and tops under broad activity, but now this characteristic had become reversed. Heavy turnover at bottoms and diminished activity at tops was an indication that the stock was not being followed by traders; instead, it was being bought on value by investors as low points were approached. As a consequence of its negative performance throughout all of 1934 and until the Spring of 1935, Chrysler stock would have been avoided by Trendograph subscribers in favor of other issues which enjoyed stronger sponsorship.

There was a period, however, when a purchase might have been justified. Note the rectangle in the supplementary chart for November 23, 1934. Here, during an advance, Chrysler produced what one might normally have viewed as a buying signal. During the next few weeks, both from price and volume standpoints, it did reasonably well except that its past history had been unsatisfactory and this situation, therefore, may have been disregarded. On the other hand, ability of the stock to show positive action here might perhaps have furnished justification for a purchase after the close April 20, 1935. On this day, under a substantial increase in relative volume, the stock gained 4% more than the averages. Less than two weeks later, on May 2, the Company released its first quarter earnings report of \$2.11 per share, an amount which was almost equivalent to earnings for the entire year,

1934.

From April 20 to the end of the period charted, Chrysler's performance is very satisfactory. True, some distribution was seen in the two weeks ended July 1, but the price loss in the latter week was small and, therefore, without particular significance in comparison with the spectacular gains which had

been established during the three weeks ended May 18. Relative volume, moreover, showed a tendency toward smaller proportions as the stock sold off. Thereafter, we see a more or less steady stream of buying signals as indicated on the chart. As a matter of fact, despite the substantial gains made during the three weeks ended September 14, Chrysler refused to lose more than the market in the reaction seen in the week of September 21 and actually resisted the decline in the week of October 5.

Conclusion

In conclusion it might be suggested that an excellent way in which to observe supply and demand throughout this whole period is to note on which side of the zero line in the supplementary chart the greatest volume appears. That supply prevailed from the beginning of January 1933 through October 1934 is evidenced by the fact that our widest bars are below the zero line. Thereafter, to April 20, 1935, a condition more or less of balance prevailed. From April 20 through October 5, 1935, a preponderance of demand over supply is reflected by the widest bars being above the zero line.

Other Volume Studies

Before proceeding to a brief summary of the subject of Volume, let us consider it from several other angles. Earlier in the Chapter, it was noted that some market students attempt to study what might be called price-volume velocity by relating price changes and volume mathematically.

The usual method, it was noted, is to divide volume by price change, with the idea of finding out what amount of volume is required for a given gain or loss in price.

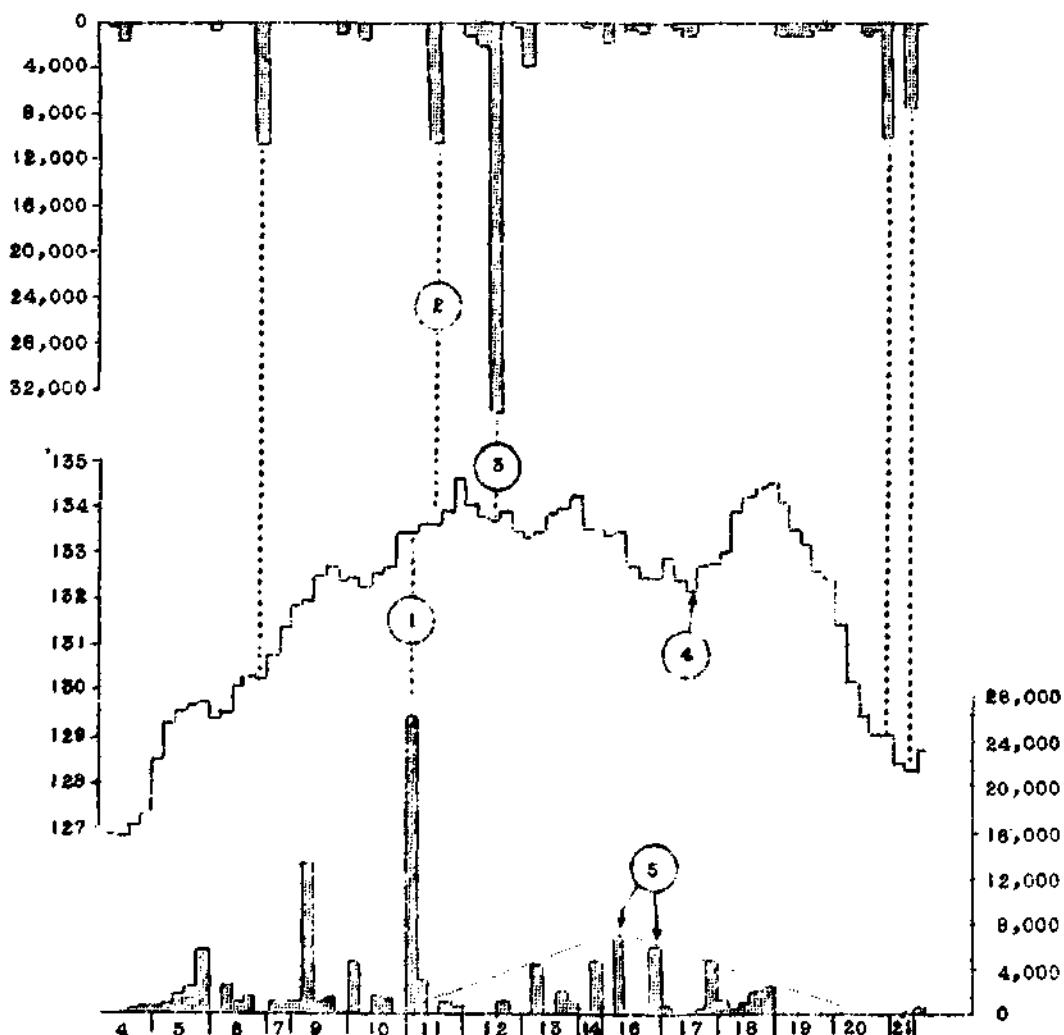
The theory of these studies is that when an advance meets a preponderance of supply volume, the upward changes, or advances, will be accompanied by an increased amount of turnover as compared with the amount of advance; and declines will be accompanied by an increased turnover. Conversely, the theory is that during a price decline, when an increase in activity does not result in a proportionate decline in price, a bottom is not far away.

Let us examine Figure 2, as an illustration of the principles. Unfortunately, as noted previously, these studies do not show uniform phenomena.

Figure 2 shows the hourly price movements from September 4 to September 21, 1935, inclusive. The upper series of black bars drawn downward toward the price trend represent those hours which were declines; while the lower series of bars drawn upward to the price trend designate those hours in which there were price advances. Both series of black bars show the relative amount of volume as compared with the price change, which is obtained by dividing the hourly volume in each successive case by the net change in price, and plotting the resulting quotients in the top series, if they represent minuses or declines, and in the bottom series if they represent pluses or advances.

Although this particular illustration shows the hourly index, the same principle may be applied to daily or weekly charts. The formula consists of two simple steps in arithmetic: (1) find the price change, designating it minus or plus, and (2) divide it into the volume for the time period (hourly, daily, weekly),

Figure 2



and plot the figure so obtained on a center line graph, from a zero line, plotting the minus figures above the price trend, and the plus figures below it. The arrangement in Figure 2 is a convenient one.

Now let us look at Figure 2. Here we see an advance from the first hour September 4 to the last hour September 11, a decline from that point to the third hour September 17. This was followed by a short advance to the last hour September 18, and finally there was a decline to the first hour September 21.

The questions which arise are: Did this statistical study show evidence of the top at the last hour on September 11; the bottom in the third hour September 17; the top in the last hour September 18; and the low point in the first hour September 21? By consulting Chart 11, it will be found that a rally developed from the latter point.

The phenomena we see in Figure 2 are typical of such studies. Dotted lines have been projected from the bars showing significant volume-price changes to the price line. It is interesting to note that as the advance from September 4 reached the high on September 11, substantial volume on the upside, at (1), failed to result in a proportionate increase in price to that in previous hours.

Also, as this top was reached, there were two occasions when there were substantial increases in volume (2 and 3), when price declines occurred at the top. Together, these signalled a turn.

So far, so good—the theory outlined above appears correct. But let us take the low which terminated the decline from September 11 to September 17. Theoretically, we might have seen here, in the middle hour of September 17, at (4), some increase in volume, as shown by black bars at the top, without comparable price recession. Instead, all that the chart showed was a moderate increase of activity during two price advances (5), several hours before the bottom.

Next, according to the theory, we should have seen some increase in volume, as shown in the lower series, as the top of September 18 was reached, indicating that activity was increasing without price advance, or conversely that during minor declines, volume was increasing, as might have been seen in the upper series.

Actually, there were no important indications. The bottom on September 21 was signalled somewhat better, in that after a steady decline, in the last hour September 18, when the majority of price changes were downward, there was a substantial increase in volume proportionate to price change, in the fourth

hour September 20, and in the first hour September 21, which helped to signal the upside reversal.

The shortcoming of this type of study is that sometimes it produces valuable indications, of a reversal point, and at other times a turning point goes by without any indications whatsoever.

Volume and Figure Charts

With the exception of some minor trend charts, wherein the volume is accumulated and plotted for every fluctuation of 1/8 in an individual stock, volume is seldom studied in connection with figure charts, except where the figure chartist refers to a bar chart of the market as a whole, such as Charts 4 and 7, merely for general guidance.

Many figure chart students contend that volume is an unreliable indicator, and that the price trend shows all that they need. But perhaps the chief reason why figure chart students do not employ a study of volume, is because it is almost impossible to plot it on a figure chart (see Chapter XVI, page 360).

"Never Sell a Dull Market Short"

This is an old Wall Street axiom, which we hear more often in bear markets than in bull markets. It is *not*, Jay any means, always true. Let us take Figure 3 and Figure 4, to illustrate our point. In the case shown in Figure 3, volume goes dull, or dries up on a reaction in an uptrend, and the axiom holds true only too well. But in the case of Figure 4, volume goes dull after a correction on the upside has spent itself, just before a downtrend is resumed. The latter case is typical of not only the minor trends in bear markets, but also the corrective phases of bear market intermediate cycles. Upon several occasions in the 1929-1932 bear market, the first minor reactions from the intermediate tops was accompanied by a decrease in activity just as some of the best selling opportunities developed.

Figure 3

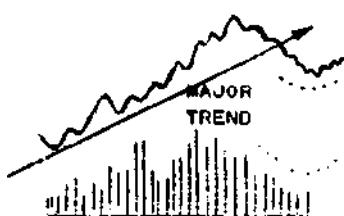
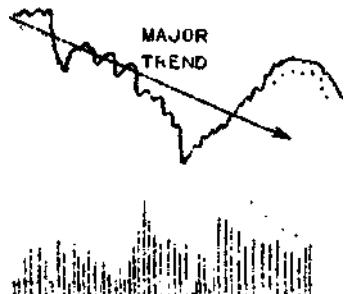


Figure 4



It might be good practice never to sell a dull market short in a corrective decline of an upward trend, but many opportunities would be lost by not selling a dull market short after a corrective rally in a bear market. The axiom depends upon the direction of the major trend.

Thus, we may profitably amend the axiom, and say: "Never sell a dull market short in a major upward trend." Let us take as two examples, periods during 1932, on Chart 7. In the last week of March, just before the three-months' trading area was broken, and the drastic decline which ended with the July bottoms of 1932 developed, the market was exceedingly dull, and the trader had every reason to believe that the floor of the trading area had been reached. That dullness might easily have been interpreted as a bullish signal, indicating that a rise from the floor of the trading area might ensue. Instead, a terrific decline developed

Let us look at another case in the first ten days of July, when the bear market ended. Here is a case where, unlike March, the dullness was one of the most important signals of a coming advance which turned out to be a major reversal.

If we lay down the new axiom as a general rule which has exceptions, we might also say, conversely. "Never buy a dull bear market".⁴

Summary

Although many pages have been spent in discussing the subject of Volume, and it has been reviewed from many different angles, we can reduce its practical use for the average reader to a few simple ideas, which we may summarize as follows:

1. Avoid inactive stocks, unless you are interested chiefly in the long term trend, because their thin markets make it almost impossible to conduct advantageous trading.
2. If you are interested in the minor trend, by all means confine your trading to issues which are included in the 50 most active stocks, over a period of the preceding year.
3. Never neglect the consideration of volume. If an active stock becomes inactive, do not continue to trade in it.
4. Stocks of companies with small capitalizations are not necessarily the best trading mediums. They are often very volatile issues which have thin markets, and move rapidly. Successful trading in such issues depends on keeping one's eyes glued to the tape. Large capitalizations are not necessarily a drawback to the trader. General Motors and U. S. Steel are good examples of this contention.
5. Remember that the relative changes in volume are far more important than the actual changes, because all during an active period, the trading in almost every stock is increased.

⁴ FRED S. MCCLAFFERTY, IN HIS "A COURSE IN TRADING,"

PUBLISHED BY THE WETSEL MARKET BUREAU, SUGGESTED THESE VARIATIONS OF THE ORIGINAL AXIOM, WHICH APPEAR TO BE VERY SOUND.

6. When a volume ratio, which represents true relative performance, rises to a sharp peak, as compared with its performance for a year or eighteen months previously, if an advance or decline of two or three weeks has been under way, look for a turning point. On the other hand, if the price trend of a leading stock has been moving sidewise, and suddenly resumes a diagonal direction, if the volume ratio rises sharply it is usually a good signal that a new diagonal trend of importance is under way. If the move is up, buy the stock on the next reaction. If the move is down, sell the stock on the next rally.
7. Remember that various stocks have different characteristics at reversal points. As a general proposition, a speculative issue will show increased activity during a rise, and a peak of volume preceding or near a top. Conversely, it will show a decline in activity during a price decline, and a low level of trading near a bottom (in a bull market).
As a general proposition, investment stocks will show a tendency for activity to increase in a decline, and reach a peak near a bottom, while conversely, activity in investment stocks tends to decrease in price advances, and be at a relatively low level compared with the general market volume, when tops are reached. These characteristics are not permanent or unchanging, however; thus the volume characteristics of various stocks must be scrutinized every so often to see possible changes.
8. After a long decline has taken place, and the price trend begins to rise, an increase of volume on minor rallies, and a decrease on minor declines, is of important bullish significance. Conversely, after an extended advance, a decrease of volume on minor rallies, and an increase on minor declines is of important bearish significance.
9. As a general rule, volume decreases during a bear market, and increases during a bull market. The peaks of volume in bull markets appear just preceding the intermediate tops, near the end of major phases. The highest points of volume are seldom at exactly the top levels.
10. During a corrective phase of a bull market, one of the characteristics in judging their termination is a steady decrease in volume, with volume at a low level as the correction reaches its end, just before the resumption of the major up trend.
11. In bear markets, selling climaxes are accompanied by a sharp increase in volume, as panic reaches its peak. During rallies in bear markets (corrective phases), volume shows a tendency to decrease from the high level of the selling climax, but will frequently rise at the top of the corrective phase.
12. Whenever a trend line or moving average, or

the upper or lower limit of a Dow Theory "line", or a previous high or low is penetrated, an increase in volume is considered a confirming factor. If the breakaway from the apex of a triangle is accompanied by an increase in activity, it is less likely to be a false one than a movement which occurs on dullness. IN THE NEXT CHAPTER, WE WILL PROCEED TO A STUDY OF A GROUP OF GENERAL MARKET STATISTICS, WHICH THE AUTHOR HAS TERMED "BREADTH-OF-THE-MARKET" STUDIES. As MOST OF THESE ARE QUANTITATIVE STATISTICS, THEY ARE, IN A WAY, ANOTHER TYPE OF VOLUME STUDY.

CHAPTER XV

BREADTH-OF-THE-MARKET

REFERENCES

Although this subject has been studied by many market students, with the exception of the author's work, we know of no published material.

In the previous seven Chapters (VIII to XIV, inclusive), we have discussed various working tools which have to do with a detailed study of market phenomena, relating to the "When" to buy or sell question. The application of these working tools has been to market averages and individual stocks.

Before proceeding on to the study of the "What" to buy or sell question, let us first consider some general statistics concerning the market as a whole, which are often useful in determining intermediate reversals, and thus contribute to the study of the "When" question.

For want of a briefer title, we name these studies with the descriptive phrase "Breadth-of-the-Market", because they are based upon certain general summaries of all of the daily trading which occurs on the floor of the New York Stock Exchange.

It will be remembered that in Chapter I, we noted that the data used in making studies of stock price trends are divided into four general categories, namely:

1. Price and Price Changes,
2. Volume and Volume Changes,
3. Time (Duration), and
4. Breadth-of-the-Market.

Previous Chapters have dealt with the first three. Now let us take up the fourth.

Basic Data Used

The facts upon which our study is based are general statistics, including daily observations of:

1. Number of issues traded,
2. Number of advances,
3. Number of declines,
4. Number of prices unchanged,
5. Number of new highs,
6. Number of new lows,
7. Total volume, and
8. Ratio of trading in fifteen most active stocks to total volume.

In actual use, as we will learn later, these statistics must be considerably refined, in order to be of any practical value. Items No. 1 to 7 inclusive may be obtained each day from the Wall Street Journal, while all of the items are available in the New York Herald-Tribune, and Gartley's Stock Market Data (see Section 12, Appendix I, Chapter II). The data published by the various sources is seldom in agreement, but the dif-

ferences are usually not important. There is always the unanswerable question of which publication is accurate.

Breadth-of-the-Market Defined

The reason we study the general statistics of the market is to obtain what the old-time trader called "a better feel of the market".

The price range in a day's trading tells us whether fluctuations were wide or narrow, the closing level tells us if a gain or loss has been made, and the volume of trading tells us whether trading was active or dull. But this data alone does not tell us whether trading was confined to a few issues or included most of those listed; what portion of the list advanced and what declined; how many new highs and lows were made, and just where the trading interest centered that day.

The data pertaining to these factors constitute the material used in "Breadth-of-the-Market" study. The reader knows that in dull markets the number of issues traded is small, and public interest is at a low ebb. In active markets, on the other hand, there is a tendency for more and more issues to appear as public interest and participation increase, particularly at tops. These conditions are usually subject to some newspaper comment and market conversation, but all in a vague way.

The technical student attempts constantly to reduce vague indications, as closely as possible, to actual facts, and eliminate guesswork. To do this with respect to the subjects mentioned above, he has devised "Breadth-of-the Market" study.

Caution

Many students of the market, with a little technical knowledge, quickly come to believe that the easiest way to determine important reversals is to see changes in the market as a whole. It occurs to them that important changes in trend are logically visible in the general summaries showing what the bulk of stocks is doing from day to day (breadth-of-the-market data). Although this approach seems to be a logical procedure and at the same time appeals to the layman because it is simple, long experience and careful research have clearly indicated that it is fraught with difficulties. Although it is perfectly possible that future research may bring to light important conclusions, the present view is that much is still to be done before these studies may be expected to contribute a vital part in technical

thinking. The more one delves into the general statistics which are enumerated above as the elements of breadth-of-the-market, the more it becomes evident that a statistical correlation of the factors is an intricate problem, without, as yet, any satisfactory solution.

Application to Intermediation' Trend

In this discussion of Breadth-of-the-Market studies, our chief objective will be to look into their value in connection with the determination of intermediate trend reversals.

Evolution of Breadth-of-the-Market Study

It is possible to designate our present subject as a kind of study of Volume, for it has to do largely with the observation of mostly quantitative figures. Also, it is related to Volume rather directly, because a notable change in total activity will almost always cause substantial changes in many of the Breadth-of-the-Market statistics. Possibly some readers will argue that the change in these statistics causes the volume. But this is only an academic hen-or-egg debate.

Not all of the factors studied in Breadth-of-the-Market observations, however, are exactly related to each other. Having in mind the tabulation of the eight items listed above, it is to be noted that the number of issues traded (1) will vary in almost direct relation to total volume of trading (7).

If, in the major phase of an upward intermediate trend, during a given market day a sharp general advance results in a large number of individual issues showing advances at the closing, and thus being at higher levels than they were at the previous day's closing, the new highs for the day are likely to be in greater number.¹

Conversely, if in the major phase of a downward intermediate trend a sharp recession carries many stocks down, so that the declines for the day are numerous, new lows are likely to be in greater number.

A dull market will result in a sharp increase in the number of unchanged issues, and at the same time a decrease in both the number of advances, and the number of declines. Also, in a dull market, the number of issues traded will drop off sharply.

After an extended decline, the number of issues traded each day will fall to an average between 550 and 650 stocks, which of course includes both common

and preferred issues. On the other hand, in the active markets which accompany intermediate tops, it is usual to see the number of issues ranging from 850 to 950. In the past several years, the total number of issues listed has averaged about 1200. All of these statistics concern just the stocks listed on the New York Stock Exchange.

The New York Herald-Tribune ratio of the volume of the 15 most active stocks each day, compared with the total volume, which is item 8 in our tabulation on page 319, has no direct relation with the other factors used in the study. It is included because there are times when this ratio seems to express the concentration of trading activity, which has been found to be helpful in studying the other factors.

At the time Breadth-of-the-Market study was conceived, the primary object of the research was to determine whether a study of general market statistics, such as have been briefly discussed above, would provide any reliable means of judging intermediate reversals. When the author began the studies, in 1931, material assistance was obtained from Mr. Harry Wolf, who had been observing the data for a number of months.

In beginning the study, all of the items which seemed to be logical parts of the study were brought together, without any preconceived ideas as to what they might show. After a year or two, it was found that considerable refinement was necessary, and even after several years of experience, no arrangement of the data has been found which reliably reflects each successive intermediate turning point. A considerable amount of research was conducted with the statistics of daily advances and declines. Much is still to be done.

Before observing all of the statistics enumerated above, let us first study Chart 31, and trace the successive steps in the procedure of refining the figures for just the number of daily advances and declines.

Chart 31 shows the period from June 1932 through October 15, 1935. To the extreme left, the original data for the first two months is plotted. The upper line (1), which appears in the extreme upper left-hand corner, shows the number of closings each day which were unchanged. During the period, this ranged from 100 to 200 issues.

The next lower line (2), shows the number of daily advances, which range from 150 to 500. In the center of the chart is a line (3) showing the daily closing level of the Standard 90 stock index, which is used to check the data with turning points in the market. The bottom line (4) shows the daily number of declines, which, it will be noted, range from 125 to 325.

In each case, the minimum number of unchanged advances and declines is about as low as is seen. Quite frequently, however, the number of advances and declines substantially exceeds the maximum levels shown in these first two months.

Experience with the raw data, which has just been described, soon showed that it had to be somewhat refined if it was to be useful. So the idea was conceived

¹ NEW HIGHS AND NEW LOWS PUBLISHED BY THE WALL STREET JOURNAL, THE NEW YORK TIMES, AND THE NEW YORK HERALD-TRIBUNE, ARE COMPUTED ON THE BASIS OF THE CLOSING LEVEL ON JANUARY 2 OF EACH SUCCESSIVE YEAR. HOWEVER, IT IS THE HABIT OF THESE PUBLICATIONS, IN THE FIRST TWO MONTHS OF A NEW YEAR (THE WALL STREET JOURNAL, DURING THE FIRST THREE MONTHS OF EACH YEAR), TO MAKE COMPARISONS FROM THE CLOSING LEVEL ON THE FIRST DAY OF THE PREVIOUS YEAR. BEGINNING WITH THE FIRST OF MARCH OR APRIL, COMPARISONS ARE REVISED, AND ARE THEN BASED UPON THE CLOSING LEVEL OF THE FIRST DAY OF THAT YEAR.

to reduce all the data to some uniform basis, and, instead of using just the number of advances and declines, a ratio was prepared wherein the percentage of the advances and the declines, as compared to the total issues traded each day, was computed. These appear on Chart 31. The dotted lines during the months of August to November, inclusive, show these ratios.

Still it was found, however, that the data fluctuated up and down, frequently between wide extremes, and it was then conceived that perhaps the data could be smoothed by means of a moving average (see Chapter XI). Numerous moving averages were tried, and studied for their indications at turning points, and the most satisfactory seemed to be a 7-day moving average. This was adopted. Soon it was found that no useful conclusions could be obtained from studying the ratio for the number of issues (1-A) which were unchanged, thus this series was dropped.

Now let us look at the final series which is being used, and is shown by the upper and lower lines marked 5 and 6, on Chart 31. As soon as the study was prepared for a period of time, it was found that these ratios tended to fluctuate between rather well-defined limits. For example, the 7-day moving average of the ratio of advances reached an extreme of about 60 per cent of the total issues traded at its high point, and about 13 per cent at its low point, the average of the high points being about 56 per cent, and the low points about 22 per cent.

In the case of the 7-day moving average of the ratio of declines, the top extreme was somewhat higher, at 64 per cent of the total issues traded, while the low extreme was also higher, at 21 per cent, the high extremes averaging about 56 per cent as in the case of advances, and the low somewhat higher at about 25 per cent.

In the final use of this study, which we will see on Chart 32, both of the 7-day moving averages are plotted together, by means of inverting the plottings for the advances.

Now let us briefly study the relation of these two lines with the market swings as indicated by the Standard 90 stock index. First of all, it must be remembered that when one of the ratios is at a high level, the other, being its opposite, is at a low level. Experience seems to indicate that, if the technical student is pressed for time, just one of the ratios (for declines) will give very satisfactory results, within the limitations of the study.

However, we will consider the two ratios separately. Dotted lines have been drawn from the top series, showing the 7-day moving average of the ratio of declines. Each vertical dotted line marks a top or bottom of either minor or intermediate trend importance.

By following these lines, the reader can quickly see how the ratios perform at both minor and intermediate turning points.

A careful study of this comparison leads to the following conclusions:

1. The peaks in the ratio of declines, *which provide the buying signals*, are far more accurate, and produce fewer false signals, than the similar peaks in the ratio of advances.
2. The peaks in the ratio of declines are usually closer to the reversal point than in the case of the ratio of advances.
3. All of the important turning points to the upside were indicated by peaks above the 50 per cent zone in the ratio of declines. This was not true in the case of the ratio of advances. See, for example, the situation in April and August of 1934.
4. In persistent advances, such as those of July-September 1932 and March-July of 1933, the ratio of advances is likely to suggest several false selling signals before it is time to liquidate stocks; and it occasionally misses signalling an important selling point.
5. Although the ratio of declines occasionally shows buying indications which prove to be premature, it correctly signals the real buying points.
6. The chief value to be derived from a study of both of the ratios is that when either ratio reaches an extreme peak, such as from 58 per cent upward, a turning point is signalled; that is, if the ratio of advances rises so that its 7-day moving average is at a level above 60 per cent, it is time to consider selling stocks, particularly if an advance has been under way for some time. Conversely, when the ratio of declines rises so sharply that its 7-day moving average exceeds 60 per cent, it is time to buy stocks, especially if a decline has proceeded for some time.

Combined with other technical factors, these indications, although they recur only infrequently, are extremely useful.

Before going on to Chart 32, showing all of the Breadth-of-the Market factors, enumerated earlier, it should be noted that the 7-day moving averages of the ratio of advances and declines at turning points do not show any patterns which recur often enough to be reliable indicators of the type of reversal which is being indicated. Study, for example, the patterns of turning points in the ratios which are circled, of all the price reversals during the period shown on Chart 31. Note that no two of them are sufficiently alike to be any means of indicating how important the succeeding move may be.

Now let us proceed to a further consideration of the other factors in the Breadth-of-the-Market study. Chart 32 shows the period from January 2 to October 15, 1935.

1. The upper series are the same two curves we have been looking at on Chart 31, except that the *ratio of advances* has been turned upside down, so that it runs parallel to the *ratio of declines*. Similar horizontal lines have been projected across the areas, near the extremes.

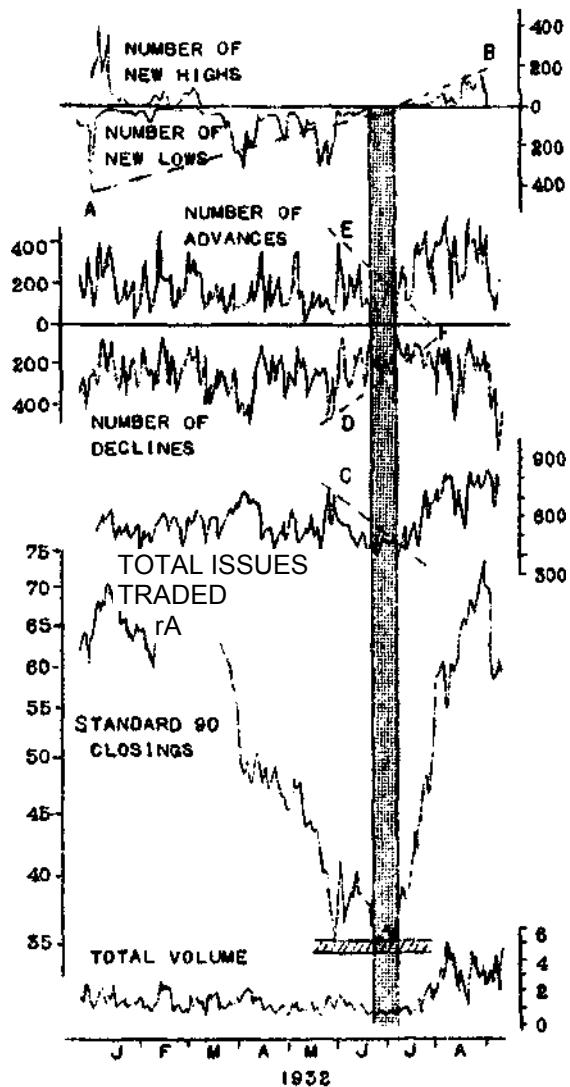
2. Second on the chart is a center line plotting of the *actual advances and declines*. Whenever the number of advances or declines drops to from 50 to 75, and conversely the other factor rises to 700-800, a turning point is signalled.
3. The third series shows the number of *new highs and new lows*, based upon the closing level on January 2, 1935. In a bull market when the number of new highs reaches 200-300, the major phase of an upward cycle is likely to be reaching or at least approaching its culmination, and conversely in a bear market when the number of new lows reaches 375-425, a selling climax has probably terminated a major phase.
4. The series numbered 4 shows the closing level of the *Standard 90 stock index*, used for checking the other phenomena with the market action.
5. The series designated 5 shows the *number of issues which are traded each day*. When this number rises to between 850 and 950, and stays at this high level for several days, it usually indicates that a top is developing. On the other hand, while the figure is ranging below 600, if a bull market is under way, higher prices are likely to be seen. Conversely, in a bear market, if the figure reaches 800-900, a selling climax is likely to have occurred, and a reversal to the upside soon to take place; while if the figure dips below 600 in a bear market, it is likely to indicate that a corrective phase (secondary reaction) has run its course, and the major downtrend is about to be resumed.

It must be understood that these conclusions are general, and are based on trends of several months each. A quick fluctuation from the maximum to the minimum does not indicate that a major trend has changed.

6. Next on the chart (6) is the New York Herald-Tribune ratio of the 15 most active stocks which are traded each day. During the period shown, this ratio provided no very definite indications. However, at times in the past it has provided a fairly accurate index of the degree of public participation in the market. It is computed by segregating the 15 most active stocks each day, totalling their volume, and then dividing this volume by the total trading for the market as a whole. When this figure is multiplied by 100, it represents the percentage of the total trading in these 15 stocks. Naturally, the component stocks vary from day to day.

If the figure is high, say 45 per cent, a professional market is indicated, with relatively little public participation. If the figure is low, say in the neighborhood of 23, a broad list of issues is being dealt in, and public interest would appear to be increasing. This was particularly true for the years 1926-1930. It will be noted on Chart 32, that only upon one occasion, early in August, did the ratio rise

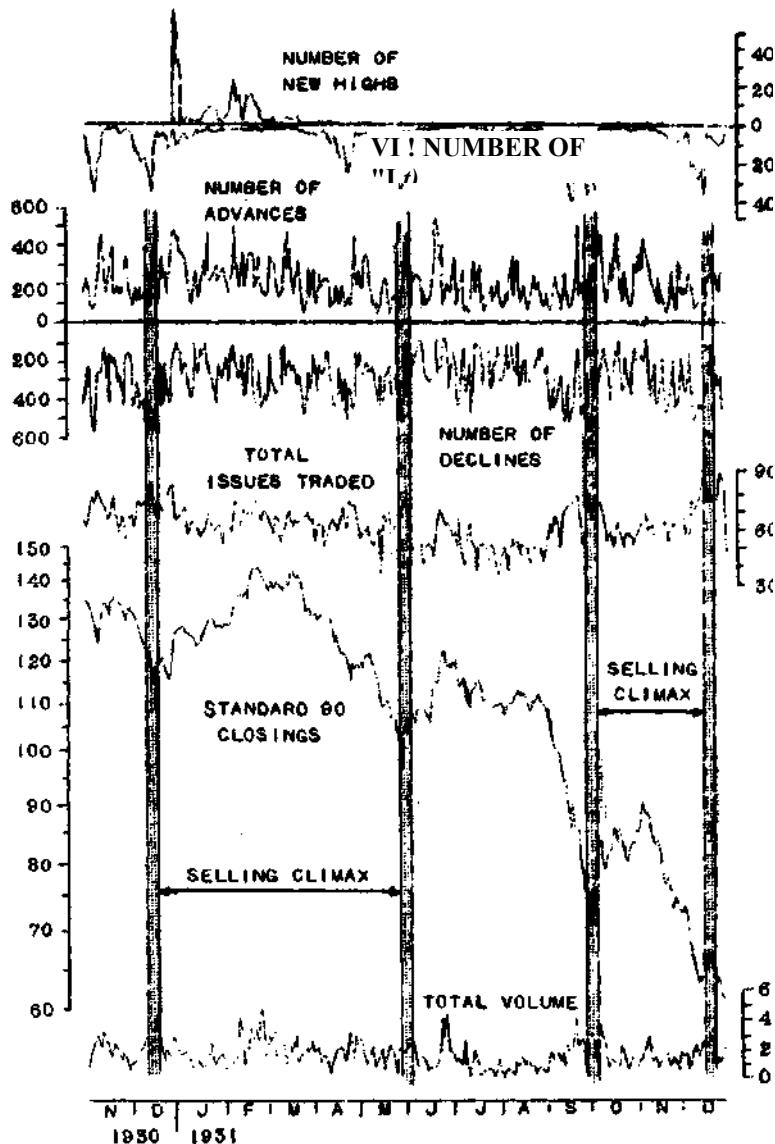
Figure 1



above 40 per cent, and then only for one day. This was succeeded by a further sharp advance. Upon the other occasion, when it exceeded 36 per cent, in the third week of June, a three-day reaction followed.

Students who have studied this phenomenon for some time are beginning to wonder whether Stock Exchange regulation has changed its value as an indicator of the so-called professional interest. In previous years before 1935, when this ratio dropped below 25 per cent, it was usually an indication of small public interest, and often accompanied bottom points, from which advances developed. In the period shown on Chart 32, however, the ratio has ranged, for a considerable period of time, in the neighborhood of 25 per cent, while a persistent advance has been under way. It is, of course, true that market students believe that public participation in this advance has been very moderate. But the action of the ratio is quite different from any period when it has been

Figure 2



studied in the past several years. 7. The last series (7), on the lower part of the chart, represents the total number of shares traded daily. As has been learned in Chapter XIV, this figure tends to expand near a top, and contract near a bottom.

The technical student finds all of these data, which require only two or three minutes a day to keep up to date if the source material is available,² generally useful when an intermediate top or bottom is forming. It also contributes some material for judging a major reversal. For example, let us take the situation in Figure 1.

Note how there was a definite trend, as the bear market ended, for new lows (they are plotted upside down) to diminish from A to B, and during June and July of 1932, as the market became exceedingly dull

prior to the major reversal, the number of issues traded dropped off substantially (C). This naturally caused the advances and declines to form a triangle (D-E-F). At the same time, the total volume of trading had dropped to an average of some 400,000 shares a day. This sequence had not appeared before in the bear market from 1929-1932, and it provided the author with a tangible clue that the end of the bear market was not far away.

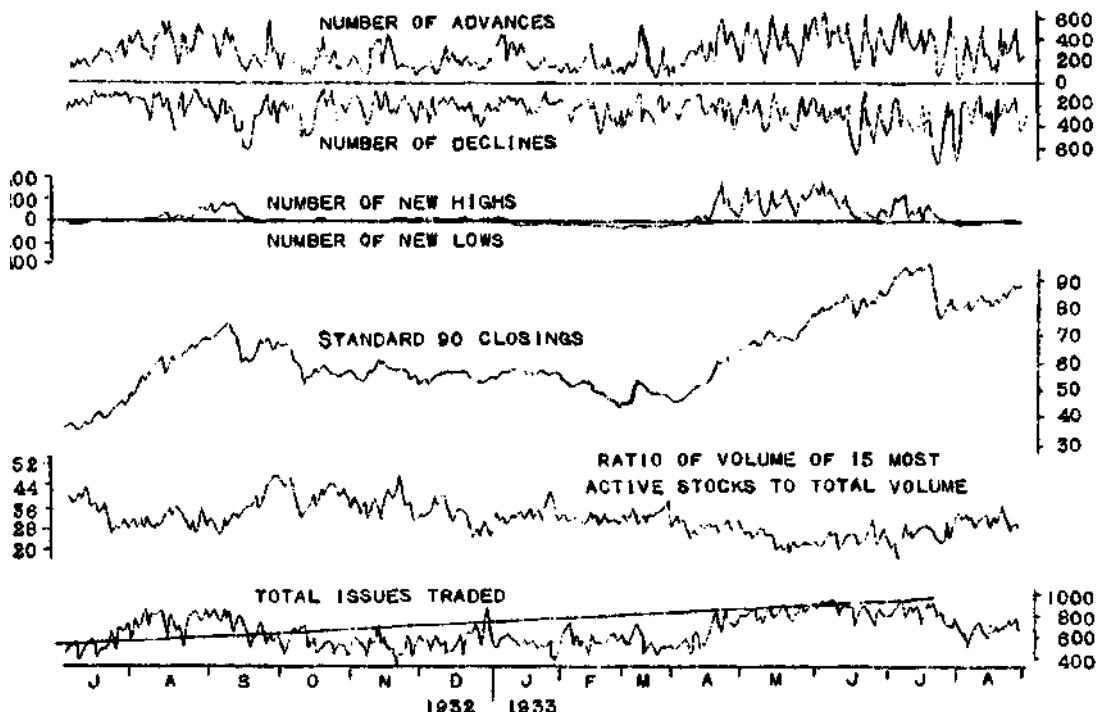
Selling Climaxes

Breadth-of-the-Market phenomena were also exceedingly useful in judging the terminations of major phases in the bear market of 1929-1932. For example, let us look at Figure 2.

The vertical shaded areas show the reversals in December 1930, June, October and December, 1931. In previous Chapters, we have spoken of the selling climax as being accompanied by some fairly exact

² SEE SECTION 12, PAGE 52, APPENDIX 1, CHAPTER II

Figure 3



characteristics. From Figure 2, it will be noted that, in the cases just enumerated, we find the following:

1. Number of issues traded exceeded 800,
2. Number of advances was less than 100,
3. Number of declines was 600 or more,
4. Number of new lows approached or exceeded 400,
5. No new highs were made, and
6. Total volume of trading exceeded 3,000,000 shares.

As the bear market of 1929-1932 ended, market students who followed the Breadth-of-the-Market phenomena were interested to determine what might be the characteristics of the culmination points of major phases in a bull market, which might be comparable to the termination of major phases in bear markets wherein selling climaxes occurred. The question was: "Would it be possible to determine a bull market 'buying climax' by means of the Breadth-of-the-Market data?"

In Figure 3, we see the period from July 1932 to August 1933.

During this time, there were two intermediate tops, one in September 1932 and the other in July 1933, which might be compared with any of the intermediate bottoms in the 1929-1932 bear market.

In both cases, the number of issues traded exceeded 800; the number of advances (opposite of declines in a bear market) exceeded 500; the number of declines was less than 200; the number of new highs, in the first case (1932) was less than 200, while in the second case (1933) it was approximately 200; in both cases, the number of new lows had dwindled to nothing; and, also in both instances, the volume of trading exceeded

4,000,000 shares a day.

Thus, we might set up a series of statistics for an intermediate top in a bull market, comparable to those at a bear market intermediate bottom, such as:

1. Number of issues traded exceeded 800,
2. Number of declines was less than 200,
3. Number of advances exceeded 500,
4. Number of new highs 200 or more,
5. No new lows, and
6. Total volume of trading 4,000,000 shares.

But the difficulty was that there was no very pronounced difference in some statistics at an intermediate top, such as there was at a selling climax at an intermediate bottom.

For instance, to take the case of 1933, the number of new highs, comparable to the number of new lows which had reached 400 at the selling climax in a bear market, ranged for nearly three months between 50 and 200, without having reached the comparable figure of 400 new highs. Also, during the 1933 period, unlike that in 1932, the peak of new highs did not mark the turning point in the price level.

Similarly, in the 1933 case, there was no pronounced step-up in trading at the actual top. During part of May, all of June and early July, volume had been averaging between 3,000,000 and 4,000,000 shares a day. The same was true in the case of the number of issues traded, between 800 and 900 of which had appeared on the tape nearly every day from middle April right through to the July top, in 1933.

Here was another case where the 15 most active stock ratio was of little help, in that it merely trended downward from a peak reached in September of 1932, to a low point just prior to the 1933 top, and instead of

rising to 40-50 per cent, indicating professional distribution, it declined to less than 20 per cent, indicating a broad general interest, but not necessarily the distributive stage.

And so it seems that the Breadth-of-the-Market data are not primarily useful in a bull market. Unfortunately, it will be remembered, we do not have the figures for previous bull markets, so that we cannot make any fair comparisons with other stock market phenomena which we study.

Taking a very broad view of the study, we may summarize and say:

1. It is worthwhile observing the 7-day moving average of the ratio of advances and the ratio of declines, because whenever either exceeds 60 per cent, it is likely to be the signal of a turning point.
2. The ratios of advances and declines appear to be more accurate in suggesting buying signals than selling signals.
3. In a bear market, a selling climax is particularly well marked, with rather definite characteristics, and may be observed to great advantage in the Breadth-of-the-Market study.
4. Until further studies yield more valuable conclusions, the general figures concerning Breadth-of-the-Market, such as the number of new highs, number of new lows, number of issues traded, ratio of the 15 most active stocks and volume, appear to be more useful in bear markets than in bull markets.

In closing this brief discussion, it seems fair to repeat the suggestion that, if the data are all available, it is worth the few minutes each week (or each day) to keep one chart such as Chart 32, as a study which contributes to the general technical viewpoint.

BEFORE WE PROCEED TO A CONSIDERATION OF THE "WHAT" QUESTION, LET US, IN THE NEXT CHAPTER, LOOK INTO AN ENTIRELY DIFFERENT METHOD OF PLOTTING STOCK PRICE CHARTS, WHICH IS KNOWN AS FLGURE, OR NUMBER, CHARTS. CHARLES DOW CALLED IT "THE BOOK METHOD". THE VAST MAJORITY OF THE THEORIES OF STOCK PRICE MOVEMENTS, AS WELL AS MANY OF THE WORKING TOOLS WHICH HAVE BEEN DISCUSSED IN CHAPTERS VIII, IX AND X, MAY BE APPLIED TO THIS PARTICULAR METHOD OF GRAPHING STOCK PRICE CHANGES

(VOLUME IS NOT USUALLY CONSIDERED).

CHAPTER XVI

FIGURE CHARTS

REFERENCES

"The Game in Wall Street, and How to Play It Successfully" (1898) "Chart Method and Trading System"
 (1904) "Stock Market Science and Technique"
 (1932) "Tape Reading and Active Trading"
 (1933)
 "The Point and Figure Method" (1933)
 "Advanced Theory and Practice of the Point and Figure Method" (1933)
 "Stock Market Profits" (Chapter VII) "The Business of Trading in Stocks" (Chapter IX)

The theory and practice of studying stock price trends, as presented in the previous fifteen Chapters, has concerned chiefly what we learned in Chapter II to call Bar (range) and Line (usually closings) charts. Patient investigation seems to indicate that these two types of stock market charts were first in popular use, by a small group of statistically inclined Wall Streeters, sometime between 1895 and 1900.

However, there was another system of graphical presentation in use from about 1881. In 1898, for instance, an anonymous writer, who called himself "Hoyle" published a book called *The Game in Wall Street* (the first edition is the important one), which was apparently the first publication concerning this group of studies which, after many years, have become known as "Figure Charts".

Associates of Charles Dow say that he used figure charts during the ten years between 1891 and 1901, before he died. In fact, we have an editorial of his, published on July 20, 1901, entitled "Methods of Reading the Market", wherein he called figure charts "the book method", and stated that they had been kept for a period of some 15 years at that time (1901). His actual description of them follows:

There is what is called the book method. Prices are set down, giving each change of one point as it occurs, forming thereby lines having a general horizontal direction but running into diagonals as the market moves up and down. There comes times when a stock with a good degree of activity will stay within a narrow range of prices, say two points, until there is formed quite a long horizontal line of these figures. The formation of such a line sometimes suggests that stock has been accumulated or distributed and this leads other people to buy or sell in the same time. Records of this kind for the last fifteen years seem to support the theory that the manipulation necessary to acquire stock is oftentimes detected in this way.

"Hoyle"
 Joseph M. Klein R.
 D. Wyckoff
 R. D. Wyckoff
 Victor deVilliers
 Victor deVilliers R.
 W. Schabacker
 A. T. Miller

This system of charts, referred to by Dow as the "book method" and which is now popularly termed "Point or Figure Charts", was designated as the "1, 2 and 3 Tread Register", by Joseph M. Klein, in a course of instruction which he published in 1904. The first fairly comprehensive summary which followed the previous mention of figure charts by "Hoyle" of the theory of interpretation of figure charts, appeared in this work by Klein, wherein he stated that figure charts had been used for 23 years, dating back apparently to about 1881.

Although the later works by Wyckoff and deVilliers (who was formerly associated with Wyckoff) include numerous variations in interpretation, the primary ideas are unchanged from those clearly outlined by Klein, who is said to have been associated with the anonymous "Hoyle".¹

Chief Difference Between Figure Charts and Bar (or Line) Charts

It will be remembered that the construction of bar and line charts was described in detail in Chapter II.

There are two essential differences between regular bar charts, such as described in Chapter II, and figure charts. In the first place, *regular interval bars are plotted for any range of price fluctuation, no matter how large or how small. Figure charts, on the other hand, ignore all movements of less than a*

¹ IN THE COURSE OF THE PAST SEVERAL YEARS, THE AUTHOR HAS CAREFULLY REVIEWED ALL OF THE PUBLISHED MATERIAL WHICH HAS APPEARED ON THE SUBJECT OF FIGURE CHARTS, AND HAS FOUND THAT THE MODERN PUBLICATIONS CONCERNING THE SUBJECT, WHICH HAVE BEEN SO WIDELY PUBLICIZED, ARE NOT MUCH DIFFERENT FROM THE PREVIOUS, BUT COMPREHENSIVE, PRESENTATION MADE BY KLEIN IN 1904.

specified size. If, for example, the figure is set at one point, the smallest movement plotted is one point, no attention being paid to price fluctuations of lesser dimensions. The figure can be set at any size desired. Customarily, the figures used are 1/8, 1/4, 1/2, 1, 3 and 5 points. The method of plotting each sized figure will be explained presently in detail.

The second essential difference is that *regular interval bars are plotted regularly at specified time intervals.* On bar charts, each bar drawn stands for the price range of a day, week, month or other time interval selected, while on line charts each dot which is connected to the previous one with a line, stands for the closing level at a specified time interval. *With figure charting, on the other hand, no attention is paid to time intervals, the divisions on the horizontal scale representing only reversals equal to or greater than the specified figure, no days or other time units.* These differences will become clear when the construction of figure charts is explained.

Thus, we may call bar or line charts those of *regular time interval*, while we designate figure charts as those of *irregular time interval*.

Construction and Plotting of Figure Charts Those Familiar with Them Detour

Those readers who are familiar with the construction and plotting of figure charts might skip from this point to page 340, as the ensuing paragraphs and illustrations are for those to whom the subject of figure charts is new.

Let us demonstrate the practice of plotting figure charts by studying a four months' period in an individual stock. We will take for our illustration the movements of Bethlehem Steel from October 2, 1933 to January 31, 1934.²

After briefly reviewing an ordinary bar chart of Bethlehem Steel for this period, we will proceed to the segregation of figures, and the plotting of figure charts, including 1/8, 1/4, 1/2, 1, 3 and 5 point variations. The data for this demonstration are printed in

² FIGURE, OR NUMBER, CHARTS MAY BE PLOTTED ON ANY CROSS-SECTION PAPER, ARITHMETICALLY RULED. MANY FIGURE CHART STUDENTS PREFER TO USE PAPER WITH 8 OR 10 SPACES TO THE INCH IN BOTH DIRECTIONS. OTHERS PREFER TO USE 12 SQUARES TO THE INCH EACH WAY. THIS LATTER RULING HAS BEEN ADOPTED IN THE AUTHOR'S WORK.

FREQUENTLY, FIGURE CHARTS, IF PREPARED ON 10 x 10 SHEETS,

WILL RUN OFF THE TOP OR BOTTOM, PARTICULARLY IF THE 8 1/2" X 11" SIZE IS EMPLOYED. IT WAS FOR THIS REASON THAT THE AUTHOR ADOPTED 12 x 12 ON A SHEET MEASURING 11" X 12", WITH THE RIGHT AND LEFT-HAND AND LOWER SIDE PRINTED RIGHT TO THE EDGE, SO THAT IF A CHART HAD TO BE PLACED ON MORE THAN ONE SHEET, THE SHEETS COULD BE EASILY MATCHED. CHARTS 33 AND 34 ARE REPRODUCTIONS OF THIS SHEET, WHICH HAS 126 VERTICAL, AND 204 HORIZONTAL DIVISIONS.

ONE OF THE ADVANTAGES OF THE SHEET IS THAT IT HAS NO VERTICAL LINES ACCENTUATED, AS IN THE CASE OF MANY OF THE SHEETS SOLD BY STATIONERS. (BLANK SHEETS LIKE THOSE USED AT THE AUTHOR'S LABORATORY MAY BE OBTAINED VERY REASONABLY SEE APPENDIX 2, CHAPTER II.)

Appendices 1, 2, 3 and 4 at the end of this Chapter.

Figure 1

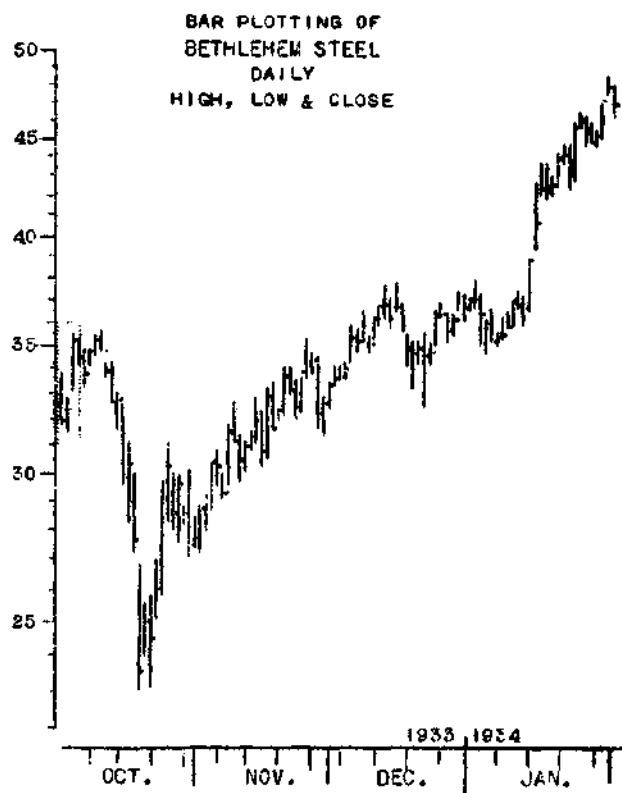


Figure 1 shows daily bar plotting of high, low and closing prices for Bethlehem Steel from October 2, 1933 to January 31, 1934. On October 2, as shown in Appendix 1, Bethlehem Steel made a high of 34, a low of 31.6 and closed at 31.7. On the grid line representing October 2, a bar was drawn from 34 to 31.6, and a horizontal tick was made at 31.7 to show the close. On October 3, Bethlehem Steel made a high of 32.6, a low of 31.4 and closed at 32.3. On the grid line representing October 3, a bar was drawn from 32.6 to 31.4 and a tick was inserted at 32.3, to show the close. When all the data in Appendix 1 were plotted in this manner, the familiar regular interval bar chart shown in Figure 1 was derived. It will be observed that with this style of plotting, the range of the price movement, no matter how large or how small, is shown for every trading day in the period under consideration.³

One-Eighth Point Figure Chart Plotting

Since sales on the New York Stock Exchange are made in minimum fractions of eighths, this fraction is the smallest figure employed in figure chart plotting. A one-eighth point figure chart is almost a graph of every sale, but not quite, for some successive sales are

³ IF, ON A GIVEN DAY, NO SALES OF BETHLEHEM STEEL HAD BEEN REPORTED, THE GRID LINE FOR THAT DAY WOULD HAVE BEEN LEFT VACANT OR MARKED WITH SOME SYMBOL INDICATING NO SALE.

made at identical figures, and under the rules of figure charting, a stock must move a specific distance, in this case one-eighth of a point or the sale is ignored.

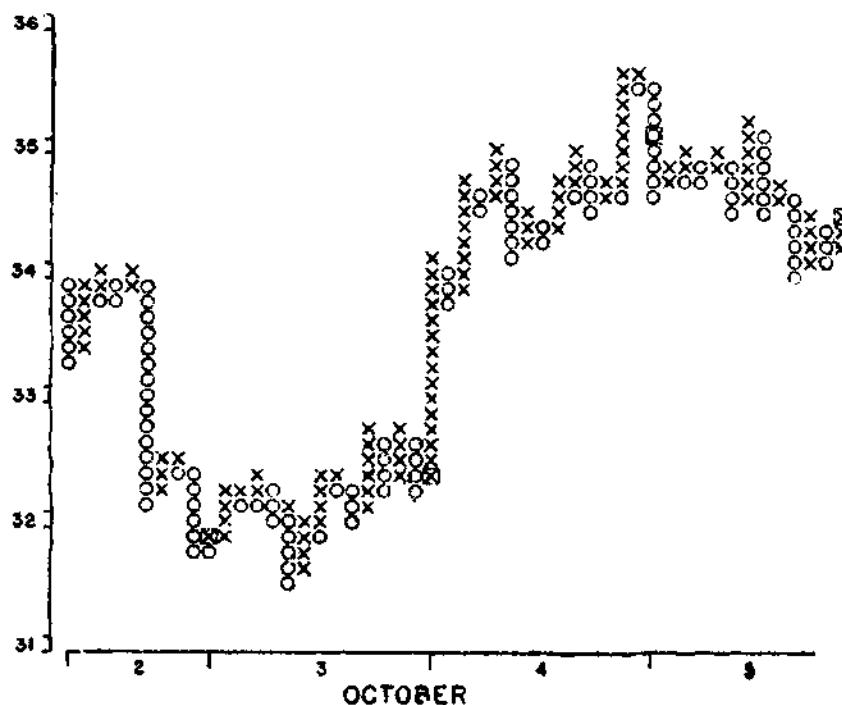
For our one-eighth-point figures we must go to the tape or to the official sheet, published by Francis Emory Fitch, Inc., 136 Pearl Street, New York City, at the close of each trading day.⁴ A transcript from this sheet, showing price and volume for every sale of Bethlehem Steel from October 2 to October 5 is shown in Columns 2 and 3 of Appendix 2. The demonstration is limited to four days because of the detail involved, and also because no good teaching purpose could be served by extending the observations further.

From Columns 2 and 3, Appendix 2, we learn that Bethlehem Steel opened with a sale of 100 shares at 33.7. To begin the plotting, we mark a zero in the square opposite 33.7, in Figure 2. (For the present, we shall employ zeros and x's as symbols indicating moves of the specified figure. When the price declines, we shall use zeros for plotting purposes, but when the price reverses and rallies, we will symbolize the fact by the use of x's. This is a simple distinction, and will help the student to follow the path taken by the price movement on the figure chart. Later on, a variety of notations used by figure chartists will be explained, but for the present we shall use the symbols noted above.)

ignored. The third sale was 100 shares at 33.2, or five figures away from the previously charted figure of 33.7. These figures are shown in Column 4 of Appendix 2. They are counted in this manner: To get to 33.2 from 33.7, it is necessary to move through 33.6, 33.5, 33.4, 33.3 and finally to 33.2. Since the price has declined five figures, zeros are marked in the same grid (Figure 2, beginning with 33.6 and ending with 33.2). While no sales were made at 33.6, 33.5, 33.4 or 33.3, the price movement traveled through these levels to reach 33.2. Hence each level in the price path is marked with a zero.

The fourth sale of Bethlehem Steel on October 2 was 100 shares at 33.4. To reach this level from the previous one at 33.2, the price movement traveled two figures, 33.3 and 33.4. These figures are entered in Column 4 of Appendix 2, and are charted with x's, indicating a rise, in grid 2 of Figure 2. Notice that a reversal of price trend has taken place, and in order to chart it, we are compelled to move to the right one space, from grid 1 to grid 2. This is a good illustration of the second distinction, made earlier in this Chapter, between regular interval bar charts and figure charts. With the former, each grid stands for a regular interval of time. In the latter case, as we have just seen, we are compelled to plot in a new grid, because a reversal has taken place.

Figure 2



The second sale of Bethlehem Steel on October 2, was 200 shares at 33.7. Since there was no change in price from the first sale, this second transaction was

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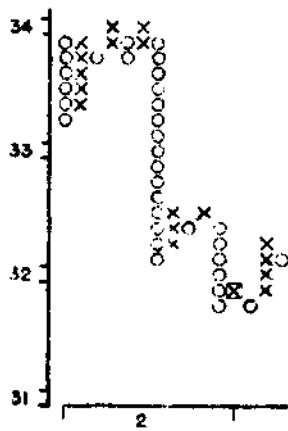
The fifth sale of Bethlehem Steel was 200 shares at 33.6. Since the last figure plotted was 33.4, this move required a further upward travel through 33.5 and to 33.6, as shown in Column 4, Appendix 2. Since the move continues up, and there are vacant spaces in this direction in grid 2 of Figure 2, x's are marked in the 33.5 and 33.6 squares.

The sixth sale was for 33.7, or one figure away from the last sale of 33.6. This figure is entered in Column 4, Appendix 2, and plotted with an x in grid 2, Figure 2. Observe that as long as the move continued up without an eighth-point reversal, the plotting was continued in grid 2.

The seventh sale was for 33.6, one figure below the previous sale of 33.7. Since a reversal has occurred, we are compelled to move to grid 3 to plot it in the 33.6 square.

The eighth sale was made at 34, reversing the price trend again, and giving us the figures 33.7 and 34, as shown in Column 4, Appendix 2. Now, when a one-figure reversal is followed by a second reversal, custom allows two methods of plotting. Either we can move over to grid 4 and mark x's in the 33.7 and 34 squares, as in Figure 3, or, since the space is available, we can continue the plotting in grid 3, as in Figure 2. Where-ever there is a reversal of one figure, this situation arises. The style followed in Figure 3 stretches out the plotting, while that followed in Figure 2 condenses it. Most figure chart readers prefer the latter style, "closed" plotting, because it is the purpose of figure charts to condense the price fluctuations. In the rest of our discussion, we will adopt the closed style as shown in Figure 2.

Figure 3



The ninth sale of Bethlehem Steel was at 33.6, hence, zeros were plotted in the 33.7 and 33.6 levels in grid 4, Figure 2. The tenth sale was made at 34, calling for x's in the 33.7 and 34 squares of grid 5, Figure 2.

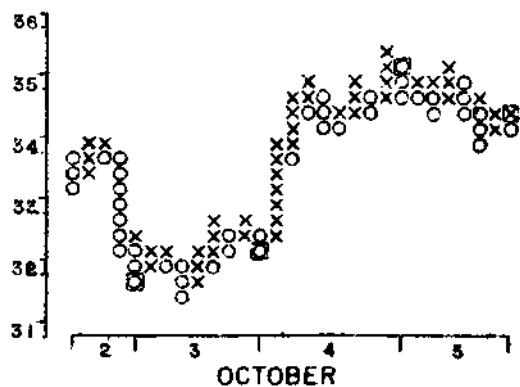
The remainder of the one-eighth point moves in Bethlehem Steel from October 2 to October 5, inclusive, were plotted according to the principles already laid down. The reader might study the data on every sale given in Columns 2 and 3, Appendix 2, and follow their plotting in Figure 2. Then, for practice, he might plot the data himself and compare it with the illustration. With a few minutes' practice of this kind, figure charting will become very simple.

One-Quarter Point Figure Charts

The fundamental principles of figure charting are laid down in the explanation of one-eighth point plotting given above. One-quarter point plotting proceeds in exactly the same manner, the only difference being the size of the figure. Now, all moves under one-quarter point, instead of one-eighth point, are disregarded.

Going back to the record of every transaction in Bethlehem Steel from October 2 to October 5, inclusive, as shown in Columns 2 and 3, Appendix 2, the first sale occurred at 33.7. The second sale was for the same price and is ignored. The third sale was for 33.2. Since the price movement traveled through 33.6, 33.4 and to 33.2, these figures are entered in Column 5 of Appendix 2 and are plotted with zeros in grid I of Figure 4. Now, of course, each square in the grid stands for quarter points, eighth-points being disregarded altogether.

Figure 4



The fourth sale was at 33.4. This is 1/4 point removed from 33.2, the last figure recorded, hence our new figure is 33.4. Since there is no space in grid 1, Figure 4, for this plotting, we move to the right to grid 2, and mark an x at the 33.4 level.

The fifth sale was at 33.6, up 1/4, hence an x, indicating a rise, is placed in the 33.6 square of grid 2, in Figure 4. The sixth sale was at 33.7, less than 1/4 point removed from the last sale, and we pay no attention to it. The seventh sale was at 33.6, which is identical with our last recorded figure, so we ignore it. The eighth sale was at 34, up 1/4 from the last recorded figure, and we mark an x on the 34 level of grid 2. The ninth sale was at 33.6, down 1/4 from the last recorded figure. This is a reversal, and we cannot plot it in grid 2, so we move over to grid 3 and mark a zero at the 33.6 level to indicate a decline. The tenth sale reverses back to 34, or 1/4 point. Now, we have two choices of plotting style. Either we move over to grid 4 and mark an x at the 34 level, on the ground that every reversal is to be given a new grid, or, having the space in grid 3, we can plot it there, as was done in Figure 4. Inasmuch as the latter form condenses the picture, it is usually preferred by figure chart students.

The eleventh sale was at 33.6, down $\frac{1}{4}$. Since we

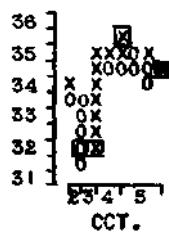
cannot plot this figure in grid 3, we must move over to grid 4, and mark a zero at the 33.6 level. The twelfth sale was at 33.6, the same price as sale number eleven, so we ignore it. The thirteenth sale was at 33.4, down 1/4. We plot a zero opposite 33.4 in grid 4. The fourteenth sale was at 33.2, down 1/4. A zero is marked at the 33.2 level in grid 4. The fifteenth sale was at 32.6, down 1/2. Now we plot the figures 33 and 32.6, since the price moved through the former and to the latter figure. And so on. The reader will do well to follow the remainder of the quarter-point plotting in Figure 4 in connection with the data given in Columns 3 and 5, Appendix 2. Then he might plot the quarter-point moves and compare his chart with Figure 4, to make sure the principle is understood.

One-Half Point Figure Charts

Half-point figure plotting follows the same rules laid down for eighth-point and quarter-point plotting, except that no price fluctuation is considered unless it moves through, or to half-point levels. Half-point figures on Bethlehem Steel from October 2 to 5, inclusive, are listed in Column 6, Appendix 2.

The first and second sales of this stock on October 2 were at 33.7. The third was at 33.2. Since the price movement traveled through 33.4, this figure is noted in Column 6, Appendix 2, and is plotted with a zero, indicating a decline, in grid 1, Figure 5. Now, it will be observed, each square on the grid stands for a half-point, instead of an eighth or a quarter. Sales were made successively at 33.4, 33.6, 33.7, 33.6 and 34. We ignore all but the one made at 34, but in plotting this figure, the problem again arises as to whether we should move to a new grid for every reversal, or plot one-point reversals in the same grid wherever possible. We choose the latter course and in Figure 5, we insert an x at 34, above the zero previously set down at 33.4.

Figure 5



Sales were next made at 33.6, 34, 33.6, 33.6 and 33.4. Since four of these transactions did not vary by one-half point from the previous figure of 34, we ignore all but the sale at 33.4. This is a reversal which cannot be plotted in grid 1, hence we move to grid 2 and insert a zero, indicating a decline, at the 33.4 level. Sales follow at 33.2 and 32.6. The prime movement, having passed through 33, one-half point away from the last recorded figure, we plot a zero at the 33 level in grid 2, Figure 5. The price continues down, 32.5, 32.4, giving us a one-half point figure at 32.4, and so on.

As with the eighth and quarter-point plotting, the reader might examine the original data and the one-half point moves given in Columns 3 and 6, in Appendix 2, then observe their plotting in Figure 5, and finally plot the one-half point moves to test his or her understanding of the principle.

One-Point Figure Charts

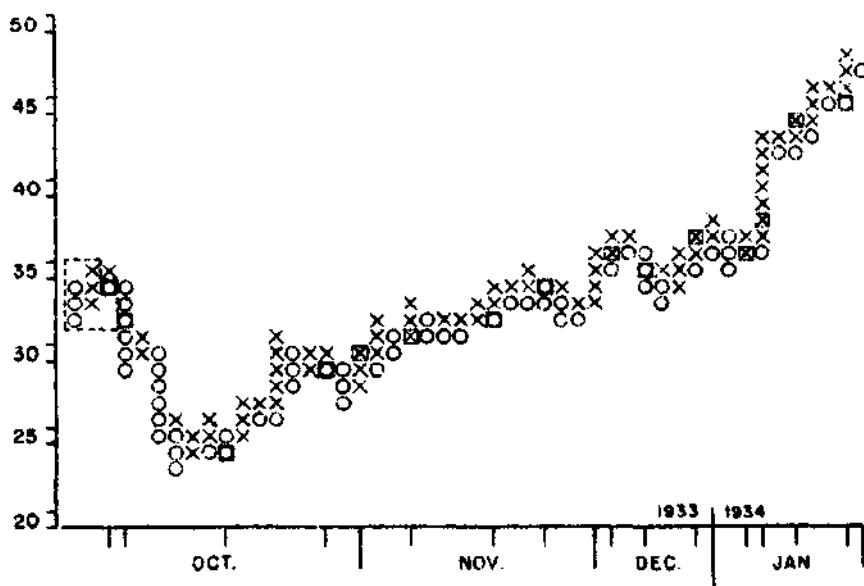
With one-point figure charting, as with fractional figures, the plotting is the same, except for the size of the fluctuations ignored. In making one-point charts, no attention is paid to any price movement that fails to pass through or to the level of a whole number. One-point moves for Bethlehem Steel, from October 2 to 5, inclusive, are shown in Column 7, Appendix 2. The opening sale for this stock was made at 33.7. Thereafter, sales were made in succession at 33.7, 33.2, 33.4, 33.6, 33.7, 33.6 and 34. The last sale, having struck a whole number, the figure 34 is set down in Column 7, Appendix 2, and a zero, indicating a decline, is inserted in grid 1, Figure 6, at the 34 level.

Sales were then ticked off at 33.6, 34, 33.6, 33.6, 33.4, 33.2, 32.6. Since 33 was penetrated by the last sale, the figure 33 is plotted in grid 1, with a zero. A number of sales followed at 32 and a fraction, and finally a sale of 100 shares came out on the tape at 32, giving us another full figure which is plotted with a zero symbol, at the 32 level in grid 1, Figure 6.

Following along Column 7, Appendix 2, the price movement reversed and went to 33, 34 and 35. There is no space in grid 1 to plot these figures, hence we move over to grid 2 and place x's, indicating a rise, at the 33, 34 and 35 levels. After a number of sales, the price of Bethlehem Steel reversed and declined to 34. In order to plot this figure at the 34 level, we are compelled to move to grid 3, Figure 6, where we mark a zero, indicating a decline.

Having now exhausted the one-point moves in Bethlehem Steel, tabulated in Column 7, Appendix 2, we may turn to Column 2, Appendix 4 for a continuation of the list throughout the period October 2, 1933 to January 31, 1934. These figures were made up from the Fitch sheet precisely as illustrated in Appendix 2. In Column 2, Appendix 4, we find that after making the figure 34 on October 5, the next figure at 35 was reached on October 9. This constituted a one-point reversal, and again raises the question of which plotting style to follow. If we wish to stretch out the picture, we can place an x, indicating a rise, at the 35 level in grid 4. On the other hand, if we wish to condense the graph, as most figure chart students do, we mark the x at 35 in grid 3, above the zero at 34 in the same grid, as in Figure 6.

On October 11, the price movement reversed again to 34, and in succeeding days declined to 29. Zeros were plotted down to this figure in grid 4, Figure 6, to picture the movement. The remainder of the data were plotted in the same manner. For practice, the reader might plot the one-point moves printed in Column 2, Appendix 4, then compare his graph with Figure 6.

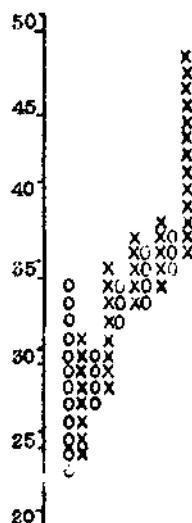
Figure 6

Three-Point Figure Charts

Three-point figure charting is slightly different from one-point charting. Now all movements under three points are ignored, but the three-point figure is not regarded as a unit by itself, for the plotting continues in units of one-point. If the figure chart principle heretofore explained were carried through to the three-point figure, then each square on the grid would represent three points and a figure would be plotted whenever the price movement crossed the 3, 6, 9, 12...30, 33...69, 72, etc., levels. But custom (first publicly suggested by "Hoyle") decrees a different system for plotting three-point charts.

In Bethlehem Steel, for example, the first one-point figure made on October 2 was 34, as shown in Column 2, Appendix 4. A zero is plotted at the 34 level in grid 1, Figure 7, to serve as a beginning point. Now no price change will be recognized unless it goes to or through a figure three points away from 34. This would require a minimum move to 37 on the upside or 31 on the downside. In terms of one-point figures as tabulated in Column 2, Appendix 4, the price movement ran 33, 32, 33, 34, 35, 34, 35, 34, 33, 32 and finally on October 16, it reached 30. Since this figure is more than three full points away from 34, the figure with which we began, we enter the figure 31 in Column 3, Appendix 4, and plot zeros in the 33, 32, 31 and 30 squares in grid 1, Figure 7.

If the movement continues to go down we shall plot each new one-point figure as it is made. But if a rally occurs, we will pay no attention to it unless it moves three points up from 30, the last figure plotted. The price of Bethlehem Steel went to 29, then rallied to 31 on October 17. We place a zero in the 29 square in grid 1, Figure 7, but ignore the 30 and 31 figures because they are not three full points away from 29, the last figure plotted. On October 18, Bethlehem Steel declined to a new low of 28, and we mark a zero at this level in grid 1. On the next day, the stock

Figure 7

declined to 23, so we insert zeros in the 27, 26, 25, 24 and 23 squares in grid 1. On the next day, Bethlehem Steel fluctuated at the 24-25 levels, but on October 21, it reached 26. Since this represented a reversal of three points, we move over to grid 2, Figure 7, and insert x's in the squares opposite 24, 25 and 26. Now if the stock continues to rally, we will plot each new one-point figure as it is made, but we will pay no attention to a decline until it reaches a figure 3 points away from the last figure plotted.

It will be recalled that with one point and fraction of a point figure charting, a one figure reversal followed by a second reversal could be plotted in the same grid. This circumstance can never arise with three-point figure plotting, because no attention is paid to any reversal under three points. It may be laid down as a rule, therefore, that whenever the figure is greater than one point, every reversal requires a new grid for its plotting.

On October 23 Bethlehem Steel reached a new high of 27 as the move from 23 so we plot an x in the square opposite 27 in grid 2. October 24 furnished us the figures 28 and 29, and October 25, the figures 30 and 31. Since this is a continuation of the same up-move we plot these figures in grid 2. On October 26 Bethlehem dropped back to 28. Now we have a three-point reversal, hence we move over to grid 3 and insert zeros, indicating a decline, in the squares at the 30, 29 and 28 levels. With this explanation of three-point figure charting, the reader can now continue the examination of the data in Columns 2 and 3, Appendix 4, and the plotting in Figure 7, then try his hand independently with the same data.

Five-Point Figure Charts

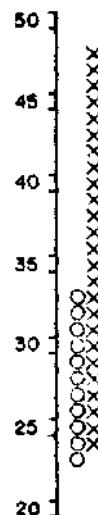
Five-point figure charting is exactly the same as three-point plotting except that no price change is considered unless it is five points away from the last plotted figure.

Continuing the demonstration in terms of Bethlehem Steel, the first one-point figure made by this stock on October 2 was 34. We plot a zero in the 34 square of grid 1, Figure 8, to serve as a beginning point. Now we will not make another entry until the price touches 39 on the up side or 29 on the down side, five figures away from the last recorded figure at 34. During the first two weeks in October, Bethlehem fluctuated in a downward course, making 29 on October 17. The move having run through five figures from 34, we enter the figure 29 in Column 4, Appendix 4, and plot zeros in grid 1, Figure 8, on the squares opposite 33, 32, 31, 30 and 29. On October 18 Bethlehem declined to 28. Since this is a new low for the move from 34, we plot a zero in grid 1 at the 28 level. On October 19 the stock continued the down move to 23, and zeros are plotted in grid 1 at the 27, 26, 25, 24 and 23 levels. From this point on, Bethlehem continued to rally with one, two, three and four, but no five, point setbacks until January 31, 1934, the end of our demonstration period, by which time it had reached the 48 level. This move, therefore, is plotted with x's in grid 2, Figure 8, as each new high is made from 28 to 48.⁵

Other Figures Not Needed

The reader has now seen the method employed in plotting 1/8, 1/4, 1/2, 1, 3 and 5-point figure charts. These are the figures which have been found to be the most convenient in stock market work. There is nothing sacred about them, however, and if the reader

Figure 8



can see any advantage in other figures, such as 3/8, 5/8, 3/4, 7/8, 1 1/8, 2, 4, 10, etc., he can plot them by the same principles laid down above. He will probably not go far with this work until he realizes that the customary list is adequate for all figure chart needs. Klein suggested making 2-point figure charts, giving emphasis to the odd figure such as 31, 33, 35, etc.

Size of Figure Governs Degree of Graphic Condensation

The size of the figure, as we have seen, determines the price fluctuations which are ignored, and, by the same token, the amount of detail shown on the figure chart. This principle can be summarized effectively by taking a stock which has made a figure of, say, 50, and measuring the deviations plus and minus from this level which would be ignored by figures of various sizes. Table 1 shows such a tabulation.

From this table it can be seen that 1/8-point charts ignore only successive sales made *at the same price level*. One-quarter-point charts allow a range of 1/8 point both plus and minus from the last recorded figure, or 1/4 point over all. If, in our example above, the sales after the first 50 were 50.1, 50.2, the 1/4-point chart would ignore the transaction made at 50, the same price level, and also the sale made at 50.1, which is 1/8 point from the last recorded figure. Only when the 50.2 level was reached would a new figure be made. If the sales had run 50, 50, 50.1, 50, 49.7, however, the price would have fluctuated over a range of 1/4 point, from 50.1 to 49.7 without making a new figure. The 1/2 point figure, according to Table 1 allows a leeway of 3/8 of one point in either direction, or an over-all range of 3/4 of one point before a new figure is made. The one-point figure permits a fluctuation of 7/8 of one point in either direction before a new figure is recorded, or 1 3/4 points if the price movement runs to one extreme limit, then reverses to the other. The three-point figure allows a plus or minus range of 2 7/8 points and a maximum range of

⁵ THE PRINCIPLE OF PLOTTING 3 AND 5-POINT CHARTS TO THE LAST CAN, OF COURSE, BE APPLIED TO FIGURES OF ANY SIZE. FOR EXAMPLE, JUST AS THREE-POINT FIGURES ARE PLOTTED TO THE LAST ONE-POINT FIGURE OF THE MOVE, AND REVERSALS OF THREE POINTS ARE MEASURED FROM THIS LAST ONE-POINT FIGURE, SO CAN A ONE-POINT CHART BE PLOTTED TO THE LAST EIGHTH POINT OF THE MOVE AND REVERSALS OF ONE POINT BE MEASURED FROM THE LAST EIGHTH POINT. IT WOULD SEEM THAT THE WORK INVOLVED WOULD NOT PRODUCE A PICTURE WORTH THE EFFORT.

Table 1
Limits to Which Stock Can
Fluctuate Without Making
New Figure. Last Figure 50.

Size of Figure	50	Plus Range	Minus Range	Over-all Range
1/8	49 7/8 to 50 1/8	none	none	none
1/4	49 5/8 to 50 3/8	1/8	1/8	1/4
1/2	49 1/8 to 50 7/8	3/8	3/8	3/4
1	47 1/8 to 52 7/8	7/8	7/8	1 3/4
3	45 1/8 to 54 7/8	2 7/8	2 7/8	5 3/4
5		4 7/8	4 7/8	9 3/4

5 3/4 points. The five-point figure permits a plus or minus fluctuation of 4 7/8 points without making a new figure, or a maximum movement of 9 3/4 points.

How the variously sized figures condense the picture of the price movement is shown in Figures 2 to 8. To plot one-eighth point moves in Bethlehem Steel for four days from October 2 to 5, inclusive, required 50 grids (Figure 2).⁸ For the same stock over the same period of time, one-quarter point plottings required 29 grids (Figure 4);⁸ one-half point plottings used 8 grids (Figure 5),⁶ and one-point charting employed only 3 grids (portion within dotted lines of Figure 6).⁸ A one-point graph of Bethlehem Steel from October 2, 1933 to January 31, 1934 required 48 grids, as shown in Figure 6,⁹ but, when pictured in terms of three-point moves in Figure 7, employed only 10 grids, and when further condensed to five-point moves, as in Figure 8, required only 2 grids.

As the size of the figure is decreased, therefore, the detail of the price movement graphically portrayed is increased, and, conversely, as the size of the figure is increased, the detail pictured is decreased. The price level at which a stock is selling and the volatility of its fluctuations also control the detail shown in the figure, but discussion of these factors will be deferred until later in the Chapter.

One-Half and One Point Charts Used Most

For practical market work one-half point and one-point charts have been found to be the most universally serviceable, hence in starting a figure chart portfolio, the reader should begin with charts of this type. In addition to these, many students keep a second series of three-point graphs on all stocks in which they are interested, in order to secure a more condensed view of the price movement. When signals appear on both one and three-point charts, the intermediate trend trader feels more confident in making commitments than if he acts upon signals observed in the one-point charts alone. Some long pull investors even keep a third set of five-point charts and require corroboration on all three sets before executing orders, but this third set increases the complexity of the analysis and also the labor, and most followers of the figure chart find that they do very well with one and three-point

charts at the most.

Fractional figures are used for graphing low-priced stocks, for making intensive studies of stocks selling at higher levels, and for studying the minor trend. One-point figures, it will be recalled, ignore fluctuations up to 7/8 of one point plus or minus (a range of 1 3/4 points) from the last figure recorded. With a high-priced stock these fluctuations may be of little significance, but as we go down in the scale they become increasingly important. A move of 7/8 of one point, for example, is .875 per cent of a stock selling at 100, 1.75 per cent of a stock selling at 50, 8.75 per cent of a stock selling at 10 and 17.5 per cent of a stock selling at 5. Obviously, therefore, a one-point chart would be more valuable on the first two stocks than on the last two, since, in the latter cases, moves of real significance are obliterated by the size of the figure. *This is one of the disadvantages of the figure chart; it applies the same figure to different price levels, notwithstanding the fact that the significance of the figure shifts with each change of the price level.* One partial answer to this difficulty is to change the figure at various price levels, but in doing this the continuity of the chart is broken. This cannot be avoided, however, for *it is useless to keep figure charts if the figure is set so high as to eliminate the significant fluctuations in the stock.*

The Gartley Data Service, which supplies data for 1/4, 1/2 and one-point figure charts,⁷ follows the arbitrary rule of publishing one-point changes on stocks selling over \$25, one-half point changes on stocks selling for \$8, but less than \$25, and 1/4-point changes on those issues priced under \$8. The change from one figure to another is not made automatically when a stock enters a new price classification, but only after it gives evidence of being pointed higher or lower for reasonably long periods.

The reader will find that in changing over from one figure to a larger or smaller one, the new figure should be carried back for several weeks, or months if necessary, in order to provide the proper background for interpretation. When the change is from a smaller to a larger figure, the larger figures can be readily compiled from the smaller figures, but when the change is from a larger to a smaller figure, the back tabulations of the new figure must be compiled from the official Fitch sheet. If a series of 1/4-point figures read 33.2, 33.4, 34, 33.6, it is easy to see that 1/2-point

THIS CALCULATION IS FOR "CLOSED STYLE" PLOTTING WHERE A REVERSAL OF ONE UNIT (1/8, 1/4, 1/2, 1 POINT) IS NOT PLOTTED IN A NEW GRID IF THERE IS SPACE FOR IT IN THE OLD GRID.

SEE APPENDIX I, CHAPTER II, SECTION 14, LAST COLUMN.

figures for the same price movement would be 33.4, 34. But given the half-point moves of 33.4, 34, it is not possible to tabulate the quarter-point moves noted above.

As indicated previously, fractional figures are useful at all price levels for intensive studies of pool operations or the minor trend. The work is laborious, however, as shown in the eighth-point plotting in Figure 2, and the reader would be swamped if he undertook very many of these intensive studies.

Scales Used on Figure Charts

Until recent years, arithmetic scales (see Chapter II) have been used on both horizontal and vertical axes for plotting stock market phenomena. With the development of technical study, however, advanced students have retained the arithmetic scale on the horizontal axis, but have tended to discard it on the vertical axis and substitute the logarithmic or ratio scale for line and regular interval bar plotting in order to picture the percentage rise or fall of stock prices. Since the speculator is interested in percentage increase or decrease of capital, the ratio scale, they argue (the author included), gives them the proper view of the price movement.

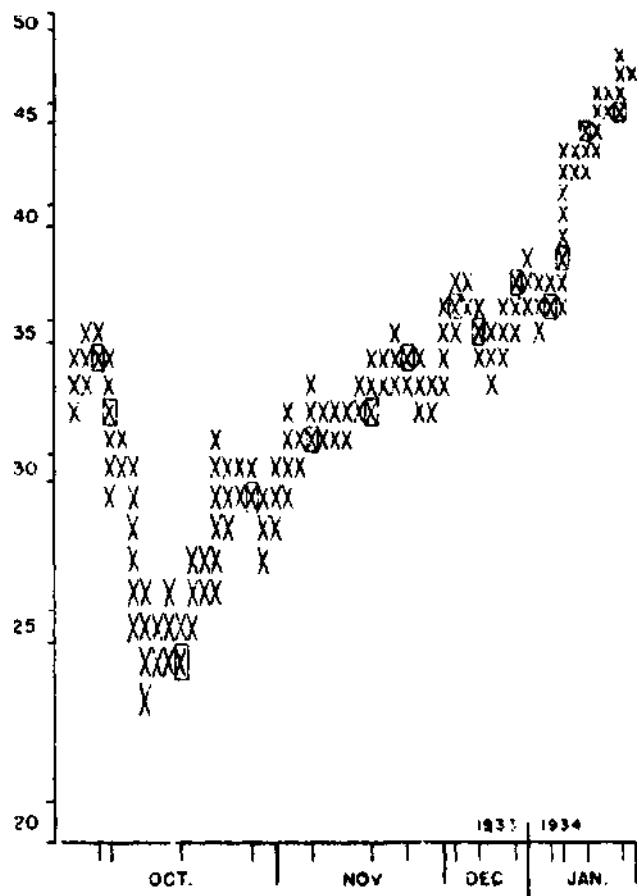
With figure charting, however, the ratio scale has made no headway, and technical students continue to use arithmetic charts for this type of work. The principal reason is a mechanical one, it being more difficult to plot figures on an unequally spaced logarithmic grid than on an equally spaced arithmetic grid. Whether or not this difficulty will permanently rule out the ratio scale for figure chart work is a matter for the future to decide.

Figure 9 shows a one-point figure chart of Bethlehem Steel from October 2, 1933 to January 31, 1934, plotted with the price scale logarithmic; it makes an interesting comparison with Figure 6 above.

Sources of Figure Chart Data

The original source for figure chart data, as with all other stock market data, is the ticker during market hours or the official sheet published at the end of each trading day by Francis Emory Fitch & Co. While the newspapers print open, high, low and closing prices, which are used in regular interval line or bar plotting, they do not publish figures necessary for figure chart work. These must be compiled from the tape or the Fitch sheet by the trader himself, or be obtained from a special service organization which compiles these data. "Gartley's Stock Market Data", published daily by H.M. Gartley, Inc., 76 William Street, New York,* furnishes comprehensive figure chart data on 230 stocks. One-point figures are printed for stocks selling for \$25 or more, 1/2-point figures for stocks selling for \$8 but less than \$25, and 1/4-point figures for shares priced under \$8. In addition to figure chart data, "Gartley's Stock Market Data" prints for 230 stocks

Figure 9



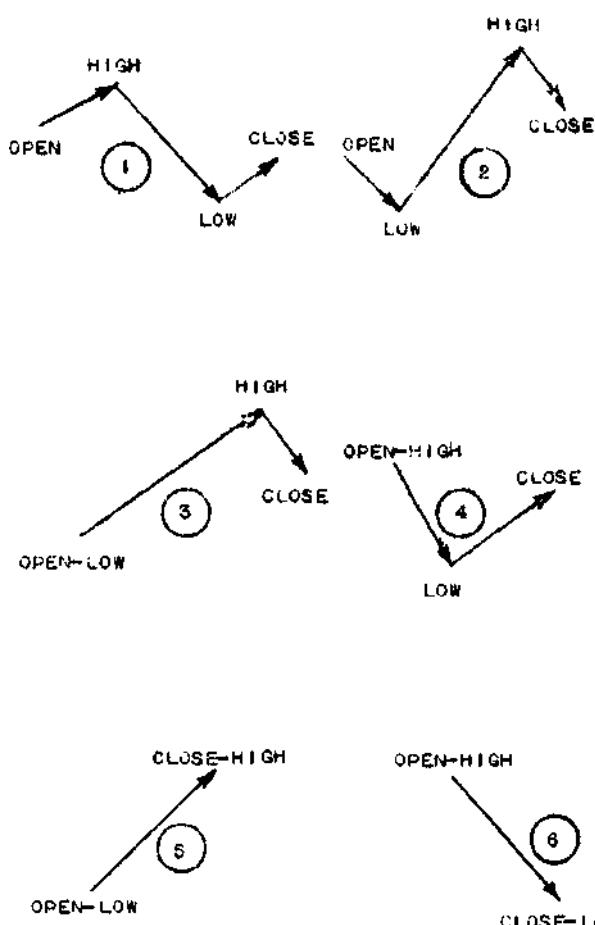
and the leading averages, all other data needed by the technical student. This service is the outgrowth of demands made upon the author's organization by the many persons who have attended the author's lectures. Constant requests were received to furnish all essential information with which to study the technical side of the stock market.

Figure Chart Data From Newspapers

The widespread publication of open, high, low and closing prices in metropolitan newspapers leads students continually to raise the question: Cannot figure chart data be compiled from these tabulations without subscribing to the Fitch sheet or to a special service publication? The answer is, Yes and no. *Where the size of the figure is large relative to the fluctuations in the price of the stock, figures can be computed successfully from newspaper data, but where the size of the figure is small relative to the fluctuations in the price of the stock, figure chart data cannot be abstracted from newspaper tabulations.* An example will make this point clear.

In Appendix 1 open, high, low and closing prices are printed for Bethlehem Steel for the period October 2, 1933 to January 31, 1934. From examination of the Fitch sheet we know what the fractional figures on this stock are for the four days, October 2 to 5 inclusive, and also we know the authentic 1, 3 and 5-point

* SEE SAMPLE COPY AND RATES, APPENDIX I, CHAPTER II.

Figure 10**Figure 11**

figures for the whole period under consideration (see Appendices 2 and 4). Let us attempt to derive these figures from the newspaper data reproduced in Appendix 1.

On October 2 Bethlehem Steel opened at 33.7, made a high of 34, a low of 31.6 and closed at 31.7. Without consulting the Fitch sheet we cannot be sure what path the price movement described. After the open it may have dropped down to the 33 level, then rallied to around 34, declined to the 32 level, rallied to around 33, then declined again to 31.6 for a close of 31.7. Or it may have declined from the open directly to 31.6, then rallied to 34, then declined again to close at 31.7. Or, for all we know, it may have followed any one of a number of other courses. Suppose we take the simplest theory possible and say that the stock opened at 33.7, rallied to its high of 34, declined to its low of 31.6 and rallied to close at 31.7. On this basis our

eighth, quarter, half and one-point figures for October 2 would be those listed in Columns 2-5, Appendix 3. The eighth point figures would read 33.7 (open), 34 (high), 33.7, 33.6, 33.5, etc., down to 31.6 (low) and 31.7 (close). The quarter-point figures, following the same price path, would read 34, 33.6, 33.4, 33.2, 33, 32.6, 32.4, 32.2, 32 and 31.6. The half-point figures would be 34, 33.4, 33, 32.4, 32 and the one-point figures, 34, 33, 32. Measured from the 34 level, no 3 or 5-point changes occurred during the day.

Comparing the figures tabulated from the newspaper with the authentic ones compiled from the Fitch sheet (Appendix 2), we find that about one-half the eighth and quarter-point figures are missing in the newspaper tabulation. The reason, of course, is that the size of the figure is small relative to the fluctuations of the stock. On the half-point figures we missed only one, and on the one-point figure our score was perfect. In these cases the size of the figure was large relative to the fluctuations of the stock.

In Appendix 3, 1/8, 1/4, 1/2 and one-point figures on Bethlehem Steel have been worked out from newspaper data for all four days, October 2 to 5, inclusive, and in Appendix 4 the experiment has been carried on for 1, 3 and 5-point figures for the whole period dealt with in the demonstration October 2, 1933 to January 31, 1934.

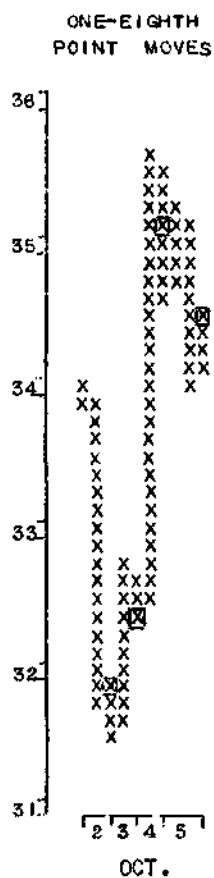
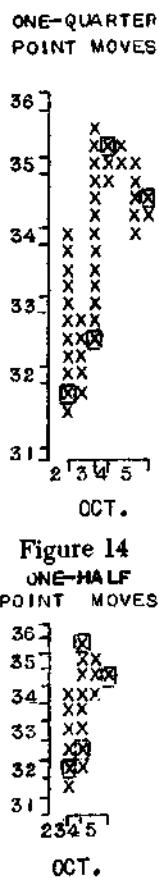
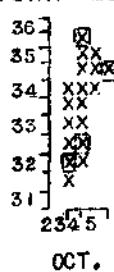
In compiling these figures from newspaper data the assumption was made that the price path for each day followed one of six theoretical patterns, such as shown in Figure 10.

1. If the open was closer to the high than the low,

it was assumed that the course of prices was open, high, low and close.

2. If the open was nearer the low than the high, the assumption was made that the price pattern was open, low, high and close.
3. If the open was also the low, the pattern was open-low, high and close.
4. If the open was also the high, the pattern was assumed to be open-high, low and close.
5. If the open was at the low for the day and the close at the high for the day, the pattern accepted was open-low, close-high.
6. If the open was at the high for the day and the close was at the low, the pattern was assumed to open-high, close-low.

Now, if there were many intra-day fluctuations, the price movement might have followed any one of a

Figure 12**Figure 13****Figure 14**
ONE-HALF POINT MOVES

number of other patterns. Three such possibilities are illustrated in Figure 11 and several pages might be filled with diagrams of other patterns. But the newspaper data with which we are working give us a maximum of only four known points with which to draw the day's price pattern, and we have no choice but to assume a straight course from point to point without intervening reversals. This limits us to the six price patterns first outlined.

The graphs resulting from the newspaper tabulations comprise Figures 12 to 15, inclusive. These may be compared with Figures 2, 4, 5 and 6, which picture the authentic price movement as reported in the Fitch sheet. The 1/8 and 1/4 point graphs from newspaper data (Figures 12 and 13) bear little resemblance to the authentic graphs from the Fitch sheets (Figures 2 and 4), because so many figures have been left out. The 1/2-point newspaper graph (Figure 14) is more nearly like its official prototype (Figure 5), but still missing figures distort the picture. With these fractional figures the size of the figure is small relative to the fluctuations that occurred in the stock, hence their tabulation from newspaper data is not a success.

The one-point newspaper graph (Figure 15) for the whole period October 2, 1933 to January 31, 1934, is a fairly good reproduction of the official graph plotted with data from the Fitch sheets (Figure 6). A few figures, of course, are left out. On October 19, for example (see Appendix 1 and Appendix 4, Column 5),

Bethlehem Steel opened high at 26.6, from a previous close at 27.5, then declined sharply to a low of 23 and closed at 23.4. The official figures for the day were 27, 26, 25, 26, 25, 24 and 23. The newspaper tabulation, assuming a "bee line" course from high to low (6, Figure 10), produced the figures 27, 26, 25, 24 and 23, thus leaving out the intra-day reversal from 25 to 26. The reader can find similar omissions in Appendix 3.

The three and five-point charts made up from figures tabulated from newspaper data are exact reproductions of the authentic graphs (Figures 7 and 8) plotted with data from the Fitch sheet, and thus have not been repeated.

With Bethlehem Steel then, during the period October 2, 1933 to January 31, 1934, three and five-point figures compiled from newspaper data were authentic, one-point figures similarly tabulated, were fairly authentic, but fractional figures were spotty and unreliable.

In terms of the rule governing this matter, the three and five-point, and to a lesser extent the one-point, figures were large relative to the fluctuations of Bethlehem Steel, hence tabulations could be satisfactorily made from open, high, low and last quotations. The 1/8, 1/4 and 1/2-point figures, on the other hand, were small relative to the fluctuations of the stock, hence they could not be satisfactorily compiled from newspaper data.

This experiment has been carried through on but one stock selling in the 20 to 40 price range. In lower price ranges the figures compiled from newspaper data are likely to be more accurate, while in higher price ranges they are likely to be less accurate.

In general, then, we may say that:

When the size of the figure is small compared with the fluctuations in the stock, figures cannot be compiled successfully from open, high and closing quotations printed in newspapers. On the other hand, when the figure is large relative to the fluctuations in the stock, tabulation can be made successfully from newspaper data.

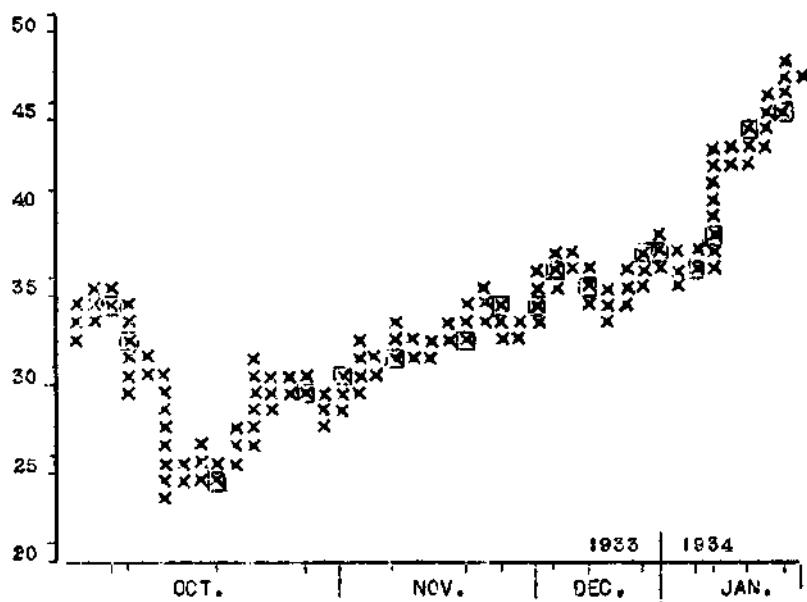
Three and five-point figures so compiled are usually authentic, and likewise, one-point figures on very low-priced stocks. But the procedure is unsatisfactory for fraction figures and one-point moves on high-priced stocks. For one-point moves on medium-priced stocks the results are uncertain, to say the least.

Since the value of figure charts lies largely in the faithfulness with which they picture moves of a pre-determined size, and since many of these moves go un-reported when figures are made up from newspaper data, this method should not be used unless it is impossible to procure authentic figures compiled from the tape or the Fitch sheet, or from a reliable service.

Figures on the Averages

The foregoing discussion of tabulating figures from newspaper data raises the problem of how figures are compiled for the averages. For individual stocks figures are tabulated from the record of every sale as reported on the tape or the Fitch sheet. For the aver-

Figure 15



ages, however, there is no such record, the base data being either (a) quotations of all the units in the average taken simultaneously at regular intervals of time, or (b) quotations of the sum of all units at their individual openings, highs, lows and closings.

In the case of averages computed at regular intervals, figures are made up at the end of each interval as if prices have moved in a straight line without reversals from the level previously reported. On October 16, 1935, for example, the simultaneous price of 15 stocks included in the sensitive index computed by the author and the one-point figures registered by the index were as follows:

Time	Quotation	One-Point Moves
10:00	709.2	709
10:20	704.2	708, 07, 06, 05
10:40	711.2	706, 07, 08, 09, 10, 11
11:00	714.4	712, 13, 14
11:20	711.6	713, 12
11:40	711.5	
12:00	714.1	713, 14
12:20	715.7	715
12:40	714.6	
1:00	714.5	
1:20	713.4	714
1:40	714.0	
2:00	712.6	713
2:20	706.1	712, 11, 10, 09, 08, 07
2:40	706.3	
3:00	706.1	

It should be noted that the 15-stock sensitive index is an aggregate rather than an average; hence the one-point moves represent a change of one dollar in the total price of the 15 stocks, or an average change of approximately 6.67 cents (approximately 1/15 of a point) in each issue included in the index. It is thus an extremely sensitive indicator of the price movement. The

procedure for compiling the one-point moves for the 15-stock sensitive aggregate, or for any other average compiled at regular intervals such as the Dow Jones hourly, is identical with that used in tabulating figures for an individual stock from the Fitch sheet.

In the case of averages for which open, high, low and closing quotations are reported, the method of compiling figures is the same as that used on newspaper data. In Appendix 5 are printed the open, high, low and closing prices on the Dow Jones Industrials from October 2, 1933 to January 31, 1934, and the one-point moves made up from these quotations. On October 2, 1933, for example, the opening price for the average was 94.46, the high was 95.32, the low 92.69, and the close 92.99. Since the open was nearer to the high than the low, we assume that the course of prices was open, high, low and close; hence the resulting figures for the day were 94, 95, 94, 93. Figures for the succeeding days were made up in the same manner, using the theoretical price patterns outlined in Figure 10.

Figure 16 shows a graph of the resulting one-point moves.

This procedure is, of course, purely an arbitrary one, because actually, groups of stocks do not always move compactly as a unit. With the Dow Jones Industrials on October 2, 1933, for example, we assumed that the group moved from 94 to 95, then back through 94 to 93. Let us look at the hourly tabulations of this average in Appendix 6, and see if this price path is corroborated there. In general it is, but where the hourly made a high of 94.89 at one p.m., the high for the average, taking each component stock at its high regardless of the time when it reached that level, was 95.32. Thus, on the hourly basis, the Dow Jones Industrials made but two figures, 94 and 93, but using open, high, low and closing, the quotations on the arbitrary assumption that the stocks composing the average moved as a unit, the figures for the day are 94, 95, 94

and 93.

In Figure 17, one-point moves for the Dow Jones

compiling figures for these averages, the newspaper procedure outlined above must be employed. In the

Figure 16

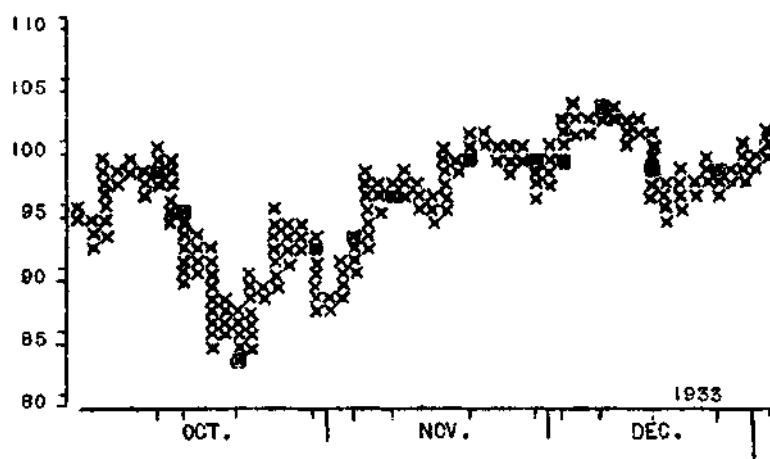
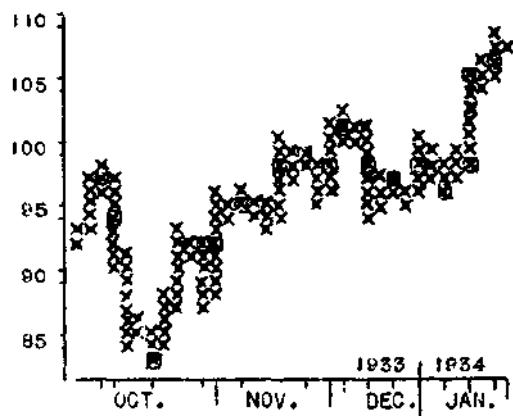


Figure 17



hourly average of 30 Industrials, for the period October 2, 1933 to January 31, 1934, are plotted. When compared with Figure 16 showing one-point moves on the same average for the same period of time, but compiled from open, high, low and closing quotations, it will be seen that Figure 16 shows considerably more movement than Figure 17, the hourly average condensing, and the open, high, low and last quotations expanding the picture.

The reason, of course, is that not all stocks make their high or low for the day at the same time, thus pulling the hourly toward the average rather than toward the extreme high or low. Another reason is that extreme high and low prices may be made between hours rather than at the hour when the Dow Jones hourly is computed.

The Dow Jones Industrial, Rail and Utility averages are computed hourly and also for the open, high, low and close. Two sets of figure charts can be kept on these averages. The author is unable to say if one set has any advantage over the other.

The averages of Standard Statistics, the New York Times, the Herald-Tribune, the New York Sun, the New York News Bureau, the Associated Press and *The Annalist* are all compiled for high, low and last. In

absence of an opening quotation, the closing price of the previous day can be used to represent the opening. The Hamershlag-Borg average is based on daily closings; hence figures for this average can be compiled from close to close. The same holds for the monthly average computed by the New York Stock Exchange.

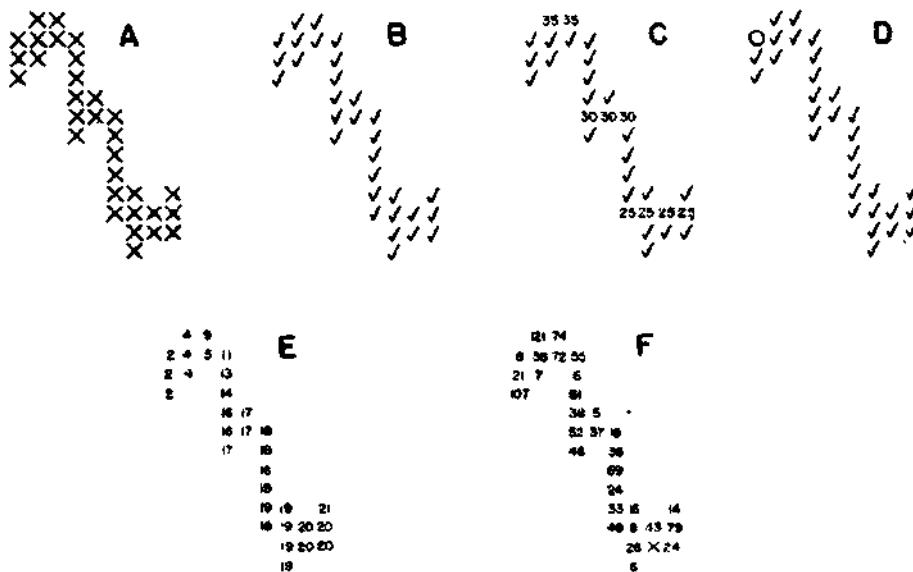
Plotting Styles for Figure Charts

In Figures 2 to 8, demonstrating the construction of figure charts, the symbol zero has been used to indicate figures on the decline and the symbol x to stand for figures on the advance. This was done in order to enable the beginning reader to follow the course of prices more easily. While some students prefer this style, any symbols that are found convenient may be employed. The various symbols in common use among figure chart students are shown in Figure 18. The data plotted in these illustrations are one-point figures on Bethlehem Steel from October 2-21, 1933.

In Figure 18-A, a small x is employed to indicate one-point figures. In Figure 18-B, the figure is designated by a small check mark, which is also on other charts which accompany this Chapter. These are very commonly used styles. In Figure 18-C, the check mark (or the x) has been replaced at the ten's and five's levels by figures standing for the price at these levels. Thus the number 30 was plotted instead of a check mark each time the stock made this figure. This is a very helpful device since it enables the student to know the price level quickly without being compelled to refer back to the price scale, which is usually at some distance from the immediate point of plotting.

Figures 18-D and 18-E are designed to introduce the time element on figure charts. On regular interval line and bar charts each plotting stands for an hour, a day, or some other interval of time; hence, on these charts, it is very easy to identify the calendar dates of any particular pattern, or the elapsed time consumed in formation of the pattern. Also, it is possible to superimpose one chart on another for comparison of

Figure 18



movement. On a figure chart, however, regular intervals of time are disregarded, each grid standing for movement of a given size in a reverse direction. When stocks are moving continuously in one direction without reversal of the required size, the plotting continues in the same vertical grid no matter how much time is consumed by the movement. Again, when stocks are inactive and fail to move the distance specified in the figure, no plotting is made, and one or two grids may suffice for a week or a month or more of trading.

Because of this disregard for regular intervals of time, it will always be impossible on figure charts to compare the movement of one stock with that of another by superimposition over a light table. To identify movement with reference to calendar time, however, it is only necessary to use time notations in plotting figures. In Figure 18-D the initial of the month is plotted on the first day instead of the x or check mark (the o stands for the beginning of October). This makes it possible to identify the month in which the plotting takes place. Figure 18-E carries this one step further by using the date of the month as the symbol instead of the x or check mark, and writing the name of the month below the plotting. Thus, in Figure 18-E, we read that Bethlehem Steel made the figures 34, 33 and 32 on October 2, 1933. On October 4, it registered 33, 34, 35 and so on. While this style is more laborious to plot, it has much to recommend it, because it shows at a glance the elapsed time spent at resistance points or at trend lines.

Interpretation of Figure Charts

We have now learned how to construct figure charts and have become familiar with the various styles employed in plotting them. Let us next inquire into their interpretation in terms of the working tools outlined in this course. This will involve a discussion of the following topics:

1. Supply and Demand Areas
2. Tops and Bottoms
3. Triangles
4. Trend Lines
5. Dow Theory
6. Volume
7. Comparative Studies.

Supply and Demand Areas

In other Chapters we have repeatedly stated that stock prices are made up by the balance of supply and demand. If demand is greater than supply, buyers will pay a premium in the form of increased price for the stocks they desire. If supply is greater than demand, sellers will offer concessions in the form of decreased price in order to get rid of their holdings. If demand is about equal to supply, buyers will not pay a premium, nor will sellers offer concessions, and prices remain stationary, or fluctuate in a narrow range.

When stock prices are plotted on a chart, increasing supply over demand appears as a series of lower demand areas, or a downward trend increasing demand over supply is presented to the eye as a series of higher supply areas or an upward trend. An equal balance of supply and demand is pictured as a horizontal, or sidewise, trend. The major problem of the technical student is to discover *when* supply areas on the downtrend merge into demand areas and *when* demand areas on the uptrend merge into supply areas, in order to buy stocks at the first point and sell them at the second point. Most of the tools in the technician's kit are used to solve this *when-to-buy* (or sell) problem.

On daily interval bar charts, supply and demand areas appear as a series of bars, the number being controlled by the *time* spent at a given price level. If a stock rallies then recedes on the same day, the area where supply overcame demand is marked only by the width of a single bar. On the other hand, if several

trading days were spent at the higher level before supply overbalanced demand, the supply area is marked with a number of vertical bars. With this form of plotting, the greater the number of days required to form a supply or demand area, the more is this area emphasized, by the sidewise movement, on the chart.

With figure charts, supply and demand areas likewise appear as sidewise movements. The size and length of these sidewise or horizontal areas, however, depends not upon the amount of time spent at a given price level or within a narrow range, but instead upon the number of reversals occurring at that point. A stock may rally and decline in one day, or one week or one month, and the top will be represented by one figure for each time the stock attempts to push ahead, and one figure for each time it was hurled back by the force of supply.⁹

The extent to which supply and demand areas are emphasized on the figure chart varies with three factors, namely,

- a. The size of the figure,
 - b. The price level at which the issue is selling, and
 - c. The volatility of the stock.
1. As the size of the figure is increased, larger fluctuations are ignored, fewer reversals are shown, and supply and demand areas are portrayed in less detail. As the size of the figure is decreased, smaller fluctuations are recorded, more reversals are shown and the price movement is pictured in greater detail.
 2. As the price rises, the figure remaining the same, the stock fluctuates more widely, more reversals are shown and supply and demand areas are emphasized. Conversely, as the price falls, the stock fluctuates less widely, fewer reversals are shown and the price movement is pictured in less detail.
 3. As volatility increases, or as a stock which has been inactive takes on speculative interest because of pool manipulation, economic opportunity, uncertainty of outlook, etc., the size of the figure remaining constant, fluctuations become more numerous, consequently more reversals are shown and supply and demand areas are delineated in greater detail. As volatility decreases, fewer full figure reversals are registered and less detail on supply and demand areas is shown.

The first factor has been illustrated earlier in the plottings of Bethlehem Steel (page 340). There it was shown that 1/8-point figures delineated supply and demand areas in great detail, spreading a four day picture of the price movement over 50 grids. The 1/4-point figure reduced the same picture to 29 grids, the 1/2-point figure to 8 grids, and the one-point

THIS IS TRUE FOR THREE AND FIVE-POINT PLOTTINGS AND FOR ONE-POINT AND FRACTIONAL PLOTTING WHERE A NEW GRID IS USED FOR EVERY REVERSAL. WHERE A REVERSAL FOLLOWS A ONE-FIGURE REVERSAL, MOST STUDENTS USE ONLY ONE GRID TO PLOT THE MOVEMENT (CLOSED TYPE OF PLOTTING).

figure to 3 grids. A four months' plotting of the same stock required 48 grids on a one-point chart, 10 grids on a three-point chart, and 2 grids on a five-point chart. Thus the emphasis given supply and demand areas varies markedly with changes in the size of the figure.

The second and third factors are illustrated by the unusual performance of American Commercial Alcohol, which, under pool guidance and the promise of repeal of the 18th Amendment, rose from 13 in February 1933 to 89.7 in July of the same year, then crashed precipitately to 29.1. Figure 19 shows a one-point plotting for this stock, from January 1 to July 22, 1933. In order to compare this with a daily bar plotting, a picture of the latter type is shown in Figure 20.

In January and February, 1933, before the Bank Holiday, American Commercial Alcohol sold off from 22.3 to 13. On the daily bar chart (A) a warning is given of this impending fall by a gradual rounding movement of declining tops and bottoms. The one-point figure chart shows lower tops and bottoms, but under-emphasizes the move, compressing the picture into five grids.¹⁰

On the rally from the March bottom, the daily bar chart shows a sharp triangle (B), indicating an impending move, which is later shown to be in the upward direction by the upside break from the triangle. The figure chart shows higher tops and bottoms which also describe a small triangle (2). The trading shelf which occurred at the 16-18 level in mid-April, after the breakout from the triangle, is emphasized on the daily bar chart (C) and minimized on the figure chart (3).

Early in May, American Commercial Alcohol rallied (4) and, for three weeks in May, traded in the 20-24 area (5). Again the daily bar chart emphasizes the picture (D), whereas the figure chart tends to minimize it. Generally up to this point, the detail of the price movement of the stock is expanded on the bar chart and compressed on the figure chart. From here on, however, as the stock rises in price and becomes more volatile, the opposite is true, the one-point figure chart expanding and daily bar chart compressing the detail of supply and demand areas.

In the latter part of May, American Commercial Alcohol rallied sharply from the 20-24 to the 30-36 (6) level where it traded throughout most of June. On the daily bar chart this movement appears as a triangle, followed by a quick decline from the apex (E). This would ordinarily be interpreted as a triangle top, and the forecast would be bearish, but a rally soon followed, showing that the move was false. On the figure chart this pattern becomes a horizontal trading area (7), with several rallies failing to exceed the 34 level and several declines stopping short at 31. This would be interpreted as an important congestion area, and, when broken on the downside (8) after the rise from March, would be construed bearishly as a top. The

¹⁰ A GRID MEANING ONE VERTICAL SPACE DENOTING A PRICE REVERSAL OF MORE THAN ONE POINT.

Figure 19

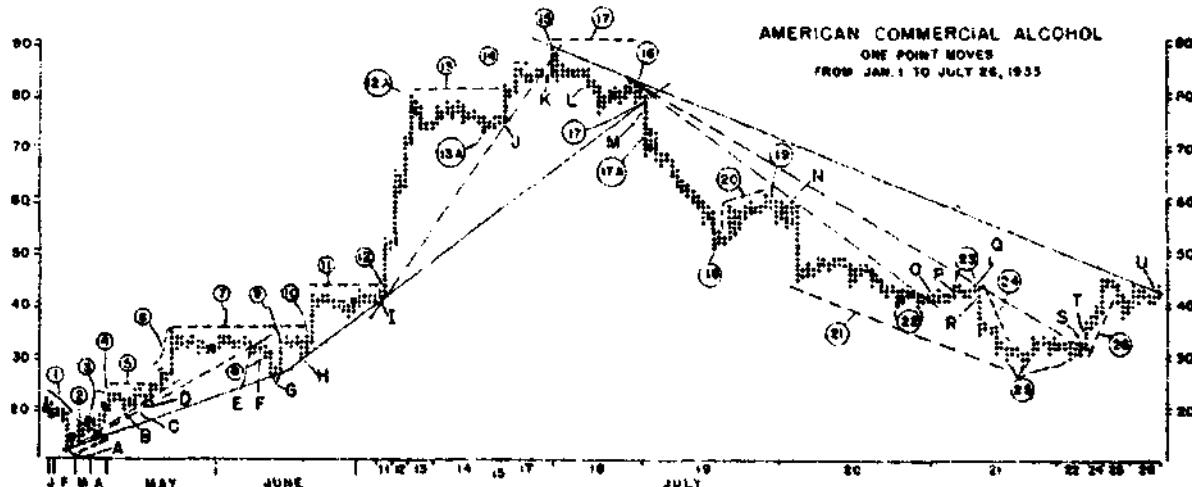
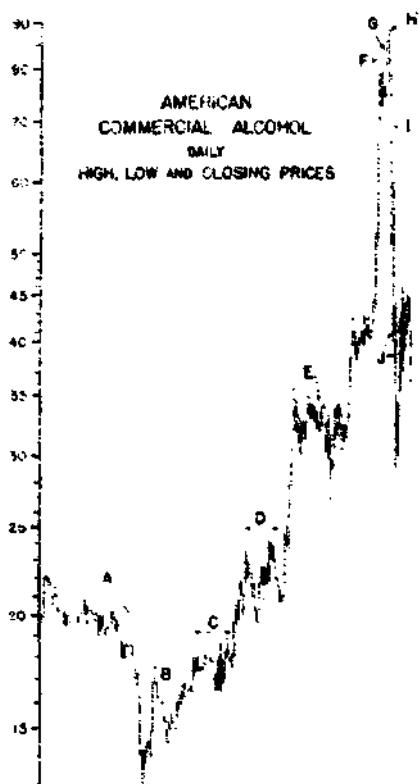


Figure 20



subsequent return to the trading area (9) and breakout on the top side (10), however, showed the move to be false.

Late in June, American Commercial Alcohol rallied to the 38-42 level, where it traded until July 10 (11). Now began the spectacular part of the move, the stock rising from 41.2 to 89.7 and falling back to 29.1, all in the course of eleven trading days (from 12 to 25). The daily bar plotting in Figure 20 utilized only eleven grids in portraying this part of the movement, one grid for each day, but, because of the increased volatility of the stock, the one-point figure chart (Figure 19) spread the picture over 120 grids, showing detail which was

extremely helpful in interpreting the move.

After the sharp mark-up on July 11, 12 and 13 the stock traded in the 73 to 79 area for two days. This hesitation appears on the daily bar chart (Figure 20) as a dynamite triangle (F), suggesting a possible reversal or a further mark-up. On the one-point figure chart (Figure 19) a number of rallies and declines are shown, indicating that after the sharp upward movement, the stock was meeting supply in the 74 to 79 area (13). On July 17, a further mark-up to 85.7 occurred. On the regular interval bar chart, this move is shown as a single line (G), but on the figure chart, a series of reversals are revealed (14), indicating that the stock was having difficulty in penetrating new high ground. On July 18, American Commercial Alcohol rallied to a high of 89.2 (15), but closed lower, at 81.6 (16). Again this move is pictured as a single bar on the regular interval bar chart (H), but on the figure chart is shown as a protracted series of rallies and declines (17).

Up to this point, the regular interval bar chart could still be interpreted bullish, but the figure chart definitely shows a trading shelf where stock is quite evidently in supply. This conclusion is strengthened by the appearance of a head-and-shoulders top (13 to 16), and a poor example of a triangle formed by the head and right shoulder. On July 19, American Commercial Alcohol broke out of its triangle (17), penetrated the adjusted trend line, and nose-dived from 80 to 51 (18), rallying to close at 60 (19). On the daily bar chart, we have but a single line to represent this movement (I), but the figure chart clearly shows the stock floundering under selling orders on the rally from 51 and a gradual turning movement toward the downside (20). The base at 51 (18), the reader will note, is very weak and is followed by a churning of prices on the rally (20), giving an appearance of top-heaviness. A stronger bottom, showing repeated efforts to decline and repeated bidding up of shares through the appearance of demand, would be needed before the trader could infer that the stock had made a bottom.

On July 20 and 21, American Commercial Alcohol

declined from 60 to 29.1. Two bars represent this movement on the regular interval bar chart (J), but on the figure chart, it can be seen that demand is appearing, inasmuch as the decline is fought stubbornly, with continued rallies (21). A bottom started to form at the 40 level, with two declines ending at this point (22), but the subsequent rallies met stern resistance at 44 (23), and the stock continued its decline to 30 (24). Here intra-day declines were turned back at the 30 level four times on July 21 and 22 (25) and the picture suggests that the stock has at last reached a level where buying is overcoming selling. This was not visible on the bar chart (Figure 20). The vigor of the rally from the bottom July 22 (26) confirms this interpretation.

The case of American Commercial Alcohol is a very exceptional one, but it brings out in sharp relief the manner in which figure charts, as compared with bar charts, picture price changes. When the movement unfolded over a period of time, the daily bar chart showed supply and demand areas in great detail, regardless of the price level or volatility of the stock, but when the movement occurred with lightning-like rapidity, the daily bar chart lost much of the detail. The one-point figure chart contracted the detail of supply and demand areas in the low-price levels when the stock was not volatile, and expanded it greatly in the higher-price levels when volatility increased. At the February-March low, only five reversals were recorded to indicate this important bottom (2), but at the July tops, sixty-five reversals were shown over a period of five days (13-15). Thus the figure chart elaborates the detail of supply and demand areas in some instances, and compresses it in others, its functioning in this respect depending upon the size of the figure, the price level at which the stock is selling, and volatility of the price movement.

One-Point Figure Chart Compresses Graph Compared With Daily Bar Chart

In the case of American Commercial Alcohol, the one-point chart both compressed and expanded the graph of the price movement in comparison with the daily bar chart. Not all figure charts so conveniently expand supply and demand areas at the critical points. By and large, the one-point chart tends to compress the picture as indicated by the following test:

Twenty stocks were selected at random and the number of grids required to plot one-point figures from January 1, 1933 to April 21, 1934, were counted. There were 378 trading days in this period, hence daily bar charts required 378 grids. The one-point figure charts, for the same period, required from 12 to 181 grids, the number varying with the price behavior of each stock. The one-point figure chart, therefore, it appears, greatly contracts the graph of the price movement as compared with the daily bar chart.

This general tendency of the one-point figure chart to compress the picture of the price movement results, of course, from the fact that several days may go by without a new figure being made, either because of inactivity in the stock, or, in the case of low-priced

stocks, because the figure is too large to catch the significant fluctuations. Also, a stock may trend strongly in one direction for several days without reversal and all these figures are plotted in the same grid. The amount of space required between daily bar charts and figure charts changes, of course, if the size of the figure on a figure chart is altered.

Tops and Bottoms on Figure Charts

The patterns which supply and demand areas describe on figure charts may be classified in practically the same category as those used in conjunction with bar charts, *but the same price movement does not necessarily result in the same formation on both types of charts*. Let us discuss these patterns under the following headings:

1. Multiple (double, triple, etc.) Tops and Bottoms
2. Triangles
3. Head-and-Shoulders Tops and Bottoms
4. Rounding Tops and Bottoms
5. Complex Tops and Bottoms
6. Broadening Tops and Bottoms
7. Miscellaneous Tops and Bottoms

Multiple Tops and Bottoms

On figure charts, when a stock meets supply at a given point, after an advance, and declines, rallies again to that point, but declines under selling pressure then rallies again and again, only to be turned back, the trader is warned that a top may be forming. Similarly, after a decline, when a stock meets demand at a given point and rallies, declines again, but rallies under buying orders, reverses time after time at or near the low point, evidence is furnished of a possible bottom. The greater the number of reversals, the stronger are the indications, but in applying this rule, allowance must be made for the size of the figure and the price level. *On a one-point chart, two or three reversals at a low-priced level may indicate a strong top or bottom, whereas six or seven reversals at a higher price level may indicate only a minor turning point.*

When multiple tops or bottoms follow one another closely with only two or three intervening reversals, we may conveniently call this a "simple" multiple top or bottom. When multiple tops or bottoms are separated by a number of intervening reversals, however, the term "complex" may be applied to them. The latter type may be regarded as the stronger formation, granted the same figure and price level.

A number of examples of multiple tops and bottoms are presented in the figures which follow. Figure 21 shows a simple top on a one-point chart of General Motors. A simple double bottom on a one-point graph of Goodyear Rubber Company is shown on Figure 22. Figure 23 shows a simple triple top on a one-point chart of Gold Dust, and Figure 24 presents a simple quadruple top on a one-point chart of Baltimore & Ohio. A simple quadruple bottom on a one-point chart of Electric Auto-Lite, is shown on Figure 25.

The extreme level at which supply or demand is

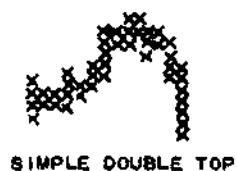
met at reversal points need not be the same for all multiple tops or bottoms. Figure 26 shows a simple quadruple top on a one-point chart of Electric Auto-Lite where the first top is one point higher than the remaining three tops. Again, Figure 27 shows a simple top on a three-point chart of Corn Products Refining, where the first two tops are one point higher than the last three.

Figure 28 shows a complex double top on a one-point chart of International Telephone. A complex

Figure 31 shows a complex quadruple bottom on a one-point chart of Atchison. As indicated earlier, a complex bottom is a stronger indication than a simple bottom, granted the same figure and price level.

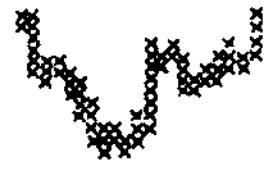
If after an advance, multiple bottoms appear directly below multiple tops, or, after a decline, multiple tops appear directly above multiple bottoms, a trading area is forming which may prove to be either an important top or bottom, or a temporary consolidation point for the continuation of the move. The direc-

Figure 21



SIMPLE DOUBLE TOP

Figure 22



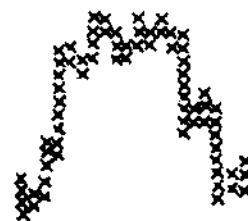
SIMPLE DOUBLE BOTTOM

Figure 23



SIMPLE TRIPLE TOP

Figure 24



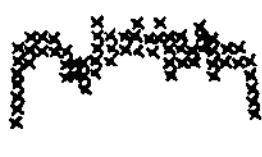
SIMPLE QUADRUPLE TOP

Figure 25



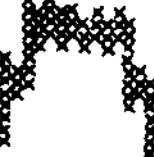
SIMPLE QUADRUPLE BOTTOM

Figure 26



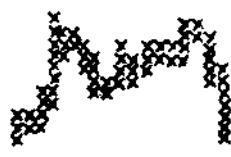
SIMPLE QUADRUPLE TOP

Figure 27



SIMPLE TOP

Figure 28



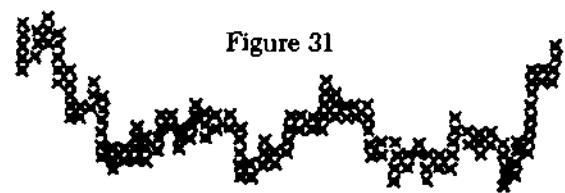
COMPLEX DOUBLE TOP

Figure 29



COMPLEX DOUBLE BOTTOM

Figure 31



COMPLEX QUADRUPLE BOTTOM

Figure 30



COMPLEX DOUBLE BOTTOM

Figure 32

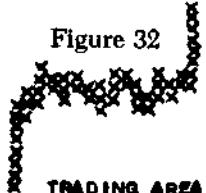
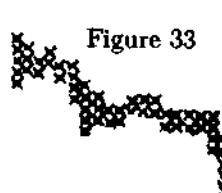
TRADING AREA
IN UP TREND

Figure 33

TRADING AREA
IN DOWN TREND

double bottom on a one-point chart of Allied Chemical & Dye is presented in Figure 29. Figure 30 shows a very excellent example of a complex double bottom on a three-point chart of American Commercial Alcohol. In this instance, each leg of the complex double bottom is composed of a simple triple bottom.

At this point a question may arise in the reader's mind. If simple tops or bottoms turn into complex tops or bottoms, a position taken shortly after the simple pattern is formed would be endangered by the rally or decline to the second top or bottom. This is undoubtedly true, but it is one of the risks that the technical student must take which the figure chart does not by any means eliminate.

tion of the breakout from this area ordinarily signals the ensuing trend. Figure 32 shows such an area in an uptrend on a one-point chart of Owens-Illinois Class. Figure 33 shows a trading area in a downtrend on a one-point chart of Western Union.

On occasion, a breakout may occur in one direction which is followed by a move in the opposite direction. This was the case with American Commercial Alcohol in May 1933 (Figure 19), when, after a rise of 177 per cent, from 13 to 35 (2-6), a trading area formed at the 31-34 level (7). This area was broken on the downside, giving a selling signal, then the stock rallied back into the area and broke out on the upside for its memorable climb to 89.7.

Mr. W. Stafford Reid, one of the many stock market students who have attended the author's lectures, who has achieved great competence in the interpretation of figure charts, has found that, if after four or more tries at a top or bottom, a stock penetrates to a new high or low level, then declines or rallies again into the congestion area, a reversal follows in the majority of cases.

Such a pattern occurred at the July 1933 top of U. S. Steel (Figure 34), the stock rallying to 66 five times, and on the sixth try making a new high of 67, thereafter selling down to 49. As Mr. Reid points out, however, the rule must be applied with caution and with an eye to other indications.

rally to 50 again. This ability of the stock to find buying support at 47 (7), which was at a higher level than the extreme lows of the congestion area at 46 (6), and its show of rallying power on the third move to 50 (8) would have cancelled the bearish implications of the previous "false" breakout (6), and would have led the trader to cover short commitments made on the strength of the signal, or at least to stop his loss above the 50 level. A similar "false" breakout occurred in U. S. Steel in June when, after four tries (1-4) at the 58 level, the stock rallied to 60 on the fifth attempt (5), only to fall back into the congestion area. Here again, however, the rallying power of the stock was shown by previous rising bottoms (6 and 7), which failed to con-

Figure 34

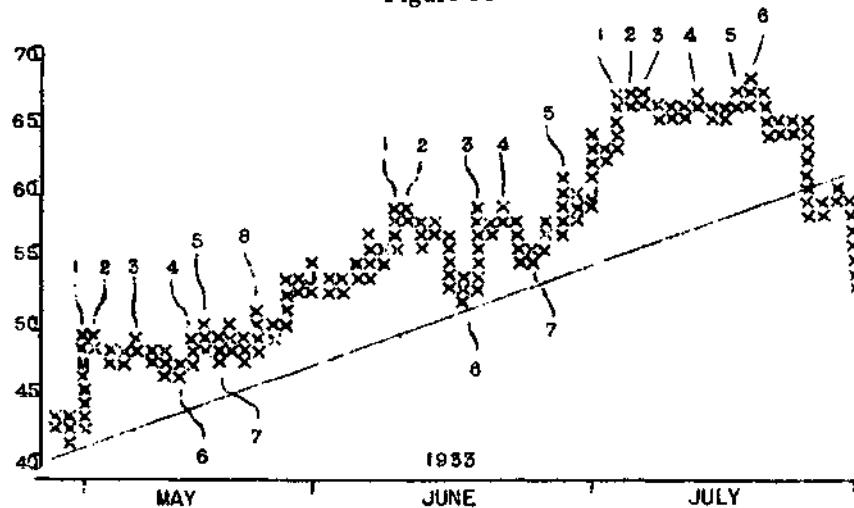
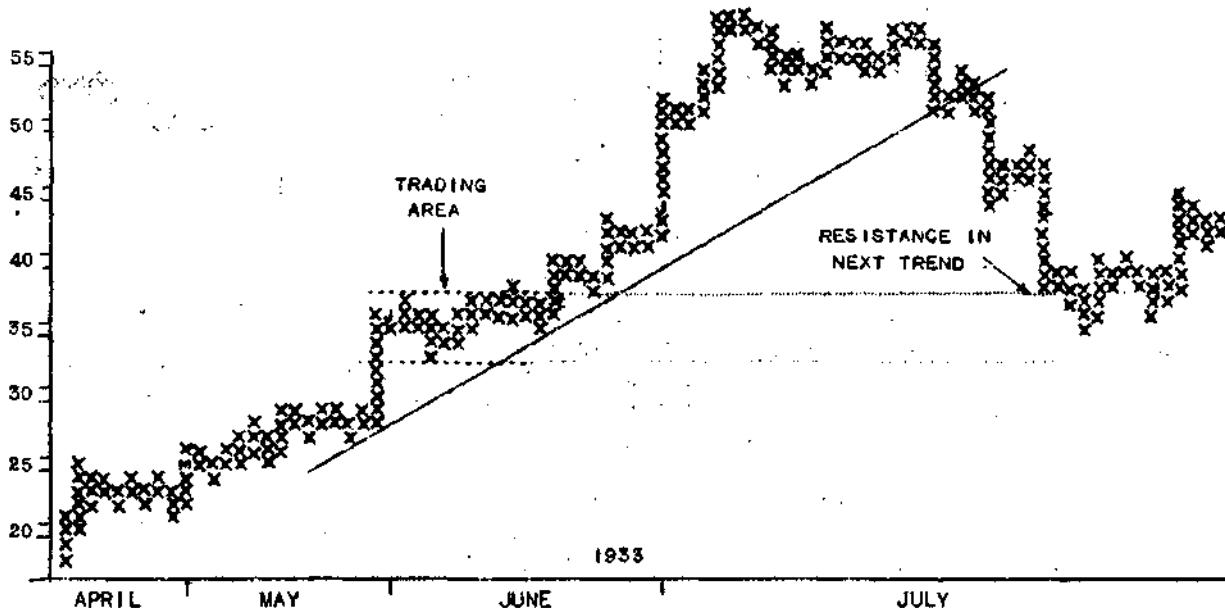


Figure 35



In May 1933, for example, U. S. Steel rallied to 49, and thereafter made four attempts (1-4) at this level before pushing through to 50 on the fifth try. The stock then fell back into the congestion area, only to

firm the bearish indications given by the supposedly false move.

Trading Areas as Levels of Future Demand or Supply

A trading area, as has been noted in Chapter VIII, represents a period in which the balance of supply and demand is about equal. After a trend has continued beyond any one of these areas, either on the upside or the downside, they constitute points at which stock may again be in supply or demand at some future date. On Figure 19 of American Commercial Alcohol, the stock shows a trading area at the 38-42 level early in the July advance (11), and later determined buying appeared at the 40-44 level on the decline (22), almost forming a bottom at this point. Again, in its spectacular upswing, American Commercial Alcohol rallied and declined many times at the 31-34 level (7), and later, after its precipitate four-day drop from 89.7, met sufficient buying at the 30-34 level (25) to reverse the trend.

On Figure 35, New York Central traded between 33 and 37 on the intermediate advance and, after the decline from the July 1933 top, met enough buying at the 35-40 level to form a temporary bottom.

The reader should not get the idea that trading areas formed in the past always constitute impenetrable barriers for future price trends, because market conditions often change, and invalidate the significance of previous supply and demand areas. But, it is a pretty good rule that when a congestion area, like that just noted, appears on a chart, the stock will have difficulty in penetrating it in the immediate future.

Triangles

The triangle, as we learned in Chapter IX, is one of the most common patterns in which supply and demand areas appear. A stock rallies or declines to form the base of a triangle, then the ensuing rallies and declines narrow down to an apex, and somewhere near this point a determined move gets under way. The direction of the move is forecast by the breakout from the limits of the triangle, although on some occasions a false move occurs, the "initial breakout" being in one direction and the real move in the opposite direction.

On a daily bar chart which shows volume, these false moves can often be detected by the fact that activity is low on the false breakout. When heavy volume accompanies the breakout from the triangle, the move is usually an authentic one. On figure charts this frequently helpful factor is missing.

It will be remembered that triangles generally assume three forms: symmetrical, ascending bottoms and descending tops. Any of these forms may constitute a supply area at a top, a demand area at a bottom or a trading area in a trend. Most frequently they are the latter.

Triangular formations appear on figure charts as well as upon daily bar charts, and are interpreted in precisely the same way (see Chapter IX). However, the same price movement which describes a triangle on a daily bar chart may not record a similar formation on a figure chart, because the size of the figure may be such as to ignore many fluctuations

Figure 36

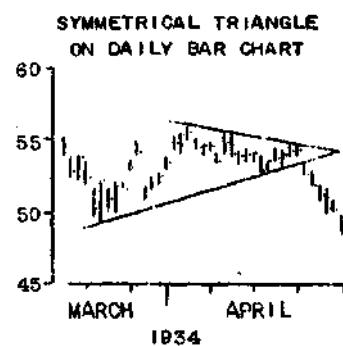
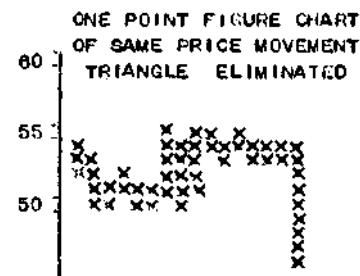


Figure 37



which are essential to the triangle configuration. Also, intra-day reversals may draw out the formation to such an extent that the triangle pattern is destroyed. Figure 36 shows a perfect triangle which appeared on a daily bar chart of Chrysler immediately preceding a substantial decline in May, 1934. The same price data plotted on a one-point figure chart (Figure 37) fail to show the triangle, the pattern becoming a sort of inverted U.

If the price fluctuations making up the triangle are not obscured by the size of the figure,¹¹ however, the formation which is visible on the daily bar chart will also appear on the figure chart. During the final phases of liquidation in the 1929-1932 bear market, a series of clearly marked triangles appeared in People's Gas Light & Coke Company. These are shown by daily high and low bar plottings in Chart 18. With the exception of the small dynamite triangle in late March, all triangles shown on the daily bar chart appeared on the one-point figure chart. Figure 38 shows the first three during January-March, 1932.

Additional examples of triangle formations are in Figures 39-45 inclusive. Figure 41 shows a symmetrical triangular top on a one-point chart of Case Threshing Machine.

A symmetrical triangular top on American Commercial Alcohol on a three-point chart is shown in Figure 40. This formation occurred in July, 1933, on the move which has been analyzed earlier in the Chapter on a one-point chart. The three-point chart, as can be seen, revealed a perfect triangle pattern, and

¹¹ WHEN WE SAY "SIZE OF THE FIGURE", WE MEAN WHETHER THE FIGURE CHART IS 1/8, 1/4, 1/2, 1, 3 OR 5 POINTS.

Figure 38

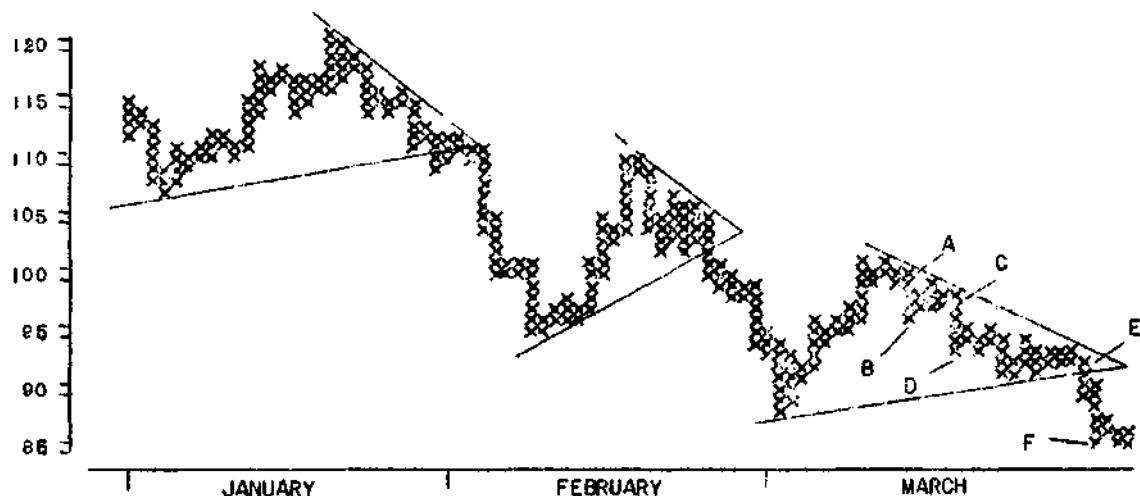


Figure 39

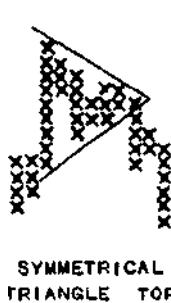


Figure 40

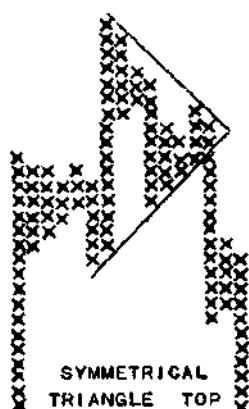


Figure 41

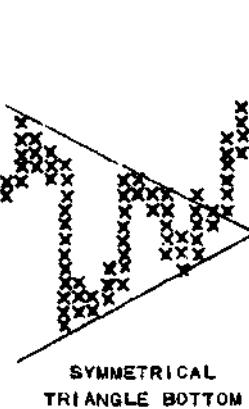
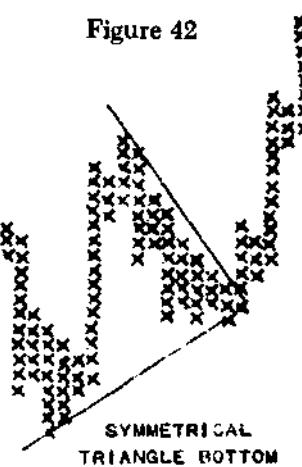


Figure 42



gave evidence that a top was forming. The pattern might also be interpreted as a head-and-shoulders top, as it was in Figure 19.

A symmetrical triangle at a bottom is pictured on a one-point chart of Industrial Rayon in Figure 41. Figure 42 shows a symmetrical triangle at a bottom on a three-point chart of American Sugar Refining.

Figure 45 shows a false upside penetration from a symmetrical triangle on a three-point chart of American Water Works.

On Chart 35, showing one-point moves on the Gartley 15-stock aggregate sensitive index, a number of triangles are to be observed.

Figure 43

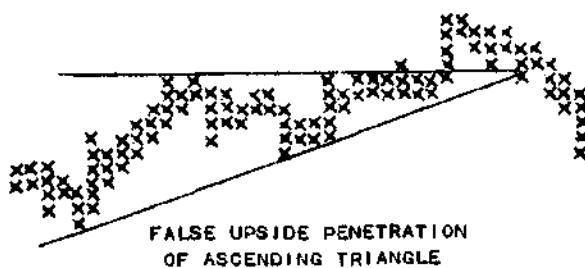
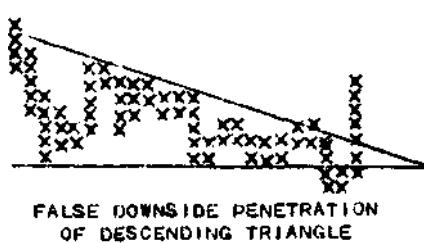


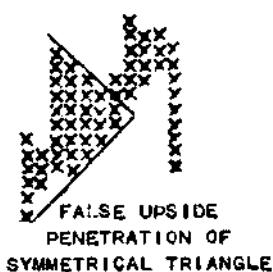
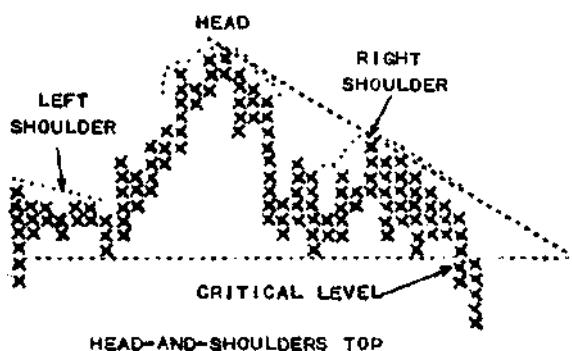
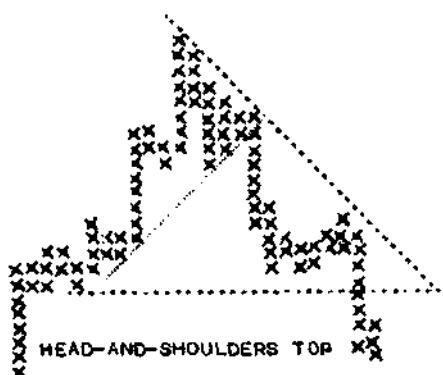
Figure 44



A false upside penetration of an ascending bottom is shown on a one-point chart of American Can in Figure 43. Figure 44 pictures a false downside move from a triangle with a descending top on a one-point graph of Air Reduction.

Head-and-Shoulders Tops and Bottoms

The head-and-shoulders formation is a very common supply pattern at a top and demand pattern at a bottom. After an advance, a stock meets supply and declines, forming the left shoulder (see Figure 46). It

Figure 45**Figure 46****Figure 47**

then rallies to new highs, usually on heavy volume, but recedes again under pressure of selling, forming a head. Meeting new demand, it rallies again, but fails to make a new high. This third rally constitutes the right shoulder of the pattern and completes the top.

The head-and-shoulders bottom forms often in a decline. The stock meets demand and rallies, forming the left shoulder (see Figure 50). It then declines to new lows, and rallies again to form an inverted head. Again it declines, but fails to make a new low, and forms a right shoulder, which completes the bottom. Very often at both tops and bottoms the head and right shoulder make a triangle which adds to the forecasting reliability of this formation.

Head-and-shoulders patterns are seldom perfect, but notwithstanding this, the figure chart student has little difficulty in distinguishing and identifying them. A number of examples of the formation are presented in Figures 46-50.

Figure 46 shows a head-and-shoulders top on a one-point chart of Union Pacific. The left shoulder is more lightly defined than the right shoulder. The head and right shoulder form a triangle with a descending top, the move getting under way when this triangle is broken out on the downside.

Figure 47 shows a head-and-shoulders top on a one-point chart of Commercial Solvents. In this case two shoulders appear near the top and two more at some distance from the top. In each case, the head and right shoulder form a triangle, the first triangle being enclosed within the second.

A head-and-shoulders top on a three-point chart is shown in Figure 48 for Atlantic Coast Line. A one-point head-and-shoulders bottom on a one-point chart of McKeesport Tinplate is pictured in Figure 49. Scores of better specimens could be found, but this example was chosen deliberately in order to show that the formation need not always be perfect. A head-and-shoulders bottom on a three-point chart of Delaware & Hudson is shown in Figure 50.

Rounding Tops and Bottoms

In a rounding top or bottom formation the stock swings in an arc, gradually meeting supply or demand until the trend is reversed. Figure 51 shows a rounding top on a one-point chart of Crown Cork and Seal. A rounding top on a three-point graph of American Telephone and Telegraph appears in Figure 52. Figure 53 shows a rounding bottom on a one-point chart of Safeway Stores, and Figure 54 pictures the same formation on a three-point chart of Southern Railway.

Complex Tops and Bottoms

The complex top or bottom is a combination of a double top or bottom and a head-and-shoulders formation, the head being composed of two tops or two bottoms. The pattern occurs relatively infrequently. Figure 55 shows an imperfect complex top on a one-point chart of Case Threshing Machine Company.

Broadening Tops and Bottoms

The broadening top or bottom is a reverse triangle in which the amplitude of the rallies and declines becomes greater until the final move gets under way. Usually there are five reversals in the formation, the true move following the fifth reversal. The pattern is not often found on stock charts. Figure 56 shows a broadening bottom on a three-point chart of Brooklyn-Manhattan Transit.

Miscellaneous Tops and Bottoms

Not every top or bottom describes one of these patterns set forth in the preceding pages. In many cases after making a top, a stock gradually sells off with a series of lower tops and bottoms. Figure 57 shows a formation of this type on a one-point chart of Industrial Rayon. Conversely, after making a bottom a stock often gradually rallies with a series of successively higher tops and bottoms. Figure 58 shows this

Figure 48

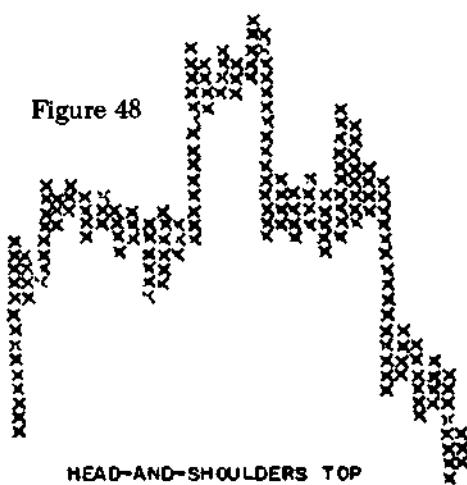


Figure 49

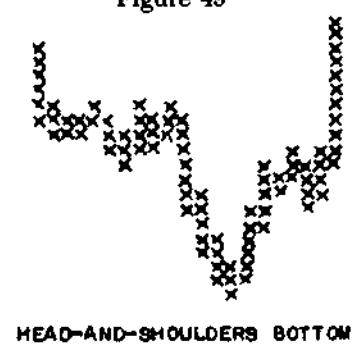


Figure 50

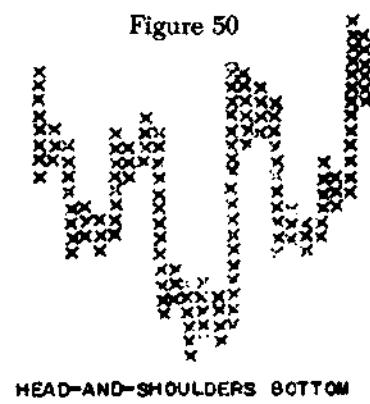


Figure 51

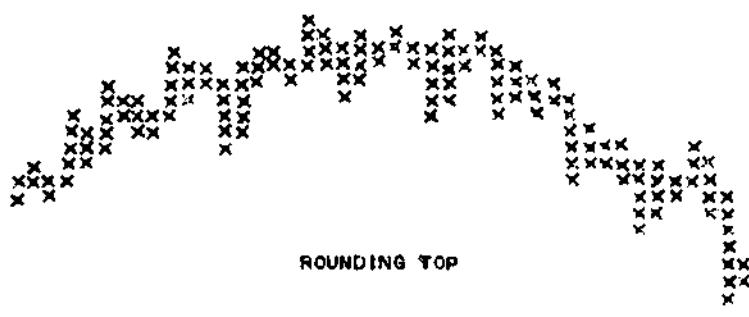


Figure 52

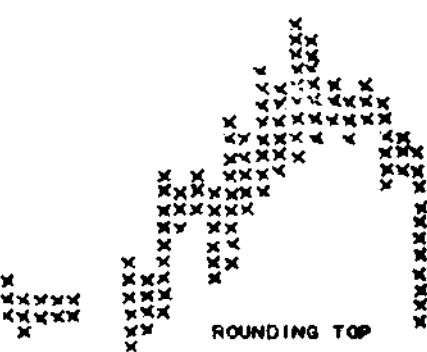


Figure 53

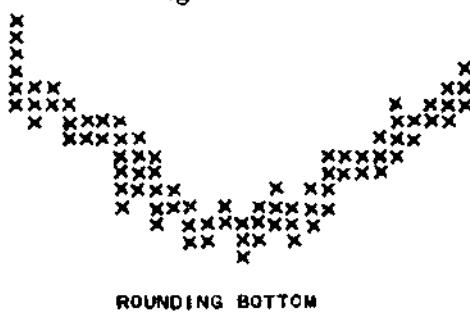


Figure 54



Figure 55

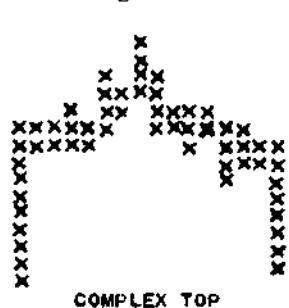


Figure 56

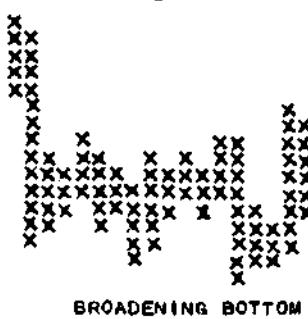


Figure 57

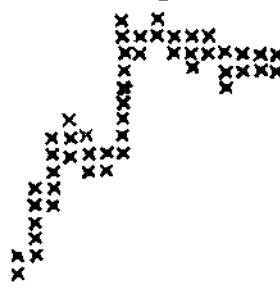
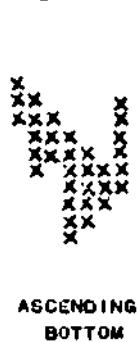


Figure 58



Figure 59



pattern on a one-point chart of Auburn, and Figure 59 on a three-point chart of Consolidated Gas.

Many tops and bottoms end in irregular patterns which are difficult to classify. Figure 60 shows an irregular top on a one-point chart of U. S. Industrial Alcohol which bears some similarity to a complex double top. Figure 61 shows an irregular bottom on a one-point chart of Eastman Kodak, and Figure 62 shows an irregular bottom on a one-point chart of Industrial Rayon.

successive bottoms or tops on the theory that this line describes the underlying tendency of the price movement. At the reversal from a downside movement there is usually a quick rally, then a decline that fails to reach the old lows followed by another rally. A trend line is drawn across the bottom at the reversal point and the next bottom that failed to reach the old low, on the theory that the angle of advance is revealed by this initial movement. When the price movement breaks through this trend line, the theory is

Figure 60

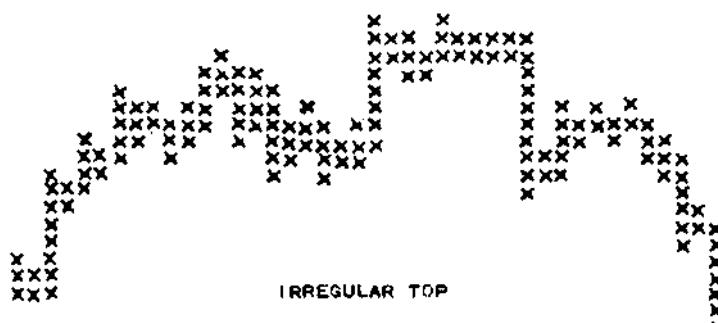


Figure 61

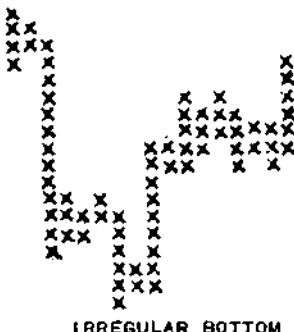
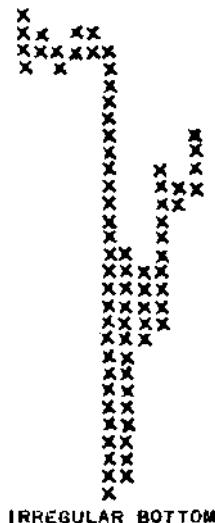


Figure 62



Trend Lines

In Chapter X we pointed out that one of the first things that strikes the eye on a stock chart is that prices move in trends. There are ceaseless rallies and declines of varying amplitude, but these fluctuations always fit into a pattern of trend. Many years ago Charles H. Dow classified these movements into three categories, the primary or long-term trend, the secondary or intermediate trend, and the day-to-day or minor trend (see Chapters I and IV). All stock market study begins with this classification. The student endeavors to learn the characteristics of each trend in order to take a position early in the movement and close it out near the end. *One of the devices for determining when the trend has reversed is the straight trend line fitted by inspection.*

The trend line is a straight line drawn across

that the trend has changed.

The angle of incline, however, often changes as the advance proceeds, hence the trend line must be refitted across successively higher bottoms. If the initial angle of incline is too small, the price movement pulls away from it on the upside and the trend line must be adjusted upward. On the other hand, if the initial angle is too sharp, the price movement soon penetrates, but later continues the advance. If this penetration occurs on a sidewise movement, the trend is not considered reversed unless the bottom of the trading area is broken downside. If, following such a horizontal movement the trend continues up, the trend line is readjusted downward in such a manner as to touch the end of the trading area.

The same principles of trend-line fitting apply on the downside.

After a top has been formed, a decline ensues followed by a rally which fails to penetrate the previous top. A line is drawn across the reversal point and the next lower top, on the theory that this angle of decline will govern the whole movement. If the angle of decline is too small, the price structure will pull away from it on the downside, and the trend line must be adjusted downward by drawing it through successively lower tops. On the other hand, if the angle of decline is too sharp, the trend line will soon be penetrated. If this penetration occurs by a sidewise movement the trend is not regarded as reversed until the top of the trading area is broken. If the decline continues from this trading area, the trend line is readjusted upward to touch the edge of this area. These theories of trend lines are repeated here because they apply to figure charts.

Trends appear on figure charts the same as on daily

bar charts, and trend lines are fitted in exactly the same manner. The only difference is that rallies and declines which are often spread over a number of days on the daily bar charts are plotted in a single grid and appear as one or two vertical bars on the figure chart if the movement is not accompanied by a reversal of the size required by the figure. This results in "stair-step" patterns which are characteristic of the figure chart (see Figure 35). Since many minor trends appear as vertical movements on figure charts, the use of trend lines on these movements is often precluded. If the figure is made small enough, however, the detail of the price movement pictured is amplified, and the minor trend reappears. With this reservation, trend lines, so far as the author is aware, apply equally well on figure charts as on daily bar charts.

The application of trend lines according to the principles laid down above are illustrated in Figure 19, showing one-point moves on American Commercial Alcohol from January 1 to July 22, 1933. Let us turn to Figure 19 (page 342) for the following discussion of figure chart trend lines.

The stock makes a bottom at A. The next bottom to which a trend line might be fitted is at B. This trend line is penetrated at C, but the stock does not break out of the trading area 5, hence the penetration is disregarded. The stock rallies from the bottom at D and a new trend line is drawn across the bottoms A and D. This trend line is broken by a sidewise movement at E, but the selling signal is not considered valid until the stock breaks out of the trading area at F. The stock rallies quickly into the trading area again and breaks out on the upside, showing the downside penetration to be a false one. Assuming that stock sold on the false downside breakout was repurchased, on the upside penetration of the trading area, a new trend line is drawn from the bottom at A through the bottom at G.

The angle of incline of the A-G trend line is soon shown to be too low, for the stock pulls away on the upside. Therefore after the rally at I, which emphasizes the disparity, a new trend line is drawn from the bottom at H to the end of the trading area at I. The move draws away on the upside from the H-I trend line requiring a new line after an appropriate correction to the up-move has occurred, or after the stock has consolidated its position by forming a trading area at a higher level. At 13 a trading area appears and when this is broken on the upside from J, a new trend line is fitted at a very sharp angle across the end of the trading area at I and across the end of the trading area at J. The I-J trend line is broken at K by a sidewise movement, but the selling signal is not valid until this area is broken sidewise at L. A second selling signal is furnished by the penetration of the old H-I trend line and the simultaneous downside breakout from the triangle, at M.

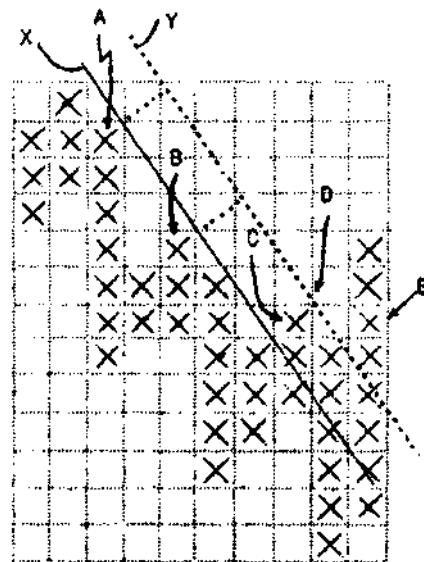
On the decline from 89.7, the first trend line is drawn across the extreme high at 15 and the top of the first substantial rally at 16. The stock pulls away from this 15-16 trend line on the downside, hence, after the rally following the low at 18, a new trend line is drawn

across the high at 16 and the top of the rally at N. The 16-N trend line is penetrated by a sidewise movement at O, but the signal is not considered valid until this area is broken on the upside. A difference of interpretation might arise here. If the price extremes of 40-43 were considered the limits of the trading area, a cover-and-buy signal would be given at P when the stock rallied to 44. If the price limits of 40-44, however, were seen as the limits of the trading area, a cover-and-buy signal would not be given, and when the stock declined at R, a new trend line would be fitted across the tops at 16 and Q. This 16-Q trend line is broken at S by a sidewise movement, but the signal is not valid until the stock penetrates the upper limit of the trading area. This occurs at T, giving a cover-and-buy signal, and is further emphasized by the penetration of the original 15-16 trend line at U.

The reader will find many instances where trend lines fitted in the manner described here will establish or close out a position too early in a trend, nevertheless the device is an extremely useful one, and, when applied skillfully, is of immeasurable help in judging the turns.

One method which has been suggested to prevent numerous penetrations of trend lines applied to figure charts is illustrated in Figure 63.

Figure 63



In this case, the trend line X was projected across the corners of the grids at points A and B, with the result that there was a false upside penetration at C. It is contended that many such false penetrations will be avoided if the trend line is applied by moving it one space, as indicated by the dotted lines, and project it across the intersections one grid away from the high or low points as trend line Y. Thus, trend lines drawn in this manner, it is said, will less often be penetrated.

The fact of the matter is that an investigation of many hundreds of trend lines shows that this method will not protect the trader from minor false penetrations in more than about half of the total cases.

As is always the case in trend line penetrations, the problem is chiefly how much of a penetration should be considered as a valid sign of trend reversal. It will be remembered that the problem was reviewed in detail in Chapter X.

In the case of figure charts, the safest type of penetration is that which develops when a sharp advance or decline causes a vertical plotting on the figure chart, which decisively penetrates the trend line by one or two units, as at E in Figure 63.

The figure chartist, unless he is also watching a bar chart which portrays volume, lacks the advantage of being able to see activity confirm the importance of a trend line penetration.

Due to the nature of figure charts, wherein many minor movements in the price trend are horizontal trends which appear as steps in the longer diagonal trend, many trend lines must be projected across the corners of such consolidations, as for example the trend line shown in Figure 35. Only very few trend lines applied to figure charts may be projected across well-marked high or low points, such as the trend line shown in Figure 34.

Moving Averages on Figure Charts

Trend lines, as we have seen, can be fitted by the method of inspection to figure charts. Moving averages, it will be remembered from Chapter XI, constitute a second method of fitting trend lines, but they are not employed on irregular interval bar charts, because the moving average is computed from quotations appearing at regular intervals of time. The figure chart disregards the element of time. It is possible to compute a moving average of the high or low figure of each reversal, i.e., use one-price quotation from each grid or column on the chart as if it stood for a regular interval of time, but the results are not satisfactory, because of the tendency of figure plotting to move in vertical and horizontal planes rather than in diagonal trends. On the vertical movement, the average lags behind, thus giving late signals of reversal, and, on the horizontal, it runs along the center of the trading area giving a series of false signals.

Caps on Figure Charts

As we learned in Chapter XII, a gap occurs in an uptrend when the highest price for one day is lower than the lowest price for the next day, and, conversely, in a downtrend, when the lowest price for one day is higher than the highest price for the next day. On bar charts, gaps are plainly visible, for, when the phenomenon appears, the bars for successive days fail to overlap.

Bar charts, by the method of their plotting, show these gaps in the price structure, but, unless the gap skips a full figure, and the figure chartist chooses to designate the gap, which is not usually done, it does not appear upon a figure chart. For example, on one day a stock may close high at 50, and on the next day open low at 51.7. This is a very large gap, but it would

not appear on a one-point figure chart for the figures would run 50, 51. Only if the stock opened low at 52, skipping the full figure 51, would the one-point figure chart show a gap. Customarily, of course, the figure chart student in this instance would fill in the 51 square, but if he wished to study gaps he would leave it vacant. Where a gap does not skip a full figure, the figure chart student, in order to show the phenomenon, must scrutinize high and low quotations for the stock, or a bar chart, and make a distinctive mark on the figure chart to indicate the fact that a gap has occurred. This, of course, adds to the labor of keeping a figure chart portfolio. The difficulty in studying gaps must be set down as another technical study disadvantage of the figure chart.

In view of this discussion the reader may wonder why so many gaps appear on the one-point chart of the 15-Stock Aggregate Sensitive Index in Chart 35. The reason is that this index, as pointed out earlier, is an aggregate rather than an average, the one-point moves indicating a change of one dollar in the total worth of the 15 stocks, or an average of 6.66 cents (approximately one-fifteenth of a point) in each of the 15 stocks aggregated. This, of course, is a very small change and, as a result, gaps frequently appear in the Index, not alone at the end of the day, but between 20-minute intervals as well. On Chart 35 only intra-day gaps are shown. Their appearance there often precedes relatively sharp minor movements.

Dow Theory and Figure Charts

In Chapter VII it was noted that the Dow Theory analyzes the price movement in terms of three trends, places great emphasis on successively higher tops or bottoms and horizontal trading areas, and takes volume and amplitude and duration of market movements into consideration. All three trends, primary, secondary and minor, can be studied on figure charts, although the minor trend, due to the tendency of the figure chart to portray it vertically, does not stand out as well as on line charts (see Chart 11). Successive highs and lows appear on figure charts and are interpreted in exactly the same manner as on bar charts. When a stock or an average of a group of stocks makes a series of higher tops and bottoms, the pattern is bullish. A series of lower tops and bottoms is interpreted bearishly. On some figure charts the figure may be so large as to ignore minor successive highs and lows. Wherever this is true, early signals which these minor movements would otherwise afford, are eliminated.

Trading areas or Dow Theory "lines", as we have already seen, constantly appear on figure charts and are interpreted in the same way as on line or bar charts. When the movement breaks out of the limits of the line, provided the breakout is not a false move, the direction of the ensuing trend is signaled. Dow Theorists have usually defined a line in terms of closing prices, requiring the price movement to remain a number of days within narrow limits. Robert Rhea, for example, suggests two to three weeks or longer,

and a range of not much more than 5 per cent, though he would not insist too strongly on this mechanical formula. In figure chart interpretation a Dow Theory "line" could be readily tested by the criterion of amplitude, but not by that of time inasmuch as the figure chart ignores the latter factor.

It is difficult to lay down a cut and dried definition of a Dow Theory "line" on a figure chart, because in some sidewise movements the market may be very much more active than in others, with the result that the length of a line, as measured by the number of spaces representing the reversals, may vary greatly. Some lines have appeared as 6 or 8 figure chart reversals, while others run to as much as 42. If all of the sidewise movements on figure charts are considered, instead of just those which might be termed Dow Theory "lines", we find that most sidewise movements which appear on one-point figure charts range from 9-48 spaces, counted horizontally. A large number fall in the range between 10 and 16.

Thus, when the figure chartist finds that a sidewise movement has developed on his one-point figure chart, within a range of 3-5 points, to the extent of 10-15 fluctuations, he logically looks for the time when a diagonal trend will be resumed.

A study of a large number of cases does not seem to indicate that there is a great deal of difference between the length of a consolidation which is followed by the resumption of the previous trend, and the sidewise movement which forms a top or bottom, on a figure chart.

In the case of three-point figure charts, these sidewise movements in both consolidations and tops or bottoms, appear in the space of between 4 and 12 grids. A few exceptional cases run to 16-18 spaces, measured horizontally. The vast majority fall in the range between 4 and 7, before a diagonal move is resumed.

In the case of three-point figure charts, the amplitude of such sidewise movements, instead of being from 3-5 points, as on one-point charts, are more likely to be 6-10 points.

The "Count System"

This brings us to the much heralded and, in the opinion of this writer, over-emphasized importance of the figure chart as a means of measuring the extent of a future move. Klein outlined this theory in detail in 1904, in language which is strikingly similar to that used in publications which appeared in 1932-1933.

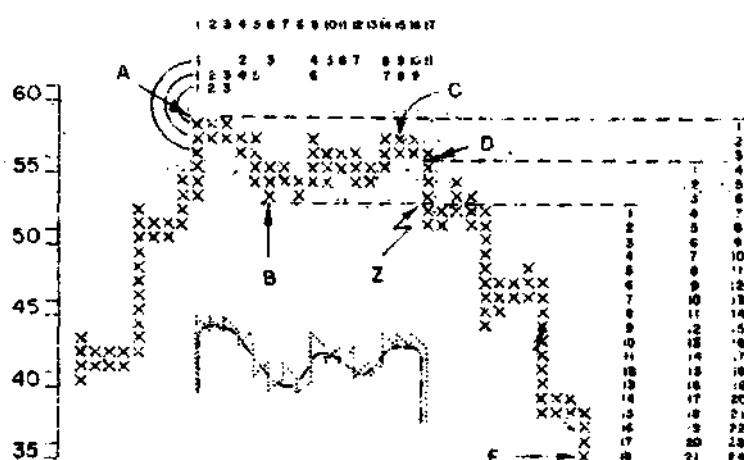
It will be remembered that there is an old axiom of Dow Theorists, that the longer the "line" the more important the move which follows after the line is broken. This theory is the foundation of the famous counting, or estimating system so widely used by figure chartists. It is applied to both reversal and continuation patterns, just as Dow Theorists used it many years ago.

In outlining the theory, let us start with Figure 64. Here we see the top in New York Central, in July 1933. After advancing from a low in February of 14, the stock reached a high on the one-point figure chart of 58 (A) early in July. Then, for a period of several days, a sidewise movement developed, between 53 and 58 (A to B), and toward the middle of July, a lower top at 57 (C) appeared. Subsequently there was a sharp drop to 35 (E).

This top encompassed 17 spaces between A and D, which include respectively the end of the advance, or mark-up, and the beginning of the decline, or mark-down. This is the customary way of defining a top or bottom on a figure chart. The penetration of B at Z was the indication that the decline was under way, while the inability of the advance from B to the lower top at C to surpass the top at A, marked A as the reversal point.

Now let us analyze the relation between the width of this top from A to D, and the decline from A to E. First of all, it will be noted that the top consisted of three small waves, as emphasized by the dot and dash line below the pattern. In all, there were 25 reversals (dotted lines) from A to D, which required 16 spaces for plotting, and left the total pattern, including the advance to A, 17 spaces in width. It is the habit of figure chartists to measure a decline like that from A to

Figure 64



E by counting the horizontal spaces of the pattern, which in this case aggregated 17.

Numerous questions arise as to the correct technique, namely:

1. Which spaces in the pattern to count; and
2. From what point to begin the estimate.

For example, following the numbers across the top, we find that on the top line of the pattern, at the 58 level, there were three plottings. On the second line, at the 57 level, there were 9 plottings. In the third line, at 56, there were 11 plottings; and on the fourth line, at 55, there were also 11 plottings.

In this particular pattern, we see that the bulk of the fluctuations were apparently around the third line, at the 56 level. This line had, as noted, 11 plottings. However, counting the open spaces the line had a width of 17 spaces. This is one of the big questions in figure chart technique Shall we count the open spaces, or not?

Let us assume that the line, including all spaces, measures the size of the pattern, and use it to estimate the ensuing decline. Now we face the problem of what level to begin the estimate. Shall we use the top A, at the 58 level? Shall we use the approximate center line of the pattern, which we have just measured, at the 56 level? Or shall we use the point at which the decline was confirmed by the downside penetration of B, at Z, namely the 52 level? Let us see how all three work out.

Suppose first we use the 58 level, at A. Counting down 17 units, we find that the estimate is a decline to 42, from the top A. Actually, however, the decline reached 35, or 24 points from the top. Now let us estimate from the center line at the 56 level. Here we find that the decline to E proved to be 20 points, or three points more than the estimate of 17.

As a third approach, let us assume that the measurement was made from the level at which the low of the pattern (B) was broken, at Z, the 52 level. Here we find that the decline was 18 points, versus the estimate of 17 points, so that apparently in this case the estimate was more accurate when it was applied to the movement after the bottom of the top pattern, at 53, had been penetrated.

Now suppose, instead of using the entire width of the pattern, namely 17 spaces, we had chosen to use only the actual plottings in the 56 line, which totaled 11. If we should apply the estimate to the top, we see that the actual decline was more than double the estimate. The first minor rally developed from a level 8 points below the bottom, the second minor rally from a level 15 points below, so that the estimate taken from the actual plottings in the 56 line did not accurately suggest either one of the minor bottoms or the bottom at 35. Here we have an excellent example taken from practice (selected at random, with no effort to find an exceptional case), of the problems involved in applying the system of estimating which has been so widely publicized.

Furthermore, assuming that we accept first the method of estimation based upon the entire width of the pattern, which in this case was 17 spaces,

including both the actual plottings and the open spaces, and secondly that we make the estimate from the point where the lowest level of the pattern is broken, such as at Z, our problems are not wholly solved.

A study of a large number of cases, including many individual stocks and averages over a considerable period of time, shows that two distinct difficulties arise, namely:

1. Many patterns are not so clearly defined that they can be as easily counted or measured, as in the case of Figure 64. Take, for example, the July 1933 top in U. S. Steel on Figure 72.
2. Only in about 50 per cent of all those cases which are easy to appraise, does the estimate prove to be accurate in forecasting an important turning point.

However, this does not mean that the device is not useful in stock trading. On the contrary, the so-called "count system" enables the figure chart student to have a good general idea as to the extent of an advance or decline, whenever a fairly substantial sidewise movement develops, from which he may make an appraisal.

Another vital difficulty in using this method of forecasting the extent of a trend, is that in many instances, particularly in the cases of volatile and active stocks, an important top or bottom will form with a very narrow movement on the figure chart. Let us go back, for example, to Figure 19, and look at the July 1933 top in American Commercial Alcohol, after the stock had advanced from 13 in February to 89 in July. In this particular case, the problem arises as to what shall we consider the line movement representing the top, by which we will estimate the ensuing decline.

Shall we take the well-marked 84 line, which was the sixth from the top in the pattern, and on which there are 15 plottings, which, if we measure from the actual top, suggest a decline from 89 to 74; or, shall we use penetration of the bottom of the pattern at 83, suggesting a decline from this level to 68? (Actually, we see that neither estimate was very accurate in suggesting that the stock would recede to 30.)

Or, shall we use (after the sharp drop from 80 to 60 had occurred), the entire width of the pattern from the time the 80 level was reached, at 12A for example, or when the 82 level was reached at a later point (14)? If we use this entire top as a basis of estimating, what line shall we select?

Let us try the 80 line, on which there were only 12 plottings. This actually measured the real width of the top, which encompassed 46 spaces. If we take the top at 89, and subtract 46, we find that the width of the pattern suggests a decline to 43, while if we subtract 46 from the 72 level, where the bottom of the pattern, at 13A was penetrated at 17A, a decline to 36 is suggested. This was far closer to an accurate forecast than any other estimate which might have been made.

The question then arises as to whether we should always make estimates whenever such a broad pattern forms, based upon the total spaces across the pattern.

Observation of many cases indicates that "No" is the answer, because if every time a broad trading area develops, such as that shown across the top in the case of American Commercial Alcohol, in Figure 19, the figure chart student measures the entire width of the pattern, and estimates a decline equivalent to it, he will find that in at least two-thirds of the cases his estimate is too pessimistic in a major uptrend, and conversely too optimistic in a bear market, unless the pattern happens to develop at a major top or bottom, at the reversal of a major trend. Consider, for example, some of the long trading areas (which certainly looked like tops) which appeared on the figure charts between July 1933 and February 1935.

This brings up the question as to whether the top or bottom formations, as measured by this method, appear differently at major and intermediate tops and bottoms. The answer is "No". It will be remembered that in Chapter VIII we learned that a major top developed from an intermediate top, which in turn began as a minor top. The same applies to figure charts.

But to get back to the use of the counting system in estimating how much and how far a rally or decline is likely to go before it meets resistance. There are many cases where minor trend movements are accurately indicated by the so-called counting system. Klein gave considerable emphasis to this in his work in 1904.

Let us take a few examples from the March-July advance in New York Central, when this stock had a rise from 14 to 58 on the one-point figure chart, as is shown in Figure 65.

We will break up this rise, and consider nine minor sidewise movements, which will be looked at individually in Figures 66 to 70-D, inclusive. The numbers

under the price trend in Figure 65 indicate the sections under consideration.

First we will consider the minor reversal early at the March low. This is detailed in Figure 66.

Here we see that the bottom formed as a minor double bottom, at the 14 level, with the consolidation of the decline at the 15 level. This pattern later proved to be the intermediate reversal. (The M in the pattern indicates the beginning of March.)

It will be noted that there were five plottings on the 15 line, indicating the possibility of a rise or decline of approximately 5 points (when a sidewise movement appears on a figure chart, we assume that it will be followed by either an advance or a decline depending upon the way the trend breaks. Sometimes this can be anticipated).

In this particular pattern, the fact that the price refused to go lower than 14, and then demand came in at 15, gave us some indication that the movement away from the horizontal movement would be upward. This was confirmed when the sharp advance in the fifth space rose through 16.

Now let us look at the counting. It is quite obvious that the 15 line represents the center of the movement. This is 5 grids in width. If we make the estimate from the actual bottom, we find that the next minor top exceeded the estimate by 3 points, because it represented a rise of 8 points, to the 21 level. If we take the estimate from the count line (15) a rise to 19 is indicated. (Note that we are again using the count line as the first figure in the estimate.)

On the other hand, if we take the third alternative, and count from the 17 line, where there is no doubt about the fact that the consolidation has broken out upside, because the price has exceeded the two minor

Figure 65

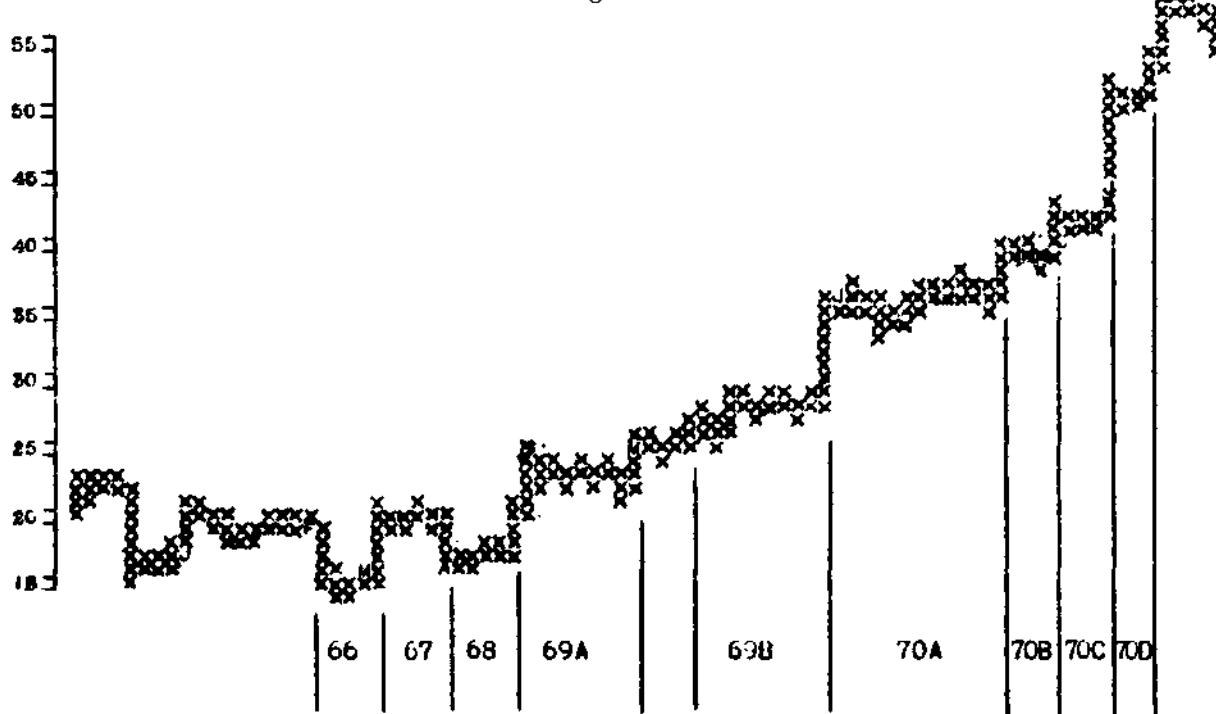
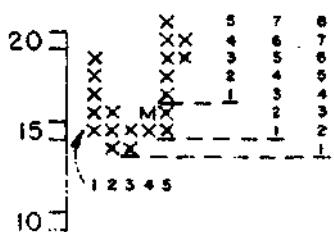
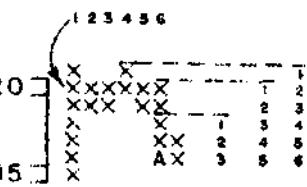
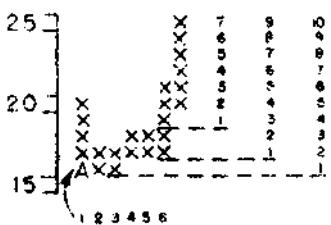
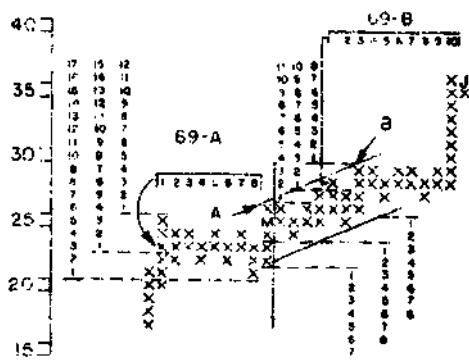


Figure 66**Figure 67****Figure 68****Figure 69**

reversal tops at 16, a price of 21 is suggested. This proved to be the successive minor top, thus this estimate was accurate.

Subsequently a decline back to 16 occurred, as the March low was tested, before the big advance. Let us look at this succeeding minor top shown in Figure 67.

Here we find a pattern of a double top at 21, and a sidewise movement six plottings wide, at the 20 line. Assuming this to be the estimate, if we take the top, a decline to 16 is suggested, which proved to be accurate. On the other hand, if we take the 20 line, to make the count, the decline fell short of the estimate by one point, and if we take the breakout point on the 18 line, the estimate was short 3 points, or 50 per cent.

Now let us examine the next minor bottom, which was the test of the March low, shown in Figure 68.

Here we find that there was a triple bottom at 16, and that the total sidewise movement measured six plottings at the 17 line. Projecting this estimate from the bottom, we find that it fell short by a wide margin, because the next minor top was 10 points up, not 6.

Similarly, if the estimate is taken from the count line, there is a 50 per cent error again, in that instead of 6 points, the price was 9 points up. But if the estimate was projected from the breakout point, which in this case was 4 points up from the bottom at the 19

line, due to the sidewise movement between 17 and 18, then we find that the estimate of 6 was exceeded by only one point.

Proceeding to the following minor top at 25, shown in Figure 69-A, we find that after a single touch at the 25 level, the price trend moved sidewise between 22 and 24. At the 23 level, a sidewise movement of 8 plottings built up, and then there was a sharp decline to 21, indicating that the pattern had broken out downside, and suggesting the possibility of an 8-point drop, which, if measured from the top at 25, indicated a decline to 18. If it were measured from the count line at 23, a decline to 16 was suggested; and if measured from the breakaway point at 21, to 14.

Here is one of the cases where the measuring system went entirely wrong, in that a decline was signalled, whereas only a false recession occurred, which was followed by a substantial further rise. If the stock was sold at 21, the trader had only the logical defense, which was to buy it back at 26, with a stop under, let us say, 22.

When the 25 level was surpassed for the first time at A, the count was applied to the upside, using the same estimate of 8 points. Measured from the 21 low on the false decline, a rise to only 28 was suggested, while if the count line at 23 was used, a rise to 30 appeared probable. But if, instead, the 26 level was used for the application of the estimate, on the basis that the 25 level was the top of the sidewise movement, then a rise to 33 was indicated. Actually, there was a slow upward movement to 37, so that even the latter estimate fell 37 per cent short of the next minor top shown in Figure 69-B.

But in the meantime, another well-formed consolidation, which is shown in Figure 69-B, developed without any intervening reaction of importance in the upward channel from A to B. Some figure chart students might contend that the top of this next consolidation shown at B was estimated within 2 points by the count of 8 from the 23 level in Figure 69-A. But the matter is academic, because stock purchased at 26 and protected with a stop at 23 would not have been sold, and when the consolidation between 29 and 27 developed, and an advance followed, the trader would have been on the right side of the market.

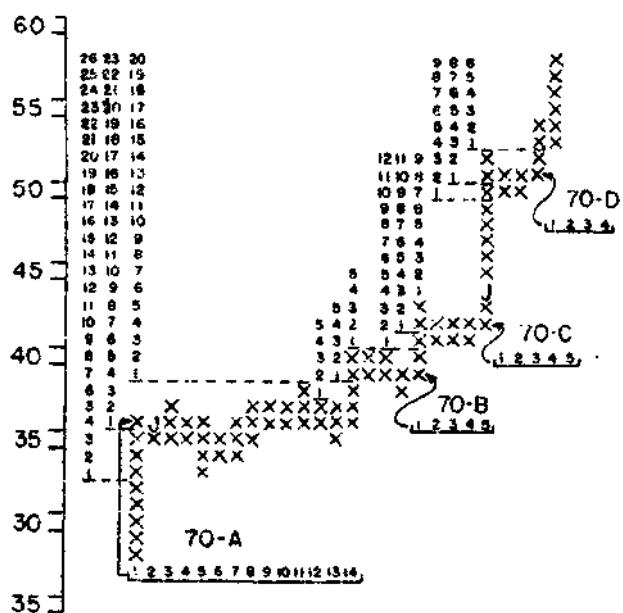
But let us now take the case shown in Figure 69-B. Here we find that after making four minor tops at 29, there was a well-marked sidewise movement with nine plottings and one open space at the 28 level. Assuming that we include the open space, an advance of 9 points was suggested which, if measured from the low of the pattern at 27, indicated a rise to 36, or within one point of accuracy as the next minor top was at 37. If the estimate was taken from the count line at 28, it was exactly estimated, while if it was taken from the breakout point, at 30, the top formed two points short of the estimate.

Now let us consider the pattern following the time when the 37 level was reached as shown in Figure 70-A. After touching 37, a decline back to 33 occurred,

and then there was a well-marked sidewise movement between 37 and 33, covering, with one open space, a width of 14 spaces. As soon as the advance through the highest point in this sidewise movement at 38 developed, it was then logical to believe that a rise of 14 points was to be expected. If this estimate were applied to the low of the pattern at 33, an advance to 46 was suggested. If it were applied to the count level at 36 a rise to 49 seemed probable, while if it were applied to the breakaway point at 39, 52 was suggested. The latter figure was the last important consolidation which preceded the rise to 58.

There were three minor declines in this rise, from 40,

Figure 70



43 and 52 respectively. Of course we can say that the 14-point estimate in the consolidation 70-A suggested the third of these minor tops at 52; but the other estimates did not, by any means, approximate the two lower consolidation levels.

However, let us go on. In the next minor consolidation, 70-B, after reaching 40, there was a minor decline to 38, and 5 plottings developed on the 39 line, providing us with an estimate of an advance or decline of five points. As soon as the 40 level was broken upside, three measurements could be projected. If taken from the low of the pattern at 38, a further rise to 42 was suggested. If taken from the count line, it looked like 42; while if taken from the breakaway point, 45 was the estimate. Actually, a minor top developed at 43. Thus, in this case the estimate from the count line proved to be accurate.

The next consolidation developed shortly thereafter, when, after a top at 43, the trend moved sidewise between 41 and 43, and five plottings developed on the 42 line (70-C), suggesting a further rise of five points, if the breakout was upside. When this occurred, if the low of the pattern at 41 was used, a rise to 45 was estimated; if the count line was used, to

46; and if the breakaway point at 44 was employed, it looked like 48. Actually, the rise carried to 52, before even a minor decline. Thus, all the estimates fell short.

After the 52 level was reached, another minor decline set in, and a recession to 50 occurred. At this point, a minor sidewise movement, four spaces wide on the 51 line (70-D), suggested a further rise of four points if the advance continued. Based on the low of the pattern at 50, a top at 53 was suggested. The count line looked like 54, and the breakaway point estimated 56. Actually, the top was 58, and this proved to be the intermediate top and the end of the long move.

Let us bring all these estimates together, on the basis that they might progressively suggest the whole amount of the move (shown in Figure 56) from 14 to 58. In going back, it seems logical to dispose of the first advance shown in Figure 66, because it was washed out in the next minor decline (Figure 67). Figure 65 shows this. Thus, if we add together the estimates, we have the following:

Sidewise Movement Shown on Figure	Estimate
68	6 points
69	8"
69-B	10"
70-A	14"
70-B	5 "
70-C	5"
70-D	4"
Total	52 points

And so we see that the progressive estimates from the 16 level suggested a rise of 52 points to a top at 68, whereas the actual high point was at 58. This method of consolidating the various estimates is not commonly used by figure chartists. However, in the course of market movements, there are a few cases where it appears to apply astonishingly well. In the majority, it falls short or overshoots the market, as it did in this case.

The method of estimating the extent of a further movement, by observing the width of a sidewise movement, or "line" on a figure chart, applies, conversely, to the downside. When pronounced diagonal trends, such as the advances from July to September 1932, March to July 1933 and March to September 1935, are in progress, or conversely when declines such as those from June to October 1931, November 1931 to February 1932 and March to July 1932 (see Chart 6) are in progress, figure chart estimates are a valuable working tool, and contribute to the feeling of confidence of the technical student, in remaining in the market.

When used with discretion, these estimates can help the trader to avoid getting out too soon. However, the keen student must always be alert to the formation of a sidewise pattern which may mean a reversal in the price trend, and a cancellation of the estimate which a previous supply or demand area may suggest.

From the discussion above, it will be noted that the counting method is used progressively. This answers one of the criticisms which is leveled at the method. Several critics have suggested that the estimates provided by the count at a bottom are far exceeded. The critic usually does not take into consideration the fact that the figure chart student habitually uses each well-defined sidewise movement to re-apply his estimate.

From the discussion of the New York Central chart, as laid out in Figures 65 - 70-D, inclusive, it will be seen that some estimates suggest 4 or 5-point moves, while others suggest moves of 10 and 15 points. Frequently, at the end of corrective phases of intermediate cycles (see Chapter V), estimates ranging from 20 to 40 points will be suggested by the broad trading areas of these widths, which appear on the figure charts.

It is almost impossible to classify the measuring device, or so-called counting system, in terms of the major, intermediate and minor trends. However, if these trends are being studied, on bar and line charts, as outlined in previous Chapters, it is easier to consider a given figure chart sidewise movement in terms of its importance, as measured by one of the three trends.

For example, in February, March and April of 1933, after the corrective phase of the first bull market cycle had been under way for some time, the figure chart patterns which developed along this bottom could properly be classified as intermediate bottoms, and the estimates taken for intermediate trend prognostications. On the other hand, except if a 5 or 10-point figure chart were used, and very skillfully interpreted, it is almost impossible to develop an accurate estimate which may be termed as a major trend forecast.

Also, it is obvious from the discussion of the New York Central chart that there are many sidewise movements on the figure charts which are truly nothing but minor fluctuations, and the estimates suggested are naturally for only the minor trend.

Application to Three-Point Charts

Before leaving the subject of estimating advances and declines by means of appraising sidewise movements, let us discuss briefly this same method applied to a three-point chart. Remember that early in the Chapter, at the time plotting methods were discussed, it was pointed out that three-point charts were plotted on grids showing one-point fluctuations, when swings of three points or more occurred. Thus we find that, when the method of estimating an advance or decline, which we have discussed and which is often referred to as the counting system, is applied to the three-point chart, it is essential that the estimate suggested by a sidewise movement be multiplied by 3, or it will fall far short of the actual moves which develop. If we plotted three-point moves on a chart using a three-point grid, there would be no need for this multiplication, of course.

Let us look at Figure 71, which shows the three-

point moves of New York Central from December 1932 through November 1933. Beginning first at the bottom which appeared as a wide trading area between 15 and 21, we note that the three-point chart did not show the low at 14 as it appeared in Figure 65. This area which developed over the course of more than three months, appeared on the three-point chart 6 spaces in width. Therefore, a move of 3×6 , or 18 points was suggested.

Often, in a sidewise movement on a three-point or five-point chart, there will be several levels at which a clearly marked sidewise movement appears. Take the case of Central — there were 6 figures on the 17, 18, 19 and 20 lines. We may take the widest point as the basis of our estimate, and use the level from which the pattern breaks out, projecting the width of the pattern times 3 as our estimate.

From the low in January, as shown on Figure 71, the estimate (A) suggested that when (B) was broken, a move through (C) to the 39 area was likely. Actually, we see that in June, for a period of some time, strong resistance was apparently met at the 38 level; but by the end of June, the selling had either dried up or been absorbed, and the sharp mark-up continued. Using this June consolidation area as a further means of estimating, let us take the 36 line, where we find 5 plottings. Multiplying this by 3, we have an estimate from (D), when (E) is broken, suggesting that (F) will be accomplished, or that a rise to about 54 will take place. Actually, we know, of course, that the stock reached 58. Put together, these two estimates were certainly very useful to the figure chart student.

Next, let us look at the top in July, which we have already analyzed in connection with Figure 64. Here we find that the pattern is similar to the pattern in 64, except that it is condensed. For example, there is a lower top at 57, under that at 58. On the three-point chart, we find that the line of this top was 6 spaces wide at (G), suggesting that when (H) was broken, a decline to (I), or the 35 level, was to be expected. This was exactly accomplished in the first sharp sell-off in July. Next we find, in analyzing the July bottom, that the sidewise movement at (J) covered 4 spaces, 4×3 indicating a move of 12 points from the breakaway at (K), and suggesting the move to the 52 level. Actually, the price went a point higher, to 53, at the August top.

When analyzed, this showed a sidewise movement of 4 plottings at (M), suggesting that when (N) was broken, a decline of 12 points (O) down to the 34 level, was probable. Actually, the market met fair resistance, and had a moderate rally from the 36 level. A sidewise movement of three points then developed at (P), suggesting a further decline of 9 points, when (Q) was broken. This estimate, indicated as (R), was to the 27 level. Actually, the market reached 26.

Together the two estimates, (O) and (R), were quite accurate in suggesting the decline from 58 to 26.

Next, we have the bottom in October, which we quickly see is 4 grids wide at (S), indicating the possibility, when (T) was broken, of a rise through (U) to the 45 level.

Figure 71

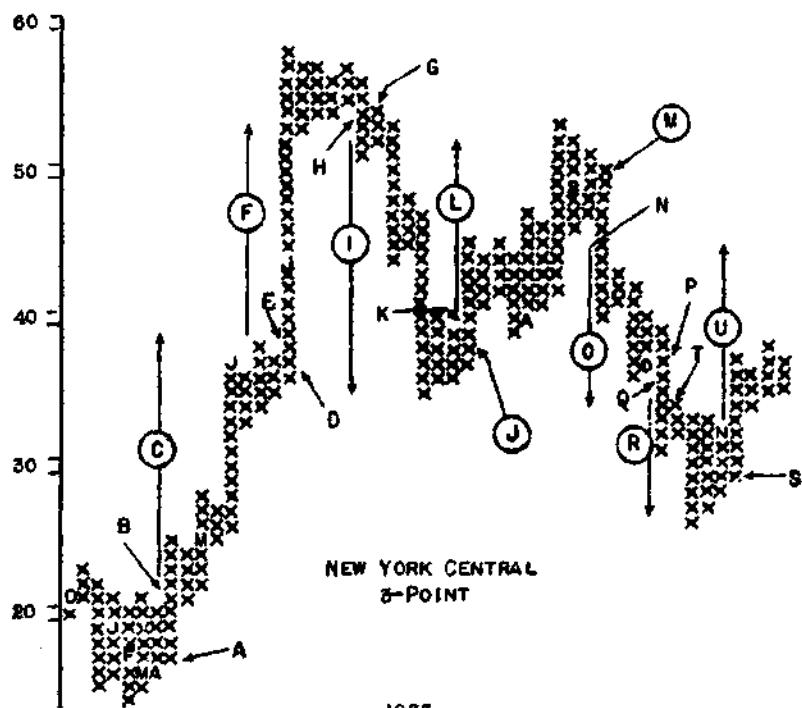
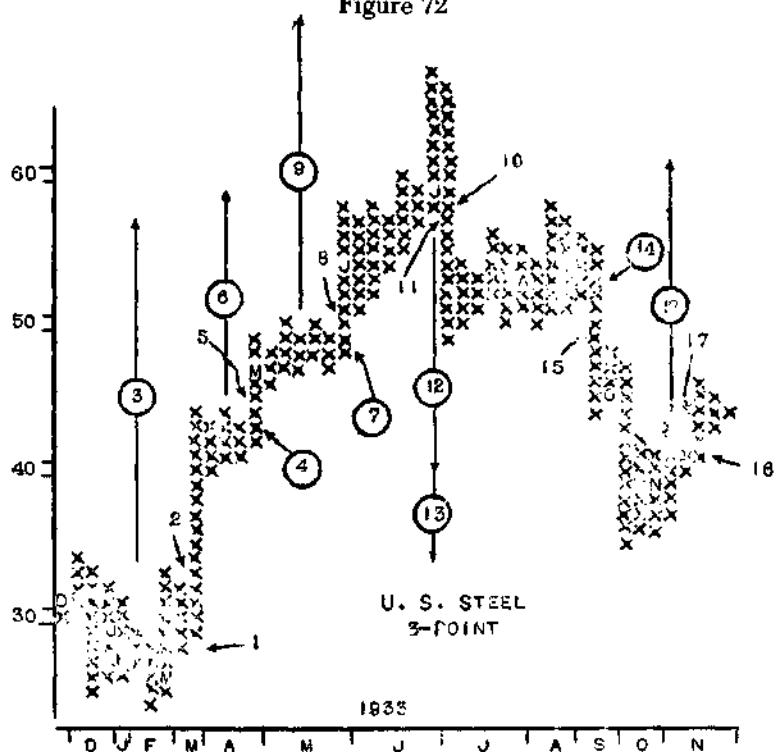


Figure 72



Now let us look at figure 72, which is a three-point chart of U. S. Steel, for the same period from December 1932 to November 1933. The 1932 bottom in Steel was wider than that in Central, in that there was a count of 8 across the 28 line at (1), which suggested a rise when (2) was broken, marked by the arrow (3) to the 58 level.

Here is a case which is a fair sample of an intermediate bottom of a corrective phase on a figure chart, which provided an estimate suggesting a large part of the next major phase. For example, the estimate we have just made indicated the possibility, when the stock was selling at 35, of a rise to 58, whereas the stock actually reached 67.

Combined with later estimates, this discrepancy, which was not such a wide one, was partly corrected. It will be noted that in April, another sidewise movement 5 grids wide, developed at (4), and when (5) was penetrated, the estimate (6) indicated a rise to 59, or two points above the previous estimate.

Similarly, when in March another sidewise movement of broader proportions, 7 grids wide, developed at (7), and (8) was penetrated, a substantial advance to (9) was suggested. This estimate proved to overshoot the market, as the top shown on the three-point figure chart was 67. But nevertheless, it produced the proper bullish confidence in the mind of the figure chart trader, at the 50 level.

Now we come to one of the problems of the projecting of these figure chart estimates or counts. Note that as Steel reached its top in July of 1933, it ran up very sharply on the three-point figure chart, from 58 to 67, and fell equally quickly back to 49.

Thus, the actual top pattern was only two spaces in width, and the question arises immediately as to what point in the top pattern should be judged as the level from which to take an estimate. Undoubtedly, figure chart students would differ.

Let us select the 57 level, where we find 7 plottings, with one open space. If we use the 7 plottings (remember that we always multiply the number of spaces by 3 when we are working with a three-point figure chart), a decline through (12) to 40 is suggested; while if we use the 8 spaces including the blank, the decline through (13) to 34 seems probable. Actually, we see that the October low was 35.

Now let us take the last case, of the broad sidewise movement which followed the actual top, and which developed during July and August. Suppose we were to revise our estimate on the basis of the large count across the 53 level, at (14), then we would say that when (15) was broken (as it was in a sharp decline), a decline to a price of 16 was suggested.

Up to this writing (October 1935) the nearest Steel has been to 16 is just under 30. However, in September and October, a demand area developed, wherein a sidewise movement at 41 (16) covered 6 grids, and indicated the possibility of another rise to the 61 level when (17) was broken. It will be remembered that the February 1934 high was only a point under this level, at 60.

In using five-point figure charts, it is necessary to multiply the horizontal movements, when fluctuations are plotted on a one-point scale, by 5, just as we multiplied them by 3 in the above illustrations.

From this discourse concerning the value of figure chart estimates, the natural question which arises is whether most figure chart estimates or counts turn out to be more or less than the actual moves to which they are applied. Research with only a few thousand cases (many thousands would be needed) indicates that the expectancy is not something which can be estimated with any certainty, for about half the cases fall short, while the remaining half overshoot the mark.

But it is safe to say that the average figure chart

count will be accomplished by the subsequent price movement within a range of about 70 per cent to 150 per cent. That is, if a particular top or consolidation area suggests a move of 10 points, we may expect one of not less than 7 and not more than 15, before a resistance area of some importance is encountered.

One of the chief criticisms which may be leveled at the published works on the subject of figure charts is in respect to the fact that none of the authors has apparently chosen to investigate the subject of counting deeply enough to furnish reliable experience tables to tell us what the expectation is, under all the variations which have to be used in applying the so-called counting system. It would be a very tedious job, but at least then we would know the real value of this much publicized working tool to the stock market student, and particularly the figure chartist.

At a later point, we will have a further discussion of the so-called count system, in connection with a resume of Chrysler. Let us now proceed to a consideration of volume.

Volume on Figure Charts

On line and regular interval bar charts, volume is plotted for each interval of time, and price and volume characteristics of the market are usually studied in conjunction (see Chapter XIV). On figure charts, the attention of students is centered on price alone, and little has been done to develop the correlative study of volume. There are several reasons for this backwardness of volume study on figure charts. There are four reasons why volume is not usually studied by the figure chart student.

In the first place, volume data for figure chart plotting are not compiled. One reason for the widespread plotting of volume on line and bar charts is that practically every important newspaper in the country carries these tabulations for daily time units. If each student were compelled to tabulate his own volume data, as he would for his figure charts, the study of volume in connection with line and bar price plotting would probably not be widely carried on.

Secondly, it is less difficult to compile volume data for line and bar plotting than for figure chart plotting. For bar or line charts, it is only necessary to add a column of figures for an hour, a day or other time unit under consideration; but for figure charts, it is necessary to compile the figures, then add the volume sold at each figure, or more specifically, add the number of shares reported sold from one full figure transaction to the next full or fractional figure transaction, depending upon the figure chart being used.

With Bethlehem Steel on October 2, seven sales occurred before the first figure was made at 34. From Appendix 2 (Column 2) we do not know what the figure was before 34, hence we ignore the first seven sales. The next figure after 34 was 33, this latter figure being made when the stock sold from 33.2 on one sale, to 32.6 on the following sale. We would then say that the volume for the figure 34 on this day was 800 shares, which represents the total number of shares

which changed hands from the sale at 34 to the sale at 33.2, inclusive. The same procedure would be used for computing volume for any other sized figure. The tabulation of volume for figure charting, therefore, is much more complicated than for line or bar charting.

Thirdly, the graphing of volume on figure charts presents real mechanical difficulties. A stock may sell at one figure for 35 minutes then make a new figure, or it may not make a new figure for days. In the former case volume would be relatively light, but in the latter event volume might accumulate to thousands of shares, which, if plotted as on a daily bar chart might run through the price plotting and beyond the top of the graph, unless ratio scales were employed to plot the volume. The same situation might arise when an issue rallies or declines continuously for days without a full figure reversal.

And fourthly, even if volume could be plotted in this manner, difficulties of interpretation would arise. On line and bar charts volume for any given interval or intervals of time is interpreted relatively to volume for some other interval or intervals of time. We say, for example, that weakness in the price structure is indicated when volume decreases on the rally or increases on the decline, and that strength in the price structure is indicated when volume increases on the rally and decreases on the decline. We are making a relative statement: increase or decrease in relation to what? The answer is: in relation to the volume for the preceding interval or intervals of time, hour, day, week or month. On a figure chart this relationship tends to be destroyed because of the differing amount of time spent at each figure. The interpretation of volume on figure charts, therefore, presents difficulties not encountered on regular interval line and bar charts. Of course, volume on a figure chart could be studied in connection with the size of successive rallies or declines in price, but this involves the tedious labor suggested above.

Leading figure chart authorities have dodged the volume issue by saying that, traditionally, volume has never been plotted on figure charts, that study of the price movement is sufficient unto itself, that volume may be manipulated, that it is a deceitful indicator and so on, but the real reason seems to be that the plotting of volume on irregular interval bar charts raises certain problems in the compilation, plotting

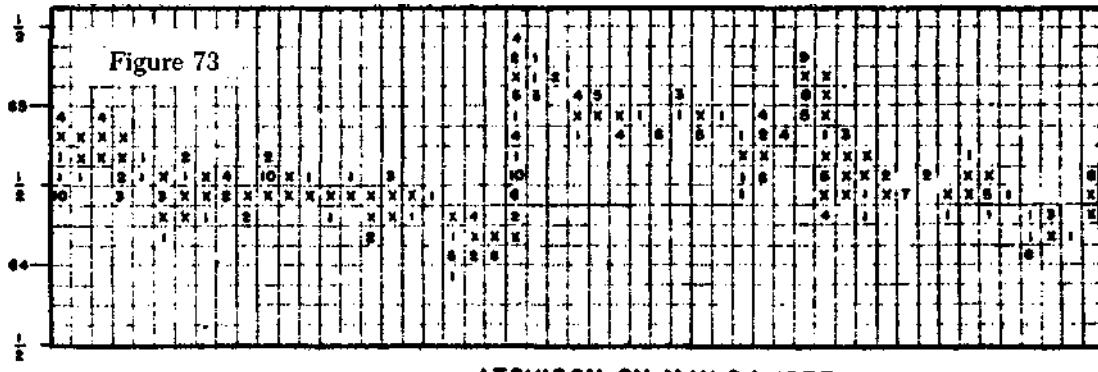
and interpretation of the data, and practically no research has been directed toward the solution of these problems. If volume is important marketwise, and virtually all competent students agree that it is, the figure chart will always be at a disadvantage if some way is not found to study volume in conjunction with price.

A small beginning in this direction is the use of volume symbols for the plotting of price change. In Figure 18-F, instead of an x, check mark or date, a number standing for shares sold is entered for each one-point figure. Thus, 800 shares of Bethlehem Steel were sold from the time this stock made the figure 34 until it made its next figure at 33. Two thousand one hundred shares were sold from the time it registered the figure 33 until it made the figure 32; 10,700 shares were sold at 32 before the stock reversed to 33 again; and so on. Where no sales were made in the price range covered by any given figure, the symbol zero or x is used to indicate this fact. Volume can be plotted for any sized figure by the same procedure.

Figure 73 illustrates this style for 1/8-point moves for Atchison on May 24, 1933, the day on which the Dow Theory signaled the bull market (see Chart 15, and Chapter VII). Using volume figures as symbols for price plotting in this manner enables the student to see at a glance the number of shares traded at any figure, and thus allows him to take volume into consideration in his market thinking; but the data are laborious to compile, and are presented numerically rather than graphically, hence the practical usefulness of the method is limited.

Oscillator Studies on Figure Charts

In technical study the student seeks all possible sign posts to guide him in judging the direction of the trend. Patterns of the price structure, trend lines, moving averages, behavior of volume, all give him clues. The more evidence upon which he can base his decisions, the more certain is he of profitable results. In recent years oscillator studies have been made by technical students as an added means of forecasting the price trend (see Chapter XIII). The price change from the close of one day to the close of the next is plotted on a center-line graph, declines being plotted below the center line and advances above this line. The theory is that price oscillations tend to narrow



down before the important moves. When the student observes these narrowing formations, he is alert to an impending move, and takes a position according to the dictates of this and other technical indications.

Since oscillator studies require regular interval plotting, they can be carried only on line and bar types of charts. Figure chart plotting disregards the time element, hence these studies cannot be made on figure charts.

Comparative Studies on Figure Charts

In previous Chapters the theories presented concerning technical studies and stock charts have been primarily those used to detect changes of trend, or, in other words, to answer the "*When*" to buy or sell question. This is and always will be the biggest problem in trading, but a second problem of extremely great importance (which will be discussed in the next Chapter) is in knowing "*What*" to buy or sell. Some stocks habitually move more percentagewise than others.

Since trading profits depend upon the extent of the price movement, the trader who is a technical student endeavors to make commitments in those stocks which enjoy the widest swings. The technique for discovering these stocks is to compare the action of individual issues with the average for the group of stocks representing the market as a whole, or the industrial classification to which the individual stock belongs. Several such studies are illustrated on Charts 40, 41 and 42, showing Chrysler and U. S. Steel.

As we will learn in Chapter XVII, there are great differences in the characteristic fluctuations of particular individual stocks. Some have relatively large percentage fluctuations, while others have relatively small ones. Some stocks thus move more than the market as a whole, while others move less. In Chapter XVII methods will be outlined to measure and calibrate these characteristics accurately, by means of various studies connected with bar and line charts. Most of these observations, which we call "comparative studies" are impractical on figure charts, because they are plotted on arithmetic grids, because they do not ordinarily show the extreme or closing fluctuations, and because they usually have no time element.

There is an unending argument, between technical students who use bar and line charts, and those who employ only figure charts. Points versus percentage to the informed bar chart technical student, percentage movements are the all-important comparative statistics he knows that a 5-point move in Chrysler at 80 is the equivalent of a 1-point move in Nash at 16. Thus, he doesn't look for Nash to move five points in the same advance that Chrysler moves five points or, he doesn't expect International Telephone, at 10, to advance five points while American Telephone at 140 moves up five points; or Baltimore & Ohio at 15 to move five points while Union Pacific at 95 advances five points. He knows that individual stock prices for the most part fluctuate in relation to their price levels.

The figure chart technical student, on the other hand, is interested primarily in point movements, because all of his studies are fundamentally based on changes of a fraction or given number of points (1/8, 1/4, 1/2, 1, 3, and 5 points). He studies each stock individually, usually without regard to its percentage characteristics. To him a stock is "doing worse than the market" if it is going down in an advance, or "better" if it is going up in a decline.-Most figure chart students appear to give too little attention to the relative fluctuations of individual stocks.

Perhaps the chief criticism which can be leveled at the figure chart student, for not recognizing relative movements, is that most traders using figure charts employ 1-point charts for practically all stocks, whether they sell in the price range from 5 to 15, or in the price range from 100 to 200. At times these students argue that any movement that isn't 1-point is unimportant. But this does not answer the problem of comparative studies, by any means, because when the level of the whole market in 1932 was between 9 and 11 per cent of the high price of 1929, there were many stocks wherein the observation of fluctuations of less than one point was essential and important.

The greatest emphasis, in the writings of Wyckoff and deVilliers is placed upon the use of 1-point figure charts, notwithstanding the fact that the general market level from 1932 to 1935 has been such that in many cases individual stocks were studied to best advantage on figure charts which employed 1/4 or 1/2 point moves, rather than 1-point moves.

It is interesting to note that Klein, in 1904, although he emphasized the use of 1, 2 and 3-point charts for high-priced stocks such as St. Paul, which was then the leader, he gave considerable emphasis to 1/2-point charts for the lower priced issues.

Perhaps the emphasis which Wyckoff and deVilliers have given to the 1-point chart was due to the fact that the majority of their work with these charts was in the ten years from 1921-1931 when, during which, as we see by looking at Chart 1, the price trend was substantially higher than it has been in the last three years. When we look back to 1904, we find that during the period, when Klein was writing on the subject of figure charts, and gave considerable emphasis to 1/2-point charts, the general market level was in the same area as it has been for the past several years. It is quite possible that if, in the course of an extended bull market, many stocks again reach the levels of 1927-1931, it will be found that 1-point charts are adequate.

In the meantime, in the opinion of the writer, it is important that figure chart students include a number of 1/2-point charts in their studies.

Speaking of comparative studies, let us look at Chart 33 for a moment. Here we see the same time period (March-October 1935) in the form of 1/2-point charts of the Dow Jones Average of 20 Railroads (upper chart) and the 30 Industrials (lower chart). While the Rails required 89 grids for plotting during this period, the Industrials required 184, which means

that 1/2-point or more fluctuations in the Industrial average were more than double those in the Rail average.

Let us look at it from another angle. Note that the majority of this larger number of fluctuations occurred following the July-September 1934 low, for up to that time the Rails had a slightly larger number of fluctuations than the Industrials. Note also that the March-July 1934 decline appeared to the eye, on the figure chart, as about equal, while the advance from the lows of March 1935 to the price level in October 1935, appeared to be 4 1/2 times as much in the Industrials as in the Rails.

The facts in these two comparisons were quite different. In the case of the Rails, the decline from the March 1934 highs to the September low was from 51 to 33, a drop of 18 points, or 54.5 per cent. The Industrials declined from an April high of 106.5 to a July low of 86, a drop of 20.5 points, or 23.8 per cent. In the 1935 advance, the Rails moved up from 27.5 to a high in September of 37.5, a rise of 10 points or 36.4 per cent; while the Industrials moved up from a March low of 96.5 to a September high of 134.5, an advance of 38 points, or 39.4 per cent.

Thus, although the 1/2 point figure chart indicated that the Rails had declined about equally to the Industrials in 1934, actually their decline was more than double that of the Industrials; while in the 1935 advance, when the 1/2-point chart seemed to indicate that the Industrials had advanced more than four times as much as the Rails, actually their advance was only 10 per cent more than that of the Railroads.

Does not this illustration point out rather vividly the manner in which the figure chart can distort the relative movements? Let us take another case. On Chart 34 we see a comparison of Chrysler with the Standard 90 stock index, both on 1-point charts.

Here the advance from the March low to the September high appears about 1/4 greater in Chrysler than in the Standard 90, whereas actually, when Chrysler advanced from 30 to 74 as compared with a rise from 64 to 95 in the Standard 90, the percentage changes were 146.6 and 48.5 respectively, which means that Chrysler's advance was more than three times that of the Standard 90.

However, the above discussion does not mean that the figure chart student is never aware of relative movements, or doesn't try to study them. Although his comparative studies cannot be compared with those which are explained in Chapter XVII, concerning bar and line charts, the figure chartist does make an approach to the problem of comparison, based on the different characteristics shown on his figure charts.

He knows, for example, that from time to time in a portfolio of, let us say, 100 figure charts of individual stocks, some stocks will move in a smaller sidewise movement, from which a relatively smaller advance or decline may be expected, as compared with others which appear to be moving in long accumulation or distribution zones, from which a substantial move may be anticipated.

Instead of comparing performance on the basis of percentage movements, the figure chart student observes the size of sidewise movements, which he assumes represent accumulation or distribution (depending on the way the price trend breaks from the area), and thus compares their position for the next move, finding in some cases that only a small advance or decline may be expected, while in others a more substantial one is to be anticipated.

Some figure chart students have attempted the practice of appraising all of the individual stocks they study, on the basis of large and small moves to come, making, at intervals, careful tabulations of the expectancy, with the idea of appraising the market as a whole.

If, for example, the majority of stocks being watched in a list, let us say, of 100-200 stocks, appear to be developing a long trading area or "line", a substantial advance or decline is anticipated.

Also, if the majority of a large number of charts are showing small trading areas of 5-6 fluctuations, only a small move is anticipated. The theory of making these general appraisals to classify all stocks into groups which give indications of moving short or long distances, is that whenever a majority of stocks appear to be lining up for a large move, it is evident that the general market is getting ready for a big advance or decline. On the other hand, if the majority of charts appear to be anticipating a small movement, it is likely to be part of a larger move, the direction of which has been previously forecast. Some figure chartists systematically employ tabulation sheets on which they list, at daily or weekly intervals, the various stocks whose figure charts they study according to various categories. Stocks which indicate the possibility of a large advance or decline are checked in columns so designated, while stocks which indicate a small move are checked in other columns, and those which seem indeterminate are checked in still another column. Then a composite score is taken.

There is one important fallacy in this system of appraisal, which at times makes it difficult for the figure chart student who is using it, to make correct general market forecasts from a summary of the classification of the various positions shown on the figure charts. It occurs when, during a period of great uncertainty, and also when major groups are temporarily diverging in their trends. Then it is difficult to get a general appraisal which shows a majority of figure chart pictures indicating a large move in the same direction.

Take, for example, the situation in June of 1934, shown on Chart 33. Here the Rail index made a top at the 45 1/2 and 46 level, which was only 3 grids wide, and from which a very substantial drop occurred. On the other hand, the Industrial average developed a double top at 100 and 99, with a fairly broad formation covering 11 grids. At this time, the author was in touch with two competent figure chart students, who were employing the appraisal system just suggested. Both have been outstandingly successful in making

profits from their figure chart studies. They felt that a top had been reached in June 1934, because so many of the Rail charts appeared to show evidence of distribution. Appraising 100 or 200 charts at that time did not show that the majority had developed trading areas which might be considered tops.

But this does not mean that appraising the outlook for a large number of figure charts, and accepting the composite as an indication of the market trend, is not a very useful procedure. There are many intermediate turning points where the procedure proves satisfactory.

Before proceeding to a discussion of a trading operation in Chrysler, based on a 1-point figure chart, which will close this Chapter, let us proceed to a brief discussion of both what might be termed a major trend figure chart and a minor trend figure chart.

For this purpose, we will use a 3-point figure chart of the Herald-Tribune average of 100 stocks, from 1925 to 1935, shown on Chart 35, and a 1-point figure chart of the Gartley 15-stock Aggregate, taken from 20-minute fluctuations, from July 1934 to October 1935, shown on Chart 36. The space between A and B on Chart 35 designates the time period of Chart 36. Let us take the long-term picture first.

Herald-Tribune 100-Stock Average

-Theee-Point Chart

In the past ten years, during which the figures for the Herald-Tribune 100 stocks have been available, we see that this average rose from a low in 1925 of 91, to a high of 208 in September 1929; declined to a low of 74 in July of 1932; and in October 1935 had again advanced to the 108 level. This period encompassed most of the bull market of 1923-1929, the bear market of 1929-1932, and the bull market from 1932 to 1935, which at this writing is still under way.

In comparing Charts 35 and 36, the first thing which strikes the eye is that the cycle movements which were discussed in Chapters IV to VI inclusive, also appear on the figure charts. That is, we see that the saw-toothed advances and declines in the major and minute trends appear in about the same fashion. Note how the advance from 1925 to 1929 on Chart 35 resembles the advance from March to September on Chart 36.

It is interesting to observe first, in considering Chart 35, that there was no time in the ten years shown, when there was a similar period of sidewise movement to that of 1933-1935. All during the previous eight years, stock prices appeared to be moving in a more pronounced diagonal trend, either up or down. Also, it will be noted that the advance of 1933 was the sharpest of any except that in middle 1929. Regard how differently the March-September advance of 1935 appeared on the 3-point Herald-Tribune chart, as compared with the bar and line charts we have been observing in connection with the previous Chapters. This emphasizes how the time element is eliminated on figure charts.

For instance, the 1933 advance, which encompassed only three months, seems to be equally as long as the 1935 advance, which, when Chart 35 was drafted, had been going on for seven months. Observe that the March-September 1935 advance came out of a well-defined demand area, 6 grids in width, indicating a rise of 18 points from the breakaway level at 100 (6x3 equals 18 remember that this is a 3-point chart).

It is interesting to note that both the 1933 and 1935 advances were preceded by a decisive penetration of a well-marked downtrend line across the previous decline. Consider also that the 1935 advance occurred from a large triangle pattern. See how the major trend lines applied to the bull market of 1925-1929 and the bear market of 1932-1935, had to be adjusted several times.

It is also important to note that, although the distribution area at the 1929 top was broad, and at the same time in the form of an irregular head-and-shoulders pattern, the major demand area at the 1932 bottom was very narrow, and at the time did not look like an accumulation area of great importance. On the other hand, the trading area which formed the corrective phase of the first upward cycle from October 1932 to March 1933 appeared as a strong accumulation zone, which indicated a substantial upward move, once the breakaway had occurred. The count applied to this zone, however, which suggested a rise of 27 points, was somewhat too optimistic. Much valuable practice can be obtained by the reader in analyzing the count on this chart from 1925 to date, based on the formula laid down for Figures 71 and 72.

Before leaving Chart 35, attention should be called to the almost perfect example of a symmetrical triangle, which appeared early in 1930, which was followed by an extremely sharp decline.

Gartley 15-Stock Aggregate One-Point Figure Chart

In considering figure charts, as compared with line charts, the reader would do well to compare Chart 13 with Chart 36. Chart 36 is an excellent figure chart study of the minor trend, and has often proved very useful to the author in studying the minute fluctuations of the market.

In using a chart of this kind, the market student must be extremely careful not to over-emphasize small movements which are frequently misleading. Take, for example, the application of minor trend lines. Note how often they were falsely penetrated. Observe the two cases, marked A and B, which were falsely penetrated only to be followed (shortly thereafter) by a sharp counter movement (A, B, C and D).

Occasionally, a well-marked head-and-shoulders top or bottom will develop on this chart. Examples may be noted at the March bottom and August top. Upon rare occasions, a well-marked triangle will appear (see the dynamite triangle in the decline during March, and the larger ascending triangle which ap-

peared as part of the July advance).

The application of the count system is not particularly practical in the case of this sensitive chart, although there are numerous occasions where sidewise movements form, and where it might be applied. A chart such as Chart 36 is chiefly valuable in providing the detail of larger perspective.

For example, when the long trading area from August to February was broken downside, the outlook was decidedly bearish. On the other hand, it was very obvious, by the middle of May, because of the sharpness of the advance from the March lows, that the entire picture had changed; and when the top of this trading area from August to February was broken upside, in May, the bearish picture of March was entirely reversed.

Similarly, as the situation is viewed as Chart 36 ends in October of 1935, the next important change in market outlook will be denoted with either the upper or lower side of the trading area from August to October being penetrated.

Skill in Interpreting Figure Charts Can Be Attained Only by Practice and Experience

The working tools of stock market analysis, as applied to figure charts, have now been reviewed. Skill in their application cannot be imparted to the reader in a course of instruction.. He can acquire this only by patient observation and interpretation of price changes as they occur in the current market, or as they have unfolded in the past. However, the "feel" of this type of analysis can be given by reviewing the recent market action of a leading stock over a period of several years. For this purpose, we will select Chrysler, during the period from February 1934 to October 17, 1935. A 1-point figure chart on this stock is furnished in Chart 34, which also shows a 1-point plotting of the Standard 90 stock index for the same period.

When we take a case involving past market action, we can know what the "future" holds in store. The nearest we can come to simulating actual market conditions in a situation of this kind, is to cover the chart and reveal one grid at a time, honestly endeavoring to analyze the picture as we would if we were observing it in actual trading. This has been done in the writing of this discussion, and it is suggested that the reader likewise cover Chart 34 and proceed with the discussion grid by grid (remove it from the binder for convenience), for by doing so he will gain more of the "feel" of figure chart interpretation.

To develop proficiency in the interpretation of figure charts, based upon the principles of interpretations suggested in this Chapter, the average reader will find that there is no short-cut. Practice is the answer; careful and patient examination of a large number of charts is absolutely essential. However, it is not an impossible task, and the majority of market students who have studied with the author in his lecture courses, state that they have derived a lot of real satisfaction as

their proficiency in interpretation developed.

It is suggested, as the reader becomes interested in figure chart interpretation, that he take 10 or 15 charts,¹² and go over them in much the same manner as we will do now, with the Chrysler figure chart.

In order that the reader can follow the argument easily, the grids on the charts have been numbered consecutively along the horizontal scale, and in referring to various phenomena, the number of the grid at which they occur will be cited. The number 1, at the beginning of the citation, will refer to the first vertical grid. Each paragraph in the argument will carry a notation such as the following: Grid 27. This will mean that all grids on the 1-point chart up to 27 inclusive are exposed, and that the picture is being analyzed with only these fluctuations available. In order that references to grid numbers and price levels will not be confused, the former will always be prefixed with the word "Grid". The following sentence from the text illustrates the distinction..."There have been two more tests of the 30 level, on grids 76 and 77, and on 6 occasions the 30 level has held..."

Chart 34 gives only the plotted figures and shows no trend lines, triangles or other analytical markings. Had these been printed, the discussion would be prejudiced at many points, because the markings would show what was to happen in the otherwise unrevealed "future". Appropriate markings will be described in the course of the analysis, and these should be lightly drawn on the charts by the reader as the discussion proceeds.

Analysis of Chrysler One-Point Figure Chart 34

We will begin our analysis of Chrysler by exposing *Grids 1-8*. By looking back into the history of the stock, we find that, prior to the opening of our figure chart, it had advanced from below 8 in July 1932 to a high of 59, as shown on the figure chart, in the first 2 grids.

Grid 8: At this point, we see that on grids 1 and 2, there was apparently a minor double top at 59, with a sidewise movement between 57 and 59, lasting for 6 grids, at the 58 line. On grid 6 the price broke the lower side of this area, giving us a bearish indication. We therefore assume at this point that the sidewise movement of grids 1-6 indicates a 6-point decline from the downside breakaway at the 56 level, or a recession to approximately 50. As we see the picture at grid 8, a minor low has been established at 54, and a 3-point rally to 57 has occurred, with the market again going down, and at this grid resting at 55.

We now have the question as to whether the decline from 59 to 54 has been terminated. Are we to expect higher prices, or will our estimate of a decline to 50 develop? This will depend upon how the price

¹² COPIES OF THE BACK HISTORY OF MANY ACTIVE STOCKS, WHICH ARE PLOTTED ON CHART SHEETS SIMILAR TO CHARTS 33 AND 34, CAN BE OBTAINED AT NOMINAL COST (SEE APPENDIX II, CHAPTER II), FROM THE AUTHOR'S LIBRARY.

trend develops henceforth. If the low of 54 is broken, we may expect our estimate of 50. On the other hand, if a rise occurs through 59, we must then look at the entire pattern as a consolidation of the advance, which we know has already occurred, and assume that a further rise is to take place.

Let us assume that we will make our first commitment based upon either the upside or downside penetration of the area which we see showing at grid 8. That is, we will go long at 60, or go short at 53. Now let us see the developments.

Grid 10: We have a sharp rally to 60, penetrating the 59 area, and we *take a long position at 60*. At this point we see that there was a fairly strong bottom following the decline to 54, the sidewise movement of 5 grids at the 56 area indicating that from the breakaway point at A, at the 58 level, we could expect a move to 63. This is not particularly encouraging, with our commitment at 60, but we will have to see the development. *Our long commitment at 60 is protected with a stop at 53 3/4, just under the 54 low.*

Grid 12: After a decline to 54, on grid 11, we see that Chrysler has come back to 60. We now have a higher minor bottom, and we move our protective stop up to 55 3H, under the low at grid 11.

Grid 13: A sharp decline through our stop to 55 makes a loss for us in our first transaction. Now we have a picture with a double top at 60 (grids 10 and 12), one point above the high on grids 1 and 2, at 59. The estimate based on the bottom across grids 6-11 seems in question, and now we find the picture is quite uncertain.

We again consider the idea that the whole movement from grid 1 to grid 13 is a trading area, and that if 54 is broken, the stock will be a sale; while it will not again be a buy unless the 60 area is penetrated.

Grid 14: A test of the 54 level occurs, but it is not penetrated. Therefore we still view the pattern as a trading area between 54 and 60.

Grid 15: The stock looks rather more encouraging, in that a double bottom has occurred at 54. We have no commitments. We will await further developments.

Grid 17: The bottom at 54 is broken, and we assume that the original estimated decline, suggested at grid 7, is under way. The question now arises as to whether we should sell short at 52. In reviewing the pattern, we now see that there may have been distribution between 58 and 60. If this is the case, the 58 level might be used as a measure of a probable decline.

Here we find that there were 9 plottings on grids 1-6, 10, 11 and 13. If we include the 4 open spaces, at grids 7, 8, 9 and 12, there were a total of 13 spaces across this possible top. As the breakaway point is one point under the low of 54, a decline to 41 is suggested. If we take only the plottings in the 58 line, a 9-point decline to 45 is suggested. In either event, we may expect a further decline from 52 to somewhere in the range of 45-41. Therefore, the question arises as to whether we should sell short at 52-53, with a stop, let

us say, just above the minor high on grid 15, at 57 1/4, for instance.

We decide to see whether this 57 level is tested, with the idea of taking a short position there, with a stop at 60 1/4, just above the high at grid 12.

Grid 20: But instead of a further rally, we find a new lower minor high at 55, at grid 19. *We therefore decide to take a short position, which we do at grid 20, at approximately the 52 level with a stop at 55 1/4, just above the minor high in grid 19.* We now have our second position, this time on the short side.

Grid 21: A decline to 50 occurs. We have now reached the level of the original estimate made at 57, but in the meantime we have had a new, more bearish appraisal. So we are not particularly disturbed about our bearish position.

Grid 23: Now we find that on grids 21 and 22 there is a double minor bottom at 50, and we have some reason to be concerned about our short position, particularly when we see that a very well-marked trend line can be drawn downward across grids 12 and 19. If this line is broken upside, we may expect a rally of at least half of the decline from 60-50 (Dow Theory), or a test of the 55 high (remember that we have our stop at 55 1/4). Now the question arises that if this rally is possible, shall we cover our commitment at 52 1/4, or ride out the rally with a possibility of being stopped out at 55 1/4, just about as the rally reaches its top and the decline is resumed. We run this trading risk, because there is also the possibility that the 50 level may represent a bottom from which a substantial further rise will occur. Let us proceed.

Grid 25: Now we have four attempts to penetrate the 50 level without success, and we have a well-marked sidewise movement with 5 plottings, on the 51 line, suggesting that if the 52 level established by the minor high at grid 23 is broken, a rally to 57 is to be expected. This will take our stop at 55 1/4 and leave us in a vulnerable position, in the event a further decline is to take place. So we *decide, as good trading policy, to bring our stop on our short commitments, which is now at 55 1/4, to 52 1/4.* Thus, although we are not making any profit, we insure only a very small loss (1/4 point plus round-trip commissions and taxes), our thought being that if we are stopped out, we will be in a position to make a new short commitment higher up. We are interested in the intermediate trend. If we were minor trend traders, we would reverse our position to the long side at 52 1/4, with a stop at 49 3/4, under the low established at grids 21, 22, 24 and 25.

Grid 26: The minor trend line is sharply broken by a quick rally to 55, *catching our stop at 52 1/4.* As this approximately retraces half of the decline from 60 to 50, the question now arises as to whether we should sell short immediately, or consider the upside break as the beginning of a substantial advance.

We find that the bottom across grids 21-26 has 6 plottings at grid 51. From the breakaway point at 53, this would suggest a rise to 59, or a test of the top at

grids 10 and 12. We decide to wait, to make the short commitment nearer the high point suggested by the bottom formation. Let us look for the moment at the Standard 90 stock index above. Here we see three lower tops in the market as a whole, indicating definitely that a downtrend is under way. And on grid 24, the previous lows on grids 15, 17 and 20 have been broken. (We cannot synchronize the grids on the Standard 90 and Chrysler. We will merely look at the Standard 90 picture to see what the market is doing.) We go on.

Grid 27: A sharp decline carries back to 50, indicating that we would have been smarter to make a short commitment at 55, instead of depending upon the suggested advance from the estimate across the 51 level on grids 21-26, inclusive.

But again we see demand at 50, and the bottom at this level is becoming more convincing. We wait to see developments.

Grid 29: A sharp rise retraces the decline, and leaves the bottom still at 50, with 5 touches, and with a count of 8 across the 51 line. Here we come to one of the fine points of interpretation of the counting system, which is much in dispute. Briefly, when we counted at grid 26, we used the breakaway point at B, at the 53 level, just above the minor high established on grid 23. Now the question arises as to whether we should make our estimate from a penetration of the minor top at 55, established on grid 26, or should we still use the breakaway point at the 53 level? Or, as an alternative, shall we base our estimate on the count line at the 51 level? The three estimates give us vastly different suggestions. The count of 8 applied to the 53 level suggests a rise to 60, while if it is applied to the 56 level, a rise to 63 is indicated. On the other hand, if it is applied to the count level at 51 it suggests a rise to 58. Which shall we take? To complicate the matter, there is also the question as to whether we should use the count of just the plotings on the 50 line, and apply that to a breakaway point at 56, wherein the minor top on the 26 grid will be broken? In a confusing situation of this kind, the only reasonable policy in the application of the so-called count system is to wait for further developments.

Grid 33: Now we find that a sidewise movement has developed between 53 and 55. Although the pattern between grids 21 and 28 appears as a strong one, and might now be interpreted to indicate a rise to 63 when the 55 level is broken ($56 + 8$, 8 being the count across the 51 line, between grids 21 and 28). We see that at this point there is also the possibility of a lower top at 55, developing under that back at grids 10 and 12, at 60.

On four occasions, the price has tried to get through 55 unsuccessfully, which is approximately the 50 % rally point of the decline from 60 to 50. We again make up our mind to make a commitment whenever either side of this trading area is penetrated. We will buy at $55 \frac{1}{4}$ or sell short at $52 \frac{3}{4}$, with a stop at the opposite side of the trading area, according to the

commitment we make.

Grid 35: The sharp decline from 54 to 46 puts us on the short side again, at $52 \frac{3}{4}$ for our third commitment, and we put our stop at $55 \frac{1}{4}$, with the idea of moving it down as soon as a lower minor top forms, because the decline has been drastic enough so that we don't want to lose any more of our paper profits than we can help.

Now let us remember back, that when we appraised the move from grid 1 to grid 13, which now certainly appears to be a top, we estimated (see discussion in grid 17) that the sidewise movement at the 58 level indicated either a decline to 41 or 45. Now the question arises as to whether the decline is pretty well over. Here we face one of the practical problems of the so-called count system. If we use merely the 9 plotings between grids 1 and 13, on line 58, the market has 2 points more to go; while if we use all of the spaces, including the 4 blanks, totaling 13, it still has 6 points to go, which would make quite a difference in our short commitment at $52 \frac{3}{4}$.

Now we make a new appraisal. We have a lower top at 55, with a well-marked sidewise movement at the 54 grid, which is solidly filled in for 10 spaces. Let us re-appraise the decline, on the basis that when the 53 level was broken, a 10-point decline from 52 to 43 was probable. This checks within two points of our previous estimate derived from the sidewise movement on the grids between 1 and 13.

Grid 37: Things look better for our short commitment, although a bottom may be forming at 45. But the fact that there was only a 1-point rally from 46 to 47 and another from 45 to 46 indicates that the market is still weak.

Grid 38: Now we are not so confident. It looks like a minor bottom at 45, and we see that on the 46 line there is a count of 4, indicating that if 47 is broken, a rise to 51 is suggested. Now we face the question: Shall we move our stop down to $47 \frac{1}{4}$, thus insuring a small profit, or shall we ride along, with the idea that the decline is going to 41?

Again, let us look at the Standard 90 stock index. Here we see that the general market has had a bad slip, and there is no indication of bullishness. So we retain our bearish view, with the idea that possibly a rally to 51 may occur. But we will wait and see.

Grid 39: Our fear of a rally was unnecessary. The moderate decline from 47 to 43 leaves us in a more comfortable position, and now we move our stop down to $47 \frac{1}{4}$, thus insuring a modest profit. Remember that our top estimate suggested a decline to 41, and that the estimate across grids 26 to 35, suggested 43. The price is at 43. Thus, we have good reason to protect our commitment. As the trading is beginning to approach the estimated low, we will continue to try to move our stop down to get the most out of our profit.

Grid 40: After a 1-point rally, a sharp decline occurs to the 40 level, which is below the level of our estimate based upon the count at the 58 line from grids 1 to 13.

Now the question is: Shall we cover our commitment at 40? We look at the market, and we find that stocks are still declining. Therefore, we decide to ride out our bearish view, with the idea of bringing our stop down as soon as another top develops.

Grid 42: Now we have reason to worry. A minor double bottom develops at 40, which is one point under the estimate, and a rise to 42 follows. Our question is: Shall we cover our short commitment and take a profit of 10 3/4 points, which we need to cover our loss, or shall we ride out the decline? Let us decide to move our stop down to the next minor high with the idea of trying to get the most out of the recession.

Grid 43: Now we feel better. A further decline to 38, 3 points in excess of the first estimate, 5 points in excess of the second estimate, has developed. We know that some kind of a rally should occur soon. At this point, we see that there has been a minor consolidation at the 41 level, 4 spaces wide. We assume that this may mean a further decline, based on the breaking of the 40 level, of 4 points to the 36 level.

But as all of our larger estimates have already been accomplished, we are looking for an advance which may be 1/3 to 1/2 of the decline from 60 to 37. To be safe, and insure our profit, *we move our stop down to 42 1/4.*

Grid 46: Now we have what appears to be a minor bottom, possibly a bottom of greater importance, at the 37 area, with 2 grids 4 spaces wide at 38 and 39, suggesting that when the 39 area is penetrated, a rise to 43, which will catch our stop at 42 1/4, is to be expected. We are still bearish, so the question is: shall we move our stop up 1 point, or shall we ride out the advance? There has been a substantial decline, and we have a fair profit. So we decide to see how far the advance will go.

Now we have a real problem. The price has declined from 60 to 37. The next big movement will probably be on the upside, although in the meantime there may be a further minor decline. We are interested in the intermediate trend. Shall we reverse our psychology of bearishness to the bull side? Let us wait for an upward zigzag to develop (as Dow Theorists would do).

Grid 48: Here we have more evidence of a bottom, with a 1-point reversal at 37, and a sidewise movement 6 plottings wide on the 39 line, indicating the possibility that when the 42 area has been penetrated, a further rise to 48 is a probability, which is about a 50% retracement of the decline from 60 to 37.

As the decline has gone on for so long (nearly 4 months), we decide to move our stop down to take every advantage of the possibility of a substantial rally, and therefore *we set the stop now at 41 1/4.*

Grid 50: A sharp rally occurs, which catches our stop, and *closes our short commitment at 41 1/4.* During the course of this rally, an adjusted trend line across grids 35 and 46 was sharply penetrated, similar to the situation at grid 26. The normal expectancy now is that there will be a rally to 48. Here we have the problem

as to whether this rally will be the beginning of a new intermediate trend, which will be important enough for us to follow on the long side.

Let us again look at the 39 level. Now we find that the consolidation area is 8 grids wide, indicating that from 42 we expect a rise to 50. Thus there are still 5 points to go. We take a look at the general market, as reflected by the Standard 90 1-point chart, and find that the market is also looking as if it may have made a bottom. We decide to make a new long commitment when a new minor low, above that on grid 49, at 38, is made.

Grid 56: Now we find that a minor double bottom has appeared at 38, on grids 53 and 54, 2 points above the low of 37 on grid 44. *We therefore decide to make a long commitment at 42, with a stop at 38 3/4.* We might have placed this stop at 36 3/4, under the low at grid 44, but if we are right about the bottom formation, the higher stop at 38 3/4 will not be caught.

Before we can be confident that our commitment is right, we will have to see the 45 level broken.

Grid 57: Our long position still looks good. Now we see the possibility of a minor trend uptrend line across grids 44, 49 and 54, and a minor downtrend line across grids 50, 53 and 56, making an excellent example of a symmetrical triangle, with an apex at approximately 41. We know from our experience of triangles that we cannot forecast the breakout, and that whichever way it moves, we should be prepared to act. If it breaks above 42, our long commitment will be well placed. But if, on the other hand, it breaks below 39, we will be glad we are out of the market on our stop. The pattern still looks very much like a strong bottom, and if we take the full count across the 39 line, including the 2 open spaces at grids 51 and 52, we have an estimate of 12, which we assume means a rise of 12 points to the 57 level in the event the minor top at 45, at grid 50, is broken. But we will have to see which way the triangle breaks.

Grid 58: The sharp decline from 41 to 34 catches our stop, and *closes us out with a small loss.* Now, as the low on grid 44, at 37, has been broken, it is hard for us to judge how much lower the price will go. What appears to be a grand bottom formation has been penetrated, and another one of our figure chart estimates has gone against us. What shall we do now? There is no percentage in selling short, because already the price has declined from 60 to 36. We thought we saw a good opportunity to buy at 42, so the best policy appears to be to get ready to buy again at a bottom, as soon as we see evidence which implies bullishness.

Consulting our long term picture of Chrysler on Chart 41, which includes the low of 1933, when the stock sold below 8, we note that there has been about a 50% retracement of the March 1933 - February 1934 rise. From our studies of the Dow Theory, we know that in a bull market, most retracements range from 30 to 60 %, meaning in this case that we should look for a low somewhere between 47 and 30. As we are nearer

the lower limit, we turn our eyes to the bull side, although in being conservative we are not ready to buy until we see another bottom pattern. At grid 58 we have one bearish factor, in that the well-marked triangle has broken out downside. As the third side of this triangle forming between 37, at grid 44, and 44 at grid 50, represented a move of 7 points, we may expect a decline from the breakaway point at 39, to 32. (See Chapter IX.) Let us go on and see the developments.

Grid 60: After a small consolidation on grids 58 and 59, between 36 and 37, another sharp drop carries the price down to 32, and we begin to get anxious about getting in on the long side. We wonder whether this decline represents a selling climax. From the figure chart alone, we cannot tell.

Grid 63: Now we have had what appears to be a minor bottom. After making a low of 32, there have been 6 minor reversals forming a sidewise movement between 33 and 34, 4 grids wide; and the price has risen once to 35, suggesting the possibility that if the 35 level is broken, a rise of 4 points to 39 is likely.

We decide therefore to make a purchase at 36, with a stop under the last low.

Grid 64: Our bullishness was apparently premature, for a decline which has now developed carried the price quickly back to 30, before the 35 level was again reached. So we have no commitment.

Now we are getting even more anxious to buy the stock, but we prudently await the formation of a bottom, with the thought that we would rather pay a lot more for the stock, and be sure that a turn has taken place. Now we have an important downtrend line across grids 35 and 58. When this line is penetrated, we can be fairly confident that the bottom has been seen. Let us go on.

Grid 67: We have a new minor downtrend line across grids 58 and 64, which has been slightly penetrated. Three times the price has reached 30, and a sidewise movement with 4 plottings, on the 31 grid, has developed, indicating the possibility of a rise to 35. We decide to buy at 32 1/4 stop, with the idea that if this purchase is made, the up move will be under way; and we enter our open order.

Grid 69: After two tries at the 32 level, another test of the 30 level is made. As a sidewise area is building up, there is more evidence of a bottom. Now there are 6 plottings on the 31 level, indicating the possibility that when 32 is broken upside a rise to 38 is a good possibility. The penetration of the minor downtrend line, which occurred at grid 67, so far has not proved to be a very bullish signal. But if 32 is now broken upside, we can expect the rise to be under way.

Now we get very bullish, because it looks like a good buying spot. We can take on stock at 32 1/4, with a stop at 29 3/4. Our risk is small, and after a decline from 60 to 30, in what we believe to be a bull market, our chance of gain we believe to be large compared with this risk.

Grid 70: Our buying stop is caught and we are long at 32 1/4. We immediately place a stop on our long com-

mitment at 29 3/4, and we are fairly confident that we are on the road to a profit.

Grid 71: Our confidence grows. We now see that there is a fairly well-marked bottom at 30, with a 7 count between grids 64 and 70, at the 31 level, indicating the possibility of a rise from 33 to 39. Thus, our commitment at 32 1/4, with a 2 1/2 point stop, looks like an excellent risk.

Now let us appraise the whole situation from the February top. There has been a decline from 60 to 30. A normal 50 % retracement would carry the stock back to 45. We are long at 33, so we feel fairly confident, and decide to apply plenty of patience. *Grid 73:* Our confidence grows, because now we have a bottom pattern with rising minor lows, which has approached the second minor high on grid 63, at the 35 level. Breaking this, we shall feel quite confident of a move to 40, and maybe 45.

Grid 75: The situation is a little discouraging, but we have no reason to worry about our commitment just because a 3-point reaction from 35 to 32 has occurred. We still have our stop at 29 3/4.

Grid 76: A decline to 30 occurs, and it looks as if our commitment is going to be stopped out. And yet, we have good reason to believe that the stock is thoroughly deflated, when we consider that after a rise from 8 to 60, it is back again to 30, thus having cancelled more than 57 % of its bull market advance. We see that a well-marked trend line can now be drawn across the highs on grids 56 and 73. When this is broken upside, we should have strong evidence that an intermediate reversal has taken place. Therefore, although we see the possibility of taking another small loss, we of course have the patience to await developments. But at this point we have to appraise the situation realistically. We see that there has been a top at 36, and that across the 33 line there is a sidewise movement 7 spaces wide, indicating that when the 32 area was broken downside, a further decline to 25 was probable. If this is to occur, we would rather be out of the market at 29 3/4. So we leave our stop.

Here is one of the problems of the figure chart. Suppose we consult a bar chart (Chart 40), and find that the earlier lows in August instead of being at exactly 30, were at 29 5/8, 29 1/4, 29 3/8 and 29 3/4. Would we be justified in carrying our stop at 29 3/4, just because the figure chart on a full point basis, showed the lows at 30? The answer is emphatically, No. The wise trader would carry his stop 1/4 under the low at 29 1/4 or at 29, which is the level at which we will now carry our stop. We are frankly disappointed. But let us assume that there is strong defense at 30, and we may still get through to a profit on our long commitment.

Grid 78: Now we feel better. There have been two more tests of the 30 level, on grids 76 and 77, and on 6 occasions the 30 level has held. The situation looks more like a strong bottom now than it did. But we cannot have more confidence in it until the 35 level is surpassed. We still have our long commitment with

our stop at 29.

Grid 80: Things look a lot better. Again there has been a rise to 35, and the rising bottom at grids 78, 79 and 80 look strong. The down trend line across grids 56 and 73 has been decisively penetrated, which is bullish. Now let us make an appraisal as we did at grid 14, on the basis of the longer trend. From grid 64 to grid 79, it looks as if a strong bottom of considerable importance has formed, which at the 31 line is 15 spaces wide, with 10 plottings. Assuming that an advance gets through 35, we can then estimate that there will be either a 10 or a 15-point advance, according to which variation of the count system we may take. We may expect a rise to 45 or 50. In either event, it would be a normal rally, after the decline from 60 to 30. So we are quite well satisfied with our long commitment. Here we have a situation which may develop into a buying spot at 36, where we would be justified in pyramiding our holdings by borrowing money on margin and increasing our commitments, on the basis that a fairly large advance was imminent. This is the one time that a stock trader can really afford to buy on a scale upward. We are justified at this time in going in debt, and assuming the risk, always, of course, with a stop on our commitment at 29. Let us proceed.

Grid 81: After a 1-point reaction, we have a good rise to 37. Let us assume that we *double our commitment at 36*. We are looking for a rise to 45-50. As soon as a minor low forms, above that at grids 76 and 77, we will move our stop from 29 up, in order to insure no loss, and gradually insure profits.

Grid 84: We have some reason to worry. We have just increased our commitment at 36, and here we find strong resistance at 37, with a sidewise movement 4 grids wide at 36, indicating the possibility of a decline to 31. We may run into a loss on our pyramided commitment. But we have the nerve to stay long without changing our stop in the belief that there was a strong bottom formed between grids 64 and 79. *Grid 86:* Now we are a little more confident, although the 37 level is still presenting resistance. Because we are strongly of the belief that an important rise is still imminent, we *have the courage to raise our stop on our commitment, from 29 to 33 3/4*, thus insuring no loss on our first commitment, and only a modest loss on our pyramided commitment.

Grid 87: The sharp rise to 40 gives us a nice paper profit, and we now feel fairly confident that a rise of another 5-10 points is nearby, as the estimate across the bottom works out.

Grid 89: Another minor top has formed, this time at 41, and we appraise the situation with the feeling that the sidewise movement, 3 grids wide at the 39 and 40 levels, probably does not indicate a decline to less than 35-36, which should not get us into any trouble. We know that all advances of importance are punctuated by minor reactions, so we patiently hold on and wait.

Grid 92: Now the 41 level has been broken upside, and it looks as though the advance to 45-50 is under way.

We are confident about it, and for this reason we raise our stop to 37 3/4 under the lows at 39, on grids 89-91, thus insuring a good profit on our first commitment, and a fair profit on our second commitment.

Believing that the 50 level will be reached, we decide not to move our stop above 37 3/4, until it is at least closely approached, realizing that after a rise from 30 to, let us say, 45, a reaction of 7-8 points is not to be unexpected, and if we have our stop too close, we will get caught too soon.

Grid 93: We are close to being caught, in the reaction back to 38. Here is another case where our stop would be placed just under the fractional low in the reaction to the minor lows shown on grids 89, 90 and 91, which happened to be at 37 3/4, as we see by consulting the December low on Chart 40. Long experience has taught this author that in setting stops on figure charts, it is always wise to watch the fractional lows not shown on the figure charts. Therefore we will now put our stop at 37 1/2, 1/4 point under the 37 3/4 low.

Grid 94: Our stop is taken by the reaction to 35, and we are out of the market with a modest profit. Now we have to re-appraise the whole situation. We must balance the tops at the 40 and 41 levels, at grids 88 and 92, against the bottoms between grids 64 and 77. It is possible that our stop was too close. On the other hand, as we see the situation at grid 94, there is also the possibility that we are still in a bear trend, and that the rise from 30 to 41 is merely a rally. We can now project a long down trend line across grids 12, 35 and 92. When this is broken upside, we can be quite certain that the upward movement which began at 30 is not a mere minor upside correction of the downtrend.

Appraising the top between grids 87 and 94, we see that there were 8 plottings across the 39 level, indicating the possibility of a drop from 37 to 30, which would be a test of the old low. The strength of the bottom pattern in August and September leads us to believe that this possibility is not a likely one. But we are out of the market. We don't feel like a good short, because of the reason just expressed. Our problem then is: Where shall we go long again? We decide that as soon as another minor bottom has formed, we will take another chance on the long side, still adhering to the belief that a strong bottom formed in August and September, and that there is still a good possibility of a rally to 50.

Now we see another sharp rally to the 42 high, forming a minor higher low at 36. But the advance occurred so rapidly that we did not have an opportunity to buy near this low, so we are still out of the market. We decide to await further developments and buy either when the 42 level is penetrated, or nearer the 32 level, depending upon developments.

Grid 97: After another test of the 41 level, we find the price back to 33, which discourages our bullish view and makes us feel better about the stock we sold out at 37 1/2. But we still cling to the idea that an intermediate low was made at 30, at grids 64, 65, 66, 69, 76

and 77. We are still looking for more of a formation of a higher minor bottom, and we do nothing now. Taking the top formation at 40-41, we find that across the 39 line there are 10 plottings, indicating that when the 35 level was broken (grid 97) a decline to 25 was possibly forecast. If we were trading the minor trend, we probably would sell short; but as we are interested in the longer intermediate trend, we still adhere to the probability that a bottom formed at 30, and await the possibility to buy near this level, on the theory that the current decline is merely a test of the previous low.

Grid 100: Now we have some evidence that a test has been made of the 30 low, when on grid 99 a 1-point bottom formed at 31. We get ourselves in the frame of mind to buy near the previous low, with the idea of stopping the commitment at 29 (under the August low), but await more evidence.

Grid 101: Now we have a sidewise movement, with a low of 31, which is 4 grids wide at the 33 level, indicating that if the 35 level is broken, a rise to 39 is a possibility. But we are not interested in the minor trend. We will interpret such a movement as the beginning of a substantial advance. However, we know that until such a time as the high at 42 is broken, we cannot now be sure that a big advance is under way. But we still can take the count back at grids 64-77 at the 31 level (which, it will be remembered, aggregated 15 if we counted the open spaces, or 10 if we did not), and now add 1 point for the touch of this level at the 99 grid. Thus, we may expect (note the reversal of this estimate) a rise of either 11 or 16 points from 35 rather than a decline to 25, once that level is broken. We have a similar estimate to the one we had at grids 78-80.

We decide to make a new long side purchase at 35 1/4 stop, so we put our order in, hoping that the 31 level represents the turn.

Grid 102: Our buying stop order is taken at 35 1/4 and we are again long. We immediately place a stop loss order at 29 3/4 (which Chart 40 shows was 1/4 under the March low at 30), hoping to have a chance to move it up closer when the next minor low forms, and looking forward to a rise to 50, but with the understanding that some real resistance may be met between 40 and 42, at approximately the top levels which formed at grids 92 and 95.

Grid 104: We have some discouragement, in that resistance is being met at the 38 level; but we know that rallies are often interrupted, and we now decide that if the trend carries upward, we will use the low of this minor reaction to adjust our stop, which we will bring up to 35 3/4 in the event an advance gets through 38.

Grid 105: With the rise to 42, the old high, we feel confident that the advance is under way, and thus *move our stop up to 35 3/4*.

Grid 106: Our courage in making our new commitment proves justified, when in a short time a rapid rise to 49 occurs. Now we have a problem. During this rise there has been only one 1-point reaction from 42 to 41.

We know that after such a sharp rise there will be some reaction, and it would not be unexpected if half of the advance from 31 to 49 were cancelled. Thus, we might expect a reaction to as low as 40, without disturbing the uptrend. *Therefore we decide to set our stop in order to take advantage of as much of our paper profits as possible, at 39 3/4,* with the idea of adjusting it as soon as a minor higher bottom forms.

Grid 108: After a 2-point reaction, we again see the 49 level tested, and the question arises as to whether we should move our stop up. We decide to let it stay, on the theory that there is still a possibility of a 50 % reaction, still awaiting a better-defined low as the basis of moving our stop up further.

Grid 111: Now what appears to be a minor low has formed at 46. But we also have the problem that there is a minor double top at 49, and that there has been a long sidewise movement, with 6 plottings, at the 48 line, indicating that if 46 is broken, a decline to 40 is a good possibility (our stop is at 39 3/4). So we sit still and wait.

Grid 112: The expected decline ensues, but appears to meet resistance at 42, which leaves us hopeful.

Grid 114: After a sidewise movement of only 2 grids, the rise is apparently resumed, and leaves us a well-defined minor low at 42. We assume this to be the correction which we looked for. Thus, *we have the courage to move our stop up to 41 3/4,* and insure a good profit on our long commitment.

Grid 118: Our judgment of the reaction proves right, and there is a persistent and steady rise from grid 112 to a new top of 50 at grid 118. This rise is stronger than the rise from 30 to 37. Now we have had a Dow Theory confirmation, in that a complete upward zigzag has developed, with three higher bottoms and the last top penetrated.

But we have now reached the estimate indicated by the count across the 31 level (grids 64-79) and we have retraced half of the decline from 60 to 30. We now face the problem as to whether a pronounced uptrend is under way, or whether a normal rally of the downtrend from 60 to 30 is about to reach its culmination. The bottom at 42, beginning with grid 112, gives us no new estimate.

Grid 121: Now we have a problem. After touching 50 once, at grid 118, we see a sidewise movement developing between 48 and 51, which is in the same area as the previous sidewise movement between grids 106 and 111. We wonder whether we should bring our stop up to 47 3/4 to clinch most of our paper profits. From a count viewpoint, we see the possibility that the sidewise movement 6 spaces wide, including the open space at grid 117, indicates a decline from 47 to 41, providing the 48 level is broken downside. This should not catch our stop. On the other hand, if the price trend now rises through 50, it would be prudent for us to push our stop up to 47, on the theory that a good further advance beyond the original estimate is to be expected.

Grid 122: Now we have a sharp advance to 52, and we move our stop up to 47 3/4, thus insuring an excellent profit on our commitment made at 35. We can now assume that the consolidation area across grids 116-122 gave us a valid estimate of a rise of 7 points, based on the count across the 49 level, including the open space on grid 117. (Some figure chart students would leave this open space out, and consider a rise of 6 points. Whichever system is used, about half of one group of estimates, and half of the other, will turn out right.)

Grid 124: A sharp further rise carries the price up to 57, which is the estimated point which we have just discussed. Now the question arises as to whether we should protect our profits by raising our stop up under the 1-point reaction at grid 123, to the 50 3/4 level. We decide by this time that as much more than a solely technical rally, which would be about 50% of the decline from 60 to 30 has occurred, the likelihood is that an important advance is under way, and that the 60 level may well be penetrated. We don't want to be stopped out of the market too soon, because if this former high, at the 60 level is broken upside, we know there may be a substantial further advance. But there has been such a substantial and persistent advance that we are safe in moving our stop up to 50 3/4, which we will now do.

Grid 125: After only a 1-point reaction, we find the stock at its February 1934 high at 60, with all of the 1934 decline retraced, and from grid 112 to grid 125 we see that the upward base is accelerating. The problem again arises as to whether we had better not protect more of our profits. We have a big paper profit from 35 to 60, but our stop is at 50 3/4. Thus, we are protecting only 57% of our paper profit. But we decide to leave our stop at 50 3/4, on the theory that a reaction back to 51-2 might easily occur without reversing the uptrend.

Grid 127: After two minor reactions from the 60 level, we see the possibility of a real top developing at that point. We realize that possibly a double top with that of February 1934 may be developing. But the stock has been so strong that we are justified in believing that the 60 level will be surpassed. If it is, we plan to advance our stop to clinch more of our big profit. If not, we will wait to see developments.

Grid 130: A sharp rise to 62 provides us with the opportunity to move our stop up to 57 3/4, just under the low established on grids 127-128-129. Now the question is: An intermediate top of great importance has been decisively penetrated. Is not a further rise to be expected? We have some pretty handsome profits, so we decide to pyramid with 50% of them, as soon as the next minor bottom gives us an opportunity to buy more advantageously.

Grid 132: A reaction from 62 to 58 nearly catches our stop. We decide to ride it out, on the basis that we won't move our stop back, because in the long run it is poor trading policy. If we get stopped out, we will accept the profit with good grace. If not, we will plan

to pyramid with 50 % of the profits, as soon as we are confident that the rise is again under way.

Grid 135: Now we have evidence that a minor bottom has formed at 58, which was followed by several one-point reversals from a trading area four grids wide (132-135) and indicating the possibility of a rise from 61 to 65. Therefore we make a new commitment, based on the pyramiding scheme just suggested. *We make an additional purchase at 61, with the same stop (57 3/4).*

Grid 137: It looks as if we are going to be stopped with a loss on our latest commitment, which will take away some of our profits, but which will leave us with an excellent gain on our long side trade at 35 1/4.

Grid 140: We breathe more comfortably when we see the market rise sharply from 60 to 69, putting both of our commitments in a real profit position. We are glad we had the courage to pyramid our commitment (a margin transaction), using the velvet on our longside trade to do so.

Grid 142: With the market still advancing, we see the possibility of a rounding top between 68 and 72. Now we again face a problem. We have a handsome paper profit, a good deal of which we could easily lose because of our pyramided commitment, and after all, the price has risen from 31 on grid 99 to 72 on grid 142. We have 61 % of our profit on our first commitment, but none of the profit on our second commitment protected. We know by experience that after a sharp rise like that from 58 to 72, we may expect a reaction of between 30 and 60 % of this rise, or down to 68-62. We see that there was a well-marked top back on grids 130, 131 and 136, at 62. It would not be illogical for a reaction to come down to this point and stop. Therefore, we decide to move our stop on the whole commitment up to 61 3/4, thus insuring no loss on the second commitment, and a handsome profit on the first, with the thought of moving our stop up as soon as a new minor low gives us a better point.

Grid 145: Now we appear to have a top at 74, with a sidewise movement which is 4 grids wide, at the 72 level, indicating the possibility that there will be a decline to 66. We therefore keep our eyes open for this reaction, with the idea of using such a minor low for the point to which we may move up our stop. We are beginning to get anxious to cash in our profits, because we know that not many stocks rise from 31 to 74 without a smart setback.

Grid 147: After a minor double bottom at 70 at grids 145 and 146, we again find the price up to 75, and we take advantage of this minor bottom to set our stop at 69 3/4. Thus we insure an excellent profit on all of our commitment. Note that we did not employ any new capital when we made the second purchase at 61, (grid 135).

Grid 149: Now what appears to be a top formation has taken place at 74, with a fairly wide line, which across the 73 area counts 7 with the open space at grid 146. We assume that if the 70 level is broken, this count of 7

will mean a decline to 63. Our stop will undoubtedly be caught, but we will not be particularly disturbed because it will cash in an excellent profit.

Grid 150: A decline to 69 catches our stop, and puts us out of the market with an excellent profit. Now we have to decide on whether we ought to take a short commitment, and if so, is it worthwhile? On the count basis, we can assume the possibility, based on the count across line 73, which with the open space aggregates 8, that there may be a decline to 61. Our whole problem, however, is whether we are bearish, and feel that a top has been made in the general market. Upon looking at the figure chart of the Standard 90 in middle September, we see the possibility that this is the case. However, we want to temper our short position with the facts first that we are in a bull market; secondly, that the outlook for business is good; thirdly, that the year 1935 is a special year for the Motor trade, in that there will be large production in the fourth quarter due to the new models in the advanced Show period, which has been moved forward from the first week in January to the first week in November; and fourthly, that the Chrysler Company has been turning in an excellent earnings record in 1935. Therefore we decide that we will try our hand at the short side in a small way, and we take a third of our profits, which we have made on the long side, and *make a short commitment at 69, with a stop at 74 1/4.*

Grid 153: We get quite nervous about our short commitment, because instead of declining, we see a steady uptrend again pushing forward, and the picture looks very much as it did in grids 137-140. We go back to re-appraise our bearish view, and we see the possibility that perhaps, instead of counting all the way across the 73 line between grids 143 and 150, perhaps we should have counted only across grids 147-150, which would indicate a decline from 71 to 68 and we did have a decline to 69. At this point, we are wondering whether we weren't stopped short of our long commitment just by a fraction, prior to a further advance, and we have a rather uncomfortable time. *We decide to reverse our short commitment in the event the 75 level is broken,* using half of our capital, which has been substantially increased from the time we made our first purchase on the long side; or, if the 75 level isn't broken, we will stick along with our short commitment, until we have a profit. We find it hard to contemplate buying at 75, when we were stopped out at 69 3/4, but we know from experience that when a strong upward movement is under way, the only defense against getting out too early is to repurchase whenever a top which is marked by a horizontal line such as that at 74, on grids 143, 147 and 148 is broken.

Grid 156: We feel a little better about our short commitment, in that a strong rally again met resistance at 74, and now we find the price again at 69. As the top was at the same level (74) we had no chance to move the stop on our short commitment down, but we will do so if we get the opportunity, to a

lower top. *Otherwise, we will continue our plan to buy if the 75 level is reached,* by taking a 50 % long position.

Grid 158: We are gaining more confidence in our short position, in that another rally has stopped at 74. But now we see that there is an exceedingly well-marked top at 74, and if this top is penetrated, a strong upward movement is likely to be under way. We re-appraise the whole situation. We look back to the time the stock was at 61 and we see that the sidewise movement between grids 125 and 140 gave us a fairly accurate measure of the advance from 61 to 75. Therefore, we reason, is it not possible that the sidewise movement at grids 143-157 might not also give us a measure of a substantial advance, in the event the 74 level is broken? Therefore, we feel a little more confident about re-entering the market in the event the top is broken.

Grid 159: In one of the sharpest advances in the whole movement, *we find ourselves again long the stock at 75,* with an excellent profit, after being stopped out of our short commitment with a moderate loss. Now the question arises as to what to do. With an advance such as that from 73 to 84, there is no reason for us to take any loss on our new commitment. Therefore, instead of placing our stop just under the previous low at 68 3/4, we decide to place our stop one point above our commitment level, in order to insure commissions and taxes. And we leave the discussion with an open trade on the long side, protected at 76.

Following is a commitment record, showing the results of our trades in Chrysler, based on an outright purchase of 100 shares.

Account stands long 100 Chrysler valued at \$7,500
with a cash balance of \$7,257.37
Original capital \$6,017.50 which was the cost of the
first 100 shares purchased
Profit from operations \$8,759.87 % profit 140.8
Average capital employed \$6,225.32
Time 20 months
Annual rate of profit 84.4%

We see from this summary that the original capital of \$6,017.50, which was the purchase price for the first 100 shares, grew, in a period of approximately 20 months, to \$14,770.37. By referring to Chart 34, it will be noted that the majority of the profit was made in the diagonal move from March to September 1935.

From February to April 1934, it took considerable time to get adjusted to the trend. Thus, an opportunity was lost, so that favorable operations were really not under way until May.

Obviously, not all periods would yield such a handsome profit, even assuming good interpretation of the figure chart, and courageous action by the trader, because strong diagonal trends such as those under way during the operation, are not always available to the trader. When, during a long period of time, the market moves sidewise, no such record could be piled up.

Believing the trading campaign which has just

Summary of Figure Chart Trades in Chrysler

Trade No.	No. of Shares	Price	Amount		Closed Out		Amount		Balance or Equity
			Long	Short	Price	Amount	Profit	Loss	
1	100	60	6,017.50		55 3/4	5,553.25		464.25	5,553.25
2	100	52		5,178.25	52 1/4	5,242.50		64.25	5,489.00
3	100	52 3/4		5,253.25	41 1/4	4,140.00	1,113.25		6,602.25
4	100	42	4,215.00		38 3/4	3,855.75		359.25	6,243.00
5	200	32 1/4	6,480.00						
	200	36	7,230.00		37 1/2	14,923.00	1,213.00		7,456.00
6	700	35 3/4	7,180.00		69 3/4	20,859.75	7,662.25		15,118.25
	100	61	6,017.50						
7	50	69		3,439.12	75	3,760.00		320.88	14,777.37
8	100	75	7,520.00						

been outlined, it must be understood that different figure chart students or traders might well make different interpretations of this period. Some might argue that a greater profit could have been obtained. This is possibly true, but it should be obvious that if the average trader can perfect figure chart interpretation to the point where he can make a consistent record like that described above, he will be making a satisfactory profit.

Figure Chart Summary

We have now reviewed the construction of figure charts, pointed out their graphic characteristics and a very brief presentation of the technique of their interpretation.

Some devotees of the figure chart have proclaimed these graphs as the only way to study market action, ascribing almost a mystic potency to them for producing trading profits. We have discovered no such mysterious qualities. We have found them to be simply one method of graphing the price movement, extremely helpful in some respects, but very deficient in others. An enumeration of the advantages and disadvantages of the figure chart may well serve as a conclusion to our discussion.

The figure chart is advantageous in that the one-point figures, which form the basis of most chart portfolios, require less labor to plot than daily bar charts. The reason, of course, is that the bar chart requires an entry every day, whereas several days may go by without a stock making a new one-point figure. Then, too, there is no price ratio, or volume or volume ratio to be plotted and considered. The three-point charts require even less labor to maintain; the fractional figures require more. This is their big advantage in a short time with little effort one can get a limited view of the intermediate trend.

If the figure is not too large relative to the fluctuations of the stock, supply and demand areas are well delineated on figure charts. These often appear as multiple tops and bottoms, trading areas, triangles, head-and-shoulders tops and bottoms, rounding tops and bottoms, complex tops and bottoms, and broadening tops and bottoms. The picture of these supply and demand areas on figure charts tends toward com-

pactness because moves of a given size only are plotted, and these appear in the same grid so long as there is no reversal, giving a good eye impression of resistance points. If more or less detail is desired, the picture can be expanded on a separate chart by reducing the size of the figure, or contracted by increasing it. This is a very helpful feature, because it makes possible minute scrutiny of the price movement at crucial points, or a sweeping view, at will.

Trend lines, fitted by inspection on figure charts, give as good results as on regular interval line or bar plottings. In some instances, however, a minor trend is shown as a vertical bar, and thus the fitting of a trend line is precluded.

But by far the most publicized advantage of the figure chart is its alleged value in estimating the size or extent of coming market fluctuations, the first complete presentation of which was the work of Joseph M. Klein, who published a course of instruction concerning the subject in December of 1904.

So much for the credit side of the figure chart ledger.

On the debit side, *figure chart data are not as readily available* as the data for regular interval plotting. Practically all metropolitan newspapers carry open, high, low and last quotations which are used for line and bar charts. Figure chart data, however, must be compiled from the tape, the Fitch sheet or secured from special services. "Gartley's Stock Market Data" has done much to simplify this problem by supplying daily figures, as well as other computations needed in technical analysis, for 225 stocks. (See Appendix I, Chapter II)

A second limitation of figure charts is that the same sized figure pictures the price movement in varying detail at different levels. When a stock is selling for 100, a one-point figure ignores movements of as much as 1 3/4 points or 1.75 per cent. If the stock declines to 10, the one-point figure still ignores the movements of as much as 1 3/4 points, but these fluctuations are now of greater importance, since percentagewise they are comparable with a move of 17 1/2 points at the 100 level. The figures plotted can, of course, be changed at various price levels, but this procedure breaks the continuity of the chart, and prevents comparison of the present movement with that of the past. In the

interpretation of figure charts, this tendency of a given figure to ignore moves of greater or lesser significance as the price varies, must be kept in mind, for it causes supply and demand areas to appear in different detail at different price levels, and what would be regarded as a strong top or bottom at a low price range might be only of minor significance at a higher price range.

A third disadvantage of figure charts is that *they do not show gaps* unless the gap is large enough to skip a full figure. On regular interval bar charts, gaps appear in the course of the plotting. If the figure chartist desires to study this phenomenon, he is compelled to scrutinize the daily high and low quotations on each stock for gaps, and make some appropriate mark on the figure chart for these occurrences.

A fourth limitation of figure charts is that *they are generally unsatisfactory for any study involving the element of time*. In regular interval plotting, each unit of horizontal space stands for one unit of time. With figure charts, each unit of horizontal space stands for a reversal, and no graphic record is made of the time consumed by the movement. It is generally conceded that the more time spent by the price movement at any one point, the more important is the formation. On a regular interval chart, time is graphically visible. On a figure chart, the only way to introduce this factor is to use dates as plotting symbols as shown in Figure 18 (E).

This disregard for the element of time makes it difficult to carry more than one study of market action on a figure chart unless two studies tend to show similar fluctuations. Thus exact comparisons are quite impossible. A fifth, and important disadvantage of figure charts is the fact that relative studies of volume cannot be conducted, first because the time element is lacking for volume comparisons, and secondly because, without almost impossible labor, volume cannot be conveniently plotted on figure charts.

The author and many other advanced technical students use both figure charts and bar charts in studying the fluctuations of the important stocks traded on the New York Stock Exchange. The advantage of keeping both types of charts is that they offer different perspectives on the price movement, and thus deepen the market student's understanding of the market action of individual stocks. To maintain these studies, however, adds to the labor of technical analysis.

A great many students study figure charts alone, and secure satisfactory results from them. *They have the advantage of simplicity and economy of effort.* Their limitations revolve chiefly around the fact that supplementary studies cannot be correlated with those of the price movement. If the student's time is limited and he is satisfied to observe only the price movement as unfolded in figure patterns, a portfolio of figure charts will serve him well. If the student wishes to pursue his studies further, however, bar and line charts become necessary. The ideal combination is to keep both types of charts.

For the stock market trader of average means, who

has a market interest ranging from 2-300, to as many as thousands of shares, the author suggests a figure chart portfolio consisting of 1/2, 1 and 3-point charts including for example:

1. The Standard 90-stock index, for the general market viewpoint;
2. The Dow Jones Industrials, Rails and Utilities, for observation of the major groups;
3. Possibly the New York Times 50-stock composite, instead of the Standard 90 for the general market; and
4. For those interested in the minor trend, a one-point chart of a sensitive index, such as shown on Chart 36.
5. With these should be combined 1/2 and 1-point charts (according to the price of the stock) of some 50-150 individual stocks, particularly those which are the most active. Very high-priced and very low-priced stocks should be eliminated.

A portfolio of this kind, ranging from 60 to 160 charts, can be kept up to date daily from prepared data, such as the Gartley Stock Market Data (see Chapter II, Appendix I), in a period of about 20-30 minutes a day.

If the trader is interested in the longer swings, some 3 and 5-point charts of individual issues might be added.

Most figure charts are not of the greatest value unless they have 12 to 18 months of background. Copies of many charts of this kind can be obtained from the author's library, for a very nominal cost (see Appendix II, Chapter II).

IN THE NEXT CHAPTER, WE WILL PROCEED TO A DETAILED DISCUSSION OF THE "WHAT" TO BUY OR SELL QUESTION, WHICH IS CLASSIFIED UNDER THE GENERAL HEADING OF COMPARATIVE STUDIES. IN THE SECOND CHAPTER FOLLOWING (XVIII), A GENERAL SUMMARY OF TECHNICAL STUDIES WILL BE PRESENTED.

APPENDIX I

Quotations in Bethlehem Steel, From October, 2, 1933
To January 31, 1934, Wall Street Journal

Date	Volume	Open	High	Low	Close	Date	Volume	Open	High	Low	Close
Oct. 2	60	33.7	34 (A)	31.6	31.7	Dec. 1	58	33.6	34.2	33.3	33.5
3	83	31.6	32.6	31.4	32.3	2	24	34	34.1	33.4	33.6
4	120	33	35.5	33	35.1	4	34	34	34.3	33.6	34
5	56	34.5	35.2	34	34.4	5	142	34.2	35.7	34.2	35.3
6	43	34.6	34.7	33.2	33.6	6	82	35.5	35.7	34.5	35.2
7	13	34	34.6	34	34.5	7	115	35.2	36.5	35.2	35.7
9	51	34.6	35.4	34.3	35.1	8	83	35.6	35.6	34.5	35.1
10	24	35.1	35.3	34.4	34.6	9	33	35.3	36.2	35.2	36.2
11	31	34	34.3	33.5	33.6	11	149	36.3	37.1	36.1	36.6
13	39	34.4	34.4	32.5	32.5	12	140	36.6	37.4	36.2	36.6
14	30	32.3	32.6	31.4	32.6	13	42	36.7	36.7	35.6	36.2
16	97	31.7	32.2	29.5	29.6	14	115	36.4	37.6	36.4	36.6
17	113	29.5	31.1	28.2	30.3	15	71	36.6	36.6	35.5	35.7
18	112	30.1	30.1	27.2	27.5	16	83	35.3	35.3	34.3	34.7
19	151	26.6	26.6	23	23.4	18	60	35.2	35.2	33.2	34.6
20	129	25	25.6	24	25.1	19	50	35.2	35.2	34.2	34.7
21	61	25.6	26	23.1	24.4	20	119	35.2	35.5	32.4	34.1
23	102	26.4	27.1	25.1	26	21	98	34.2	35.1	34.2	34.6
24	147	26.7	29.6	25.6	29.6	22	141	36	36.3	35	36.3
25	142	29.4	31.2	28.4	30.2	23	44	36	37	36	36.3
26	50	30	30	27.7	28.4	26	38	36.3	36.3	35.2	35.6
27	90	28	30	27.4	29.4	27	127	35.6	36.4	35.3	36.1
28	33	28.6	28.6	28.1	28.4	28	98	36.6	37.4	36.4	37.2
30	110	30.1	30.1	27	27.4	29	65	37.2	37.2	36.3	36.6
31	63	28	28.4	27.4	27.6	30	30	36.6	37.2	36.6	37
Nov. 1	47	28.2	28.7	27.1	28.6	Jan. 2	122	37	38	36.6	37.1
2	57	28.4	29.3	28	29	3	116	37.3	37.3	35.2	36.3
3	90	28.5	30.5	28.5	30.4	4	87	35.5	36	34.6	36
4	42	30.6	30.6	29.2	30.2	5	57	36	36.5	35.1	35.1
6	48	29.4	30	29	29.2	6	19	35.1	35.5	35.1	35.4
8	114	30	31.7	29.4	31.4	8	88	35.4	36.2	35.2	35.4
9	118	32	32.5	31	31.1	9	70	35.6	36.3	35.6	35.6
10	47	31	31.4	29.5	30.4	10	88	36	37	36	37
11	11	30	31	30	31	11	64	37.3	37.3	36.5	36.6
13	25	31.1	31.4	30.6	31.3	12	64	36.4	37.2	36	36.6
14	147	31.7	33.4	31	32	13	362	36.6	38.7	36.5	38.7
15	58	31.2	32.3	30.1	30.6	15	567	39.5	42.6	39.4	42.6
16	137	30.4	33.3	30.4	32.7	16	376	42.6	43.2	42	42.3
17	84	33.2	33.4	31.5	31.5	17	214	42.1	43.2	41.6	42.1
18	9	32.3	32.3	32	32.1	18	126	42	43	42	42.4
20	110	32.1	32.1	33.6	32.1	19	244	42.4	44.2	42.4	43.7
21	57	34	33.1	33.1	33.1	20	213	44	44.5	43.5	44
22	53	33.4	33.4	32.1	32.6	22	179	44.3	44.6	43.2	43.6
23	156	32.4	34	32.1	34	23	361	43.4	45.6	43	45.5
24	288	33.4	35.2	33.4	34.1	24	181	46	46.4	45.5	46
25	32	34.1	34.5	33.7	34	25	179	45.7	46	44.4	45.6
27	172	34.3	34.3	31.2	32.1	26	81	45.4	45.6	44.5	44.5
28	59	33	33	31.5	32.3	27	55	44.4	45.3	44.4	45.1
29	36	32.4	33.6	32.4	33.3	28	214	45.3	47.1	44.7	47.1
						30	227	47.3	48.3	47.3	47.7
						31	166	47.7	47.7	46.2	46.7

In Hundreds of Shares

APPENDIX

APPENDIX II
 Tabulation of every sale of Bethlehem Steel, October 2-5, 1933
 From the Fitch Sheet, with 1/8 point, 1/4 point, 1/2 point, and 1 point moves

I	II	III	IV	V	VI	VII
Date	Volume	Price	1/8 Point Moves	1/4 Point Moves	1/2 Point Moves	1 Point
Oct. 2	Open 100	33.7		33.7		
	200	33.7				
	100	33.2	33.6 5 .4	33.6 4 .2	33.4	
	100	33.4	33.3, .4		33.4	
	200	33.6	33.5, .6		33.6	
	100	33.7	33.7			
	100	33.6	33.6			
	High 100	34	33.7, 34		34	34
	100	33.6	33.7, .6		33.6	
	100	34	33.7, 34		34	
	100	33.6	33.7, .6		33.6	
	100	33.6				
	200	33.4	33.5, .4		33.4	33.4
	100	33.2	33.3, .2		33.2	
	100	32.6	33.1, 33, 32.7, .6		33, 32.6	33
	100	32.5	32.5			
	100	32.4	32.4		32.4	32.4
	100	32.4				
	100	32.2	32.3, .2		32.2	
	100	32.1	32.1			
	100	32.1				
	100	32.4	32.2, .3, .4		32.4	
	100	32.3	32.3			
	100	32.3				
	200	32.4	32.4			
	100	32.2	32.3, .2		32.2	
	500	32.2				
	100	32.2				
	200	32.1		32.1		
	100	32		32		32
	400	32				
	100	32				
	300	32				
	100	32				
	100	32				
	500	32				
	200	32				
	100	31.7		31.7		
	Low 300	31.6		31.6		31.6
	Close 100	31.7		31.7		
Oct. 3	Open 800	31.6		31.6		
	300	31.6				
	200	31.6				
	100	31.6				
	200	31.6				
	100	32		31.7, 32		32
	100	32.2		32.1, .2		32.2
	100	32		32.1, 32		32
	100	32.2		32.1, .2		32.2
	100	32.3		32.3		
	100	32.1		32.2, .1		
	200	32		32		32

APPENDIX II

I	II	III	IV	V	VI	VII	1 Point
Date	Volume	Price	1/8 Point Moves	1/4 Point Moves	1/2 Point Moves	Moves	
	100	32					
	100	32.1	32.1				
	200	31.6	32, 31.7, .6		31.6		
	100	31.5		31.5			
	100	31.5					
	Low 200	31.4		31.4		31.4	31.4
	100	31.4					
	100	31.4					
	100	32	31.5, .6, .7, 32		31.6, 32		32
	300	32					
	100	31.7	31.7				
	400	32		32			
	200	32					
	100	32.2	32.1, .2		32.2		
	200	32.3		32.3			
	100	32.2		32.2			
	100	32.3		32.3			
	100	32.3					
	200	32	32.2, .1, 32		32		
	100	32					
	100	32					
	100	32					
	100	32					
	100	32	32.1, .2		32.2		
	100	32.3		32.3			
	500	32.4		32.4		32.4	32.4
	High 100	32.6	32.5, .6		32.6		
	100	32.2	32.5, .4, .3, .2		32.4, .2		
	100	32.4		32.3, .4		32.4	
	100	32.4					
	100	32.4					
	100	32.5		32.5		32.6	
	400	32.6		32.6			
	100	32.6					
	100	32.6					
	100	32.4					
	100	32.4					
	100	32.3		32.3			
	100	32.3					
	100	32.2		32.2		32.2	
	100	32.3		32.3			
	Close 100	32.3					
Oct. 4	Open)-200	33	32.4, .5, .6, .7, 33		32.4, .6, 33		33
	Low) 200	33					
	100	33.3	33.1, .2, .3		33.2		
	100	33.4		33.4		33.4	33.4
	100	33.7	33.5, .6, .7		33.6		
	100	34		34		34	34
	100	34.1		34.1			
	100	34.1					
	100	33.7	34, 33.7				
	200	33.7					

APPENDIX II

I	II	III	IV	V	VI	VII
Date	Volume	Price	1/8 Point Moves	1/4 Point Moves	1/2 Point Moves	1 Point Moves
	100	33.6		33.6		33.6
	100	33.6				
	100	33.6				
	100	33.6				
	100	33.7		33.7		
	100	33.7				
	100	34		34		34
	100	34.2		34.1, .2		34.2
	100	34.2				
	200	34.2				
	100	34.4		34.3, .4		34.4
	300	34.5		34.5		
	100	34.6		34.6		34.6
	300	34.4		34.5, .4		34.4
	200	34.3		34.5, .6		34.6
	1100	34.7		34.7		
	300	35		35		
	100	35			35	
	200	35			35	
	100	34.1		34.7, .6, .5, .4, .3, .2,34.1		34.4
	100	34.4		34.2, .3, .4		34.4
	100	34.2		34.3, .2		34.2
	100	34.3		34.3		
	100	34.3				
	100	34.4		34.4		34.4
	200	34.4				
	100	34.5		34.5		
	100	34.6		34.6		34.6
	100	34.5		34.5		
	100	34.5				
	200	34.6		34.6		
	100	34.6				
	300	34.6				
	300	34.7		34.7		
	100	34.7				
	500	35		35		
	100	35			35	
	200	35			35	
	400	35				
	100	34.5		34.7, .6, .5		34.6
	100	34.4		34.4		34.4
	100	34.6		34.5, .6		34.6
	100	34.5		34.5		
	200	34.6		34.6		
	200	34.7		34.7		
	200	34.7				
	200	35		35		35
	300	35				
	200	35.2		35.1, .2		35.2
	500	35.3		35.3		
	200	35.7				
	100	35.4		35.4		36.4

APPENDIX II

I	II	III	IV	V	VI	VII
Date	Volume	Price	1/8 Point Moves	1/4 Point Moves	1/2 Point Moves	1 Point Moves
	100	35.4				
	100	35.4				
	High 100	35.5		35.5		
	100	35.5				
	100	35.4		35.4		
	100	35.4				
	100	35.5		35.5		
	100	35.4		35.4		
	100	35.4				
	100	35.2		35.3, .2		35.2
	100	35.1		35.1		
	Close 100	35.1				
Oct. 5	Open 1000	34.5	35, 34.7, .6, .5		35, 34.6	35
	200	34.7	34.6, .7			
	100	34.7				
	100	34.6		34.6		
	100	34.6				
	200	35		34.7, 35		35
	100	34.6		34.7, .6		34.6
	100	35		34.7, 35		35
	100	35				
	100	34.6		34.7, .6		34.6
	100	34.4		34.5, .4		34.4
	100	34.4				34.4
	100	34.4				
	500	34.4				
	100	34.5		34.5		
	100	35	34.6, .7, 35		34.6, 35	35
	100	35.1	35.1			
	High 100	35.2		35.2		35.2
	100	35.2				
	100	35		35.1, 35		35
	100	34.6		34.7, .6		34.6
	100	34.5		34.5		
	100	34.4		34.4		34.4
	100	34.4				
	100	34.4				
	100	34.5		34.5		
	100	34.6		34.6		34.6
	100	34.4		34.5, .4		34.4
	Low 100	34.3	34.3, .2, .1, 34		34.2, 34	34
	200	34				34
	200	34				
	200	34				
	100	34.2		34.1, .2		34.2
	100	34.4		34.3, .4		34.4
	100	34.3		34.3		
	100	34.1		34.2, .1		34.2
	100	34.1				
	Close 100	34.4		34.2, .3, .4		34.4

APPENDIX III

Fractional Moves in 1 Bethlehem Steel, October 2-5, 1933

Derived From Newspaper Quotations

I	II	III	IV	IA	IIA	IIIA	IVA
Date	1/8 Point Moves	1/4 Point Moves	1/2 Point Moves	Date	1/8 Point Moves	1/4 Moves	1/2 Point Moves
Oct. 2	Open 33.7				33.5		
	High 34	34	34		33.6	33.6	
	33.7				33.7		
	33.6	33.6			34	34	34
	33.5				34.1		
	33.4	33.4	33.4		34.2	34.2	
	33.3				34.3		
	33.2	33.2			34.4	34.4	34.4
	33.1				34.5		
	33	33	33		34.6	34.6	
	32.7				34.7		
	32.6	32.6			35	35	35
	32.5				35.1		
	32.4	32.4	32.4		35.2	35.2	
	32.3				35.3		
	32.2	32.2	32.2		35.4	35.4	35.4
	32.1				High 35.5		
	32	32	32		35.4		
	31.7				35.3		
	Low 31.6	31.6			35.2	35.2	
	Close 31.7	31.7			Close 35.1		
Oct. 3	Open 31.6			Oct. 5	35	35	35
	31.5				34.7		
	Low 31.4	31.4	31.4		34.6	34.6	
	31.5				Open 34.5		
	31.6	31.6			34.6		
	31.7				34.7		
	32	32	32		35	35	
	32.1				35.1		
	32.2	32.2			High 35.2	35.2	
	32.3				35.1		
	32.4	32.4	32.4		35	35	
	32.5				34.7		
	High 32.6	32.6			34.6	34.6	
	32.5				34.5		
	32.4	32.4			34.4	34.4	34.4
	32.3				34.3		
	32.4				34.2	34.2	
	32.5				34.1		
	32.6	32.6			Low 34	34	34
	32.7				34.1		
	Open 33	33	33		34.2	34.2	
	33.1				34.3		
	33.2	33.2			Close 34.4	34.4	34
	33.4		33.4	33;4			

Columns IA Through IVA are

Continuations of Columns I Through IV.

APPENDIX IV
 Tabulation of One Point, Three Point and Five Point Moves
 in Bethlehem Steel, October 2, 1933 to January 31, 1934
 From the Fitch Sheet and From Newspaper Quotations

Fitch Sheet			Newspaper Quotations			
I	II	III	IV	V	VI	VII
Date	One Point Moves	Three Point Moves	Five Point Moves	One Point Moves	Three Moves	Five Point Moves
Oct. 2	34	34		34	34	
	33			33		
	32			32		
4	33			33		
	34			34		
	35			35		
5	34			34		
9	35			35		
11	34			34		
13	33			33		
14	32			32		
16	31	33, 32, 31		31	32, 31	
	30	30		30	30	
17	29	29	33, 32, 31	29	29	33, 32, 31
			30, 29			30, 29
	30			30		
	31			31		
18	30			30		
	29			29		
	28	28	28	28	28	28
19	27	27	27	27	27	27
	26	26	26	26	26	26
	25	25	25	25	25	25
	26					
	25					
	24	24	24	24	24	24
	23	23	23	23	23	23
20	24			24		
	25			25		
	24			24		
	25			25		
21	26	24, 25, 26		26	25, 26	
	25			25		
	24			24		
23	25			25		
	26			26		
	27	27		27	27	
	26					

APPENDIX

APPENDIX IV

		Fitch Sheet		Newspaper Quotations		
I	II	III	IV	V	VI	VII
Date	One Point Moves	Three Point Moves	Five Point Moves	One Point Moves	Three Point Moves	Five Point Moves
	27					
	26			26		
24	27			27		
	28	28	24, 25, 26 27, 28	28	28	24, 25, 26 27, 28
	29	29	29	29	29	29
25	30	30	30	30	30	30
	31	31	31	31	31	31
26	30			30		
	29			29		
	28	30, 29, 28		28	30, 29, 28	
27	29			29		
	30			30		
28	29			29		
30	30			30		
	29			29		
	28			28		27
	27	27		27		
	28					
31				28		
Nov. 2	29			29		
3	30	28, 29.30		30	28, 29.30	
6	29			29		
	30					
8	31	31		30,31		31
9	32	32	32	32		32
	31					32
10	30			31,30		
11	31			31		
14	32			32		
	33	33	33	33		33
	32			32		
	31			31		
	32			32		
15	31			31		
	32					
	31					
16	32			32		
	33			33		
17	32			32		
20	33			33		
	34	34	34	34		34
22	33			33		
23	34			34		
	33					
	34					
24	35	35	35	35		35
25	34			34		
27	33			33		
	34					
	33					
	32	34, 33, 32		32	34, 33, 32	

APPENDIX

CHAPTER 16

Fitch Sheet		Newspaper Quotations				
I	II	III	IV	V	VI	VII
Date	One Point Moves	Three Point Moves	Five Point Moves	One Point Moves	Three Point Moves	Five Point Moves
29	33			33		
	32			32		
	33			33		
Dec. 1	34			34		
5	35	33, 34, 35		35	33, 34, 35	
7	36	36	36	36	36	36
8	35			35		
9	36			36		
11	37	37	37	37	37	37
13	36			36		
14	37			37		
15	36			36		
16	35			35		
18	34	36, 35, 34		34	36, 35, 34	
19	35			35		
20	34			34		
	33	33		33	33	
	34			34		
21	35			35	34, 35, 36	
22	36	34, 35, 36		36		
	35			35		
	36			36		
23	37	37		37		37
26	36			36		
28	37			37		
Jan. 2	38	38	38	38	38	38
	37			37		
3	36			36		
4	35	37, 36, 35		35	37, 36, 35	
	36			36		
10	37			37		
12	36			36		
	37			37		
13	38	36, 37, 38		38	36, 37, 38	
15	39	39	39	39	39	39
	40	40	40	40	40	40
	41	41	41	41	41	41
	42	42	42	42	42	42
16	43	43	43	43	43	43
	42			42		
17	43			43		
18	42			42		
	43			43		
19	44	44	44	44	44	44
23	43			43		
	44			44		
	45	45	45	45	45	45
24	46	46	46	46	46	46
25	45			45		
	46			46		
26	45			45		
29	46			46		
	47	47	47	47	47	47
30	48	48	48	48	48	48
31	47			47		

APPENDIX V

Open, High, Low and Closing Prices of the Dow Jones 30 Industrial Stock Average

I	Octobet 2, 1933 to January 31, 1934, Wall Street Journal					VI
	II	with the One-Poini	III	IV	From Quotations These <	
Date	Open	High	Low	Close	One Point Moves	
Oct. 2	94.46	95.32	92.69	92.99	94, 95, 94, 93	
3	92.47	94.43	91.93	93.55	92, 93, 94	
4	94.97	99.21	94.89	98.60	95, 96, 97, 98, 99	
5	98.71	99.34	96.95	98.05	98, 97, 98	
6	98.04	99.18	95.92	97.54	99, 98, 97, 96, 97	
7	97.62	98.78	97.28	98.20	98	
8	98.74	100.58	98.14	99.72	99, 100	
10	99.88	100.20	98.05	98.77	99	
11	98.40	99.94	97.54	98.85	98	
13	98.52	98.77	95.14	95.36	97, 96	
14	94.93	95.98	93.79	95.59	95, 94, 95	
16	94.29	94.93	89.35	90.40	94, 93, 92, 91, 90	
17	90.46	93.47	88.69	92.67	89, 90, 91, 92, 93	
18	92.53	92.72	88.47	88.95	92, 91, 90, 89	
19	87.65	88.62	84.26	84.38	88, 87, 86, 85	
20	84.48	88.41	83.57	88.63	84, 85, 86, 87, 88, 87	
21	87.20	87.69	82.20	83.64	86, 85, 84, 83	
23	87.85	90.54	86.25	88.13 84	85, 86, 87, 88, 89, 90	
24	89.13	91.67	87.10	91.35	88, 89, 90, 91	
25	92.22	95.23	91.23	93.54	92, 93, 94, 95, 94	
26	93.41	93.95	91.29	92.02	93.92	
27	91.79	94.11	90.83	93.22	91, 92, 93, 94	
28	93.18	93.29	91.63	92.01	93, 92	
30	93.39	93.99	85.05	88.43	91, 90, 89	
31	88.43	89.44	86.50	88.16	88, 87, 88	
Nov. 1	88.39	89.92	86.83	89.62	87, 88, 89	
2	90.53	91.38	89.17	90.54	90, 91	
3	90.72	93.92	89.96	93.60	90, 91, 92, 93	
4	93.34	93.92	92.06	93.09		
6	92.57	93.14	91.67	92.50	92	
8	92.26	96.05	91.82	95.54	93, 94, 95, 96	
9	96.31	98.34	95.46	96.40	97, 98, 97	
10	96.57	97.21	94.60	95.06	96, 95	
11	94.58	96.19	94.32	96.10	96	
13	96.22	97.15	95.25	95.98	97, 96	
14	96.20	98.26	94.73	95.50	97, 98, 97, 96, 95	
15	95.18	96.35	93.27	94.36		
16	94.41	99.34	94.12	99.01	95, 96, 97, 98, 99	
17	99.46	100.59	97.54	98.09	100, 99, 98	
18	99.24	99.49	98.31	98.67	99	
20	99.16	101.83	98.52	101.28	100, 101	
21	101.35	101.94	99.37	100.28	100	
22	100.76	101.81	98.80	100.07	101, 100, 99, 100	
23	99.93	100.29	97.20	98.59	99, 98	
24	98.61	100.81	98.04	99.52	99, 100	
25	99.57	100.11	98.84	99.28	99	
27	99.09	99.45	95.32	95.77	98, 97, 96	
28	96.72	97.79	95.59	96.23	97	
29	96.75	98.51	96.57	98.14	98	

APPENDIX V

I	II	III	IV	V	VI
Date	Open	High	Low	Close	One Point Moves
Dec. 1	98.78	100.08	98.1	98.89	99, 100, 99
2	98.90	99.33	98.29	99.07	
4	98.75	99.41	98.19	98.89	
5	99.22	102.44	99.20	101.99	100, 101, 102
6	102.30	102.72	100.70	101.28	101
7	101.36	103.01	101.07	102.04	102, 103
8	101.96	102.47	100.30	101.04	102, 101
9	101.00	103.04	100.81	102.92	102, 103
11	103.36	103.97	101.63	101.94	102
12	102.13	103.03	101.06	101.64	103, 102
13	101.60	101.98	99.94	100.69	101, 100
14	101.19	102.92	100.58	101.44	101, 102
15	101.41	101.67	99.44	99.95	101, 100
16	99.62	99.77	97.39	98.06	99.98
18	98.13	98.42	95.77	97.20	97, 96, 97
19	97.33	97.99	96.30	97.25	
20	97.35	97.96	93.70	95.28	96, 95, 94, 95
21	95.32	96.16	94.78	95.50	96
22	98.55	99.90	95.93	98.87	97, 98, 97, 96, 97, 98, 99
23	98.42	98.94	97.38	98.04	98
26	97.66	97.76	95.56	96.30	97.96
27	95.82	98.21	95.16	96.80	97, 98, 97
28	97.85	100.04	97.16	99.29	98, 99, 100
29	99.37	99.73	97.85	98.67	99.98
30	99.17	100.47	98.86	99.90	99, 100
Jan. 2	100.43	101.94	99.61	100.36	101
3	90.98	100.83	97.75	99.09	100, 99, 98, 99
4	98.47	99.13	96.48	98.78	98, 97, 98
5	98.60	99.39	96.97	97.23	99, 98, 97
6	97.07	97.58	96.52	96.94	
8	96.94	97.93	96.26	96.73	
9	97.32	98.53	97.09	97.57	98
10	98.05	99.99	97.78	99.77	99
11	100.12	100.49	98.77	99.38	100.99
12	99.30	99.98	98.24	98.73	
13	98.53	99.12	97.80	98.66	98.99
15	99.68	103.48	99.50	103.19	100, 101, 102, 103
16	103.83	104.60	102.66	103.40	104
17	103.23	104.87	102.38	103.50	103
18	103.06	104.48	102.50	103.30	104
19	103.83	106.19	103.46	105.60	105, 106
20	105.81	106.58	104.99	105.52	105
22	106.02	106.92	104.34	105.09	106, 105
23	104.93	107.00	104.47	106.62	106, 107
24	107.16	108.20	106.23	107.02	108
25	106.93	107.52	105.44	106.85	107, 106
26	106.79	107.93	105.85	106.38	107
27	106.11	106.82	105.45	106.03	106
29	106.42	108.42	106.11	107.90	107, 108
30	108.59	110.06	107.91	108.99	109, 110, 109
31	108.76	109.17	106.81	107.22	108, 107

APPENDIX VI

Hourly Quotations of the Dow Jones 30 Industrial Stock

I Date	II Open	III 11:00	October 2, 1933 to January With the One Point Moves Derived			VII Close	VIII One Point Moves
			IV From	V	VI		
Oct. 2	94.46	94.09	94.74	94.89	94.00	92.99	94, 93
3	92.47	92.83	93.38	93.45	93.88	93.55	
4	94.97	96.49	97.17	97.46	97.39	98.60	94, 95, 96, 97, 98
5	98.71	98.28	98.49	98.20	98.05	96.05	
6	98.04	98.42	97.28	97.50	96.82	97.54	97
7	97.62	98.33				98.20	98
9	98.74	98.98	98.86	99.67	99.76	99.72	99
10	99.88	99.42	99.46	99.17	98.42	98.77	
11	98.40	98.16	98.17	98.53	99.53	98.85	
13	98.52	97.45	97.47	97.69	95.98	95.36	98, 97, 96
14	94.93	94.35				95.59	95
16	94.29	94.78	93.49	91.90	91.53	90.49	94, 93, 92, 91
17	90.46	90.59	90.77	90.38	92.36	92.67	92
18	92.53	92.17	90.98	90.46	89.48	88.95	91, 90, 89
19	87.65	86.52	86.52	86.72	87.42	84.38	88, 87, 86, 85
20	84.48	84.19	85.94	86.56	87.31	86.63	86.87
21	87.20	86.07				83.64	86, 85, 84
23	87.85	87.11	88.66	89.55	89.91	88.13	85, 86, 87, 88, 89
24	89.13	88.29	87.70	88.95	88.51	91.35	88, 89, 90, 91
25	92.22	91.86	93.41	93.47	94.55	93.54	92, 93, 94
26	93.41	92.64	92.80	92.62	92.50	92.02	93
27	91.79	91.92	91.75	92.51	92.91	93.22	92.93
28	93.18	92.38				92.01	
30	93.39	93.12	92.48	92.01	91.58	88.43	92, 91, 90, 89
31	88.43	87.80	87.18	88.17	88.06	88.16	88
Nov. 1	88.39	88.67	88.67	88.79	87.69	89.62	89
2	90.53	90.08	89.92	90.29	90.77	90.54	90
3	90.72	90.46	90.60	90.34	91.43	93.60	91, 92, 93
4	93.34	92.95				93.09	
6	92.57	92.70	92.49	92.32	92.17	92.50	
8	92.26	92.72	92.75	93.64	94.85	95.54	94.95
9	96.31	97.00	96.91	97.29	97.70	96.40	96.97
10	96.57	96.09	96.76	96.65	95.80	95.06	96
11	94.58	95.16				96.10	95.96
13	96.22	96.69	96.41	96.34	96.23	95.98	
14	96.20	97.16	97.43	97.28	96.45	95.50	97.96
15	95.18	94.93	96.03	95.76	93.83	94.36	95, 96, 95, 94
16	94.41	95.13	95.91	97.15	97.69	99.01	95, 96, 97, 98, 99
17	99.48	99.09	99.49	99.24	98.63	98.09	
18	99.24	98.72				98.67	
20	99.15	99.81	99.47	99.47	100.15	101.28	100, 101
21	101.35	101.41	101.20	101.31	100.89	100.29	
22	100.76	100.28	100.91	100.73	100.13	100.07	
23	99.93	99.37	99.28	99.35	97.93	98.59	100, 99, 96
24	98.61	99.10	99.00	99.07	100.43	99.52	99, 100
25	99.57	99.45				99.28	
27	99.09	98.22	98.42	96.85	97.39	95.77	99, 98, 97, 96
28	96.72	97.42	96.68	96.78	96.06	96.23	97
29	96.75	97.34	97.35	97.55	97.85	98.14	98

APPENDIX VI

I	II	III	IV	V	VI	VII	VIII
Date	Open	11:00	12:00	1:00	2:00	Close	One Point Moves
Dec. 1	96.78	99.34	99.76	99.38	99.15	98.89	99
2	98.90	98.63				99.07	
4	98.75	98.72	98.73	98.72	98.87	98.89	
5	99.22	100.07	100.90	101.44	101.40	101.99	100, 101
6	102.30	102.26	102.00	102.07	101.30	101.28	102
7	101.36	101.71	101.90	102.31	102.42	102.04	
8	101.96	101.86	100.86	100.84	101.21	101.04	101
11	103.36	102.93	102.91	102.99	102.53	101.94	103, 102
12	102.13	102.25	102.42	102.35	102.25	101.64	
13	101.60	101.15	100.85	100.73	100.89	100.69	101
14	101.19	101.87	102.49	102.44	101.93	101.44	102
15	101.41	101.25	101.29	101.05	100.07	99.95	101, 100
16	99.62	98.53				98.06	99
18	98.13	97.74	96.72	96.81	96.47	97.20	98.97
19	97.33	97.39	96.91	96.69	96.53	97.25	
20	97.35	97.69	95.49	95.00	94.56	95.28	96.95
21	95.32	95.48	95.53	95.47	95.69	95.50	
22	98.55	98.13	97.15	96.69	97.56	98.87	96, 97, 98, 97, 98
23	98.42	98.37				98.04	
26	97.66	97.31	96.69	96.44	96.51	96.30	97
27	95.82	96.58	97.30	97.44	97.46	96.80	96.97
28	97.85	97.87	98.49	98.60	99.26	99.29	98.99
29	99.37	99.25	98.80	98.71	98.88	98.67	
30	99.17	99.23				99.90	
Jan. 2	100.43	100.43	101.21	101.22	101.41	100.36	100, 101
3	99.98	89.69	100.07	100.58	100.07	99.09	100
4	98.47	97.45	97.28	97.35	97.53	98.78	99, 98
5	98.60	98.50	99.02	98.55	98.24	97.23	99, 98
6	97.07	96.91				96.94	97
8	96.94	97.15	97.51	97.34	96.96	96.73	
9	97.32	97.91	98.07	98.16	98.02	97.57	98
10	98.05	98.31	98.43	98.35	98.40	99.77	99
11	100.12	99.81	99.54	99.25	99.35	99.38	100
12	99.39	99.08	99.27	99.40	99.23	98.73	99
13	98.53	98.59				98.66	
15	99.68	100.55	101.08	100.82	102.16	103.19	100, 101, 102, 103
16	103.83	103.90	103.50	103.38	103.59	103.40	
17	103.23	103.53	103.53	104.05	104.04	103.50	104
18	103.06	103.89	103.50	103.58	103.50	103.30	
19	103.83	104.47	104.79	104.89	105.12	105.60	105
20	105.81	106.00				105.52	106
22	106.02	015.72	105.79	105.56	105.43	105.09	
23	104.93	104.85	105.32	105.86	106.48	106.62	105, 106
24	107.16	107.04	107.03	107.20	107.44	107.02	107
25	106.93	106.91	106.41	106.42	105.84	106.85	106
26	106.79	106.89	106.76	106.86	107.04	106.38	107
27	106.11	106.11				106.03	
29	106.42	106.54	107.14	107.09	107.84	107.90	
30	108.59	108.63	109.01	109.27	109.27	108.99	108, 109
31	108.76	108.64	108.17	107.70	108.19	107.22	108

CHAPTER XVII

COMPARATIVE GROUP AND STOCK STUDIES (SELECTING THE RIGHT STOCKS)

REFERENCES

"A Scientific Approach to Investment Management" (Chapter VIII) "The Practical Application of Investment Management" (Appendices 1 and 2)
 "Investment" (Chapter VIII, Appendix E)
 "Investor's Handbook" (Section 12)
 "Forecasting Stock Market Trends" (Chapter I) "Security Analysis" (Chapters I, XXVII, XXXIII, L, LI and LII)

In Chapter I, it was stated that the problem of the stock speculator was divided into two simple, but not easily solved, problems, namely, "When" to buy (or sell) and "What" to buy (or sell).

The previous sixteen Chapters have been largely devoted to the question of "When" to buy or sell. In studying this problem, the general approach was to examine trends and trend characteristics.

In Chapters IV to VII inclusive, the general theories of stock price movements were presented, while in Chapters VIII to XV inclusive, the working tools of the technical student were outlined. In Chapter XVI, the subject of Figure Charts, which represent an alternative method of graphing stock price trends, was treated.

In studying stock price trends as a whole, the problem of stock price movements was examined in its abstract form.

Now we come to the concrete phase of the problem, wherein we will study the "What" to buy or sell question. This subject may be classified as a series of "Comparative Studies", which are proposed as a means of selecting the most attractive stocks or groups for a particular market operation.

Having decided upon the time to buy or sell short, we then naturally face the problem of determining which issues are the most (or least) attractive at the time.

To hear some know-it-all's tell the story, all one needs to know, when trading stocks, is "When to get in and when to get out". Although the "When" question is very important, the "What" question requires constant attention, as any experienced trader knows only too well.

Most Stocks Move Together

On the whole, the vast majority of individual stocks tends to move together, that is, they advance or

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 Angas William
 Dunnigan

K. S. Van Strum

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decline simultaneously in the longer moves. Nevertheless, there are great differences in the actual and relative movements of individual issues. For example, during a given rise in the Standard 90 stock index (representing the market as a whole) where an advance of 10 per cent occurs, often we will find that some individual stocks rise only 2 per cent, while others rally to increase their prices 50 per cent. And in rare instances, during the same move, some stocks might actually lose ground.

In addition to the variations which are always apparent in the minor and intermediate fluctuations, occasionally we find substantial differences in the long term trends. Together, variable market characteristics can make a very great difference in the profit or loss from a series of two or more trading operations, notwithstanding how right one may be in buying and selling close to reversal points.

Statistical Factors Always Have a Bearing

In Chapter I, Appendix II, a series of statistical studies were discussed, showing that there is a great variation in the progress or failure to progress of individual companies, over the same given time period. Conditions in one industry, as compared with another industry, vary. The management in one company, as compared with the management in another company in the same industry will result in very different earning power. For common shares, the capital structure in one company, compared with another, will have an important and very different bearing upon the relative stock price movements, in each case.

Even in major markets, there is a vast difference in the movements of various stocks. For example, Kenneth Van Strum, in his well-worth-reading book, entitled *Forecasting Stock Market Trends*, published in 1927, pointed out in his opening chapter that in bear markets it was not unusual to see from 3 to 5 per

cent of all the stocks listed actually show an advance; while conversely, in bull markets a like percentage actually show a decline.

On the other hand, Van Strum pointed out that only about 10 per cent of the stocks listed are in the bracket of the largest advances in a bull market, or the largest decline in a bear market. However, it must not be understood from this that the same stocks may have similar characteristics in succeeding major markets. About 60 per cent of all the stocks listed tend to have an average advance in a bull market, or an average decline in a bear market.

Factors Which Tend to Cause Differences in Individual Stock Movements

The factors which influence the difference in various individual stock price trends may be briefly outlined as follows:

1. Earnings
2. Dividends
3. Sponsorship
4. Number of shares outstanding
5. Floating supply

None of these vital factors can be exactly gauged at any given time. The usual approach of both the statistical and technical students depends upon a broad understanding of as many of the facts as may be learned. As our study is chiefly devoted to the technical side, earnings and dividends will not be discussed.

Sponsorship

Any general study of the subject of stock market speculation soon brings to light the fact that there is a small group of men who make a business, in whole or in part, of speculating in stock prices. Together they represent a group of substantial means able jointly, when market conditions permit, to substantially influence the fluctuations in the price trend of various individual stocks in which they may take a particular interest.

Before the Securities Exchange Act of 1934 and the advent of the Securities Exchange Commission, groups of such persons were called "pools", and numerous books and articles were written concerning the influence of pool operation. The primary intention was to manipulate stock prices for the benefit of the pool group. It was the intention of the SEC to eliminate what members of this Commission have come to term "illegitimate" pool operating. This definition of illegitimate pool operation as suggested by the members of the SEC, is applied to a manipulative operation wherein the price of an individual stock is advanced or depressed substantially out of line with the fundamental financial conditions of the company, and consequently the position of its shares.

Although the question has not been clearly defined, because of the short time the SEC has been supervising speculative operations, it seems that legitimate pool operation would consist of buying or selling shares if, from an intrinsic viewpoint (earnings,

dividends, et cetera), they were too low or too high. This the Commission apparently does not frown upon so darkly.

However, the difference between legitimate and illegitimate pool operations seems to revolve around the idea of false and inspired statements calculated to mislead public buying and selling of shares, to the benefit of the pool operators. Unquestionably, and greatly to the credit of the Commission and the benefit of American investors (one of the few real accomplishments of the New Deal), Stock Exchange control has eliminated a large part of the vicious pool operations which were present in the market from 1926 to, let us say, July of 1933. Although it is probably a fact that the old-fashioned manipulator is no longer present in the market, Stock Exchange regulation has resulted in much more loosely formed "groups", who are apparently being quite careful not to have any connection with misleading rumors.

Although the Securities Exchange Act of 1934 rather clearly outlawed the old-fashioned organized pools, it seems to allow individuals who might be of the same mind concerning the future of particular stock price trends to operate individually, but not jointly, to the same general end as the previous organized pool.

Thus sponsorship, notwithstanding regulation, appears to remain a factor in comparative stock price movements. For example, from outside appearances, the movement in Chrysler in the first nine months of 1935, when it has been the outstanding stock on the Exchange, seems as if it might have enjoyed sponsorship. Conceding that the progress of the Chrysler Corporation seems to have an important bearing on the price trend, it does not change the possibility that sponsorship was present.

To the stock trader, sponsorship merely means a relatively steady uptrend in the major phase of a bull market intermediate cycle, fluctuations which are likely to be greater in both the major and corrective phases of intermediate cycles as a whole, and greater market activity. In bear markets, there is a great question as to the presence of sponsorship.

It is probably true that groups of individuals (directly or indirectly connected with the particular company) take an important interest in the movements of an issue by endeavoring to maintain an orderly market (for their own benefit) and occasionally by support in periods of liquidation. That such individuals continue to support an issue for any appreciable length of time or through any sizable price decline or throughout the entire major phase of a bear market seems unlikely. The well informed, who by their interest willingly or unwillingly become sponsors marketwise, never support an issue in a decline which becomes too persistent. They have too much sense to buck the major trend.

Number of Shares Outstanding

Generally speaking, an issue with a small number

of shares outstanding (200,000 - 600,000 shares) is more sensitive to supply and demand in the marketplace, and swings widely (J. I. Case is a good example); while an issue with a large number of shares outstanding tends to move more gradually and ponderously. Issues of small size are usually more subject to manipulative sponsorship, because the sponsors can control their movements more easily, with relatively less capital involved.

In the case of a large issue, however, large funds are needed to handle the heavy volume of transactions, and pool operators can never clearly estimate how much stock may come into the market on a particular wave of liquidation.

Taking as an example a period of nearly five years, prior to Stock Exchange regulation, in order to be certain that regulation did not influence the figures, and covering the time from January 1, 1929 to November 30, 1933, thus including both bull and bear major markets, it does not seem difficult to prove the point that shares of companies with small capitalizations tend to fluctuate more widely than those with large capitalization.

Let us look at the following tabulation, which clearly illustrates the point, and shows the market differences between active trading in issues of large and small capitalizations.

It is interesting to note from Column IV of the tabulation that the average weekly turnover during the period ranged from .77 to 3.84 per cent in the large capitalization stocks, and from 9.3 to 64.3 per cent in the stocks of small capitalization, of the total listed shares.

Next we see in Column VII that the number of 10 per cent swings in the large capitalization issues ranged from 11 to 32 during the period; while in the four small capitalization stocks, they ranged from 33 to 49, indicating that the latter had a substantially larger number of minor movements, indicating the possibility that pools were running the stocks up and down, which could not have been done very easily in the first four issues.

Next, it is interesting to compare the differences in the percentage movements of the stocks of the two groups, in the swings of 10 per cent or more as compared with the market. The advances have been set off in the plus side, whereas the declines appear in the minus side of Column VIII.

First we see that General Electric habitually moved 129 per cent of the market in all movements of 10 per cent or more during the period. It had about the same relation in declines. On the other hand, Standard Oil of New Jersey and American Telephone, we see by the tabulation, moved from 50 to 67 per cent of the

Large Capitalization Group

	I	II	III	IV	V	VI	VII	VIII	
Gen. Elec.	28,000,000	215,399	0.77	29,862	0.11	32	129.16	129.34	
St. Oil N.J.	25,000,000	161,329	0.65	15,463	0.06	17	61.37	63.53	
U.S. Steel	8,703,000	334,125	3.84	35,300	0.41	27	115.52	134.73	
Amer. T. &T.	18,000,000	142,277	0.79	19,508	0.11	11	50.33	67.52	

Small Capitalization Group

J. I. Case	195,000	125.524	64.37	18,428	9. 45	33	148.42	120.25
U.S. Ind. Al.	374,000	34,899	9.33	9,643	2. 58	38	180.43	125.27
A. M. Byers	262,000	32,373	12.36	3,758	1. 43	49	208.23	165.27
Foster Wheeler		15,503	6.25	1,940	0. 78	58	232.48	182.75

I-Name of Stock. II-Shares Listed. III-Average Weekly Trading, January 1, 1929-November 30, 1933.
IV-Per Cent of Listed Shares Traded Jan 1 1929-Nov 30 1933
V-Average Daily Trading. . 30.
VI-Per Cent of Listed Shares Traded Nov 30 1933

First we have listed four issues of prominent and well-known companies of large capitalizations. Next we have listed four issues of small capitalization, less important from an industrial viewpoint, but which during the period attracted wide speculative attention. There were pool operations occurring from time to time during the period, in all four issues.

Key to Column : Headings

VII-No. of Moves 10% or More, June 1, 1932-Nov. 30, 1933. VIII-Average Velocity Rating, Rallies (+)

market in swings of 10 per cent or more.

Comparing these percentage movements in the large capitalization stocks with those in the small capitalization category, we see instantly that the habits of those in the second group were to swing much more widely than those in the first group.

Also, it is interesting to observe that the small

capitalization stocks tended to move much more than the market in advances, as compared with declines indicating that if pool operations were present, their emphasis was rather on the upside. This is interesting because it is a conceded fact that the public is practically never interested in the down side of the stock market. Thus, pool operators are naturally more active when the upside provides the background for the largest public interest.

In the opinion of this writer, there is a great question as to the advisability of speculators trading in a stock of small capitalization, in the belief that it offers greater potential short-swing profits.

Two factors militate against trading in such stocks. First, they frequently have thin markets, and in a sudden catastrophe causing a collapse, a long position simply cannot be liquidated without serious losses; and if margin trading is being conducted, the entire account may be wiped out. Secondly, many of them are stocks of companies the business of which is extremely cyclical. Thus in bull periods their shares are likely to be much over-priced. No shrewd trader chooses, extremely cyclical or second-rate companies. On the other hand, although prominent market leaders tend to move about with or slightly in excess of the market, thus offering less potential profit because their swings are smaller, as a compensating factor they have a close market, and the average trader is able to turn around quickly without paying a great premium.

Floating Supply

Practically speaking, floating supply is more important than the number of shares outstanding. One company may have a large issue of stock outstanding, but if in addition to a controlled minority permanently held by the management group, a substantial portion of the total shares is locked up in the vaults of large corporate or individual holders (such as in the case of General Motors, for example), the floating supply may be relatively small, and the fluctuations may range from 1 1/4 to 1 1/2 times the market.

Occasionally, a stock with practically no sponsorship, after being sluggish in its movements, with trading dull, comes under accumulation and if the floating supply is depleted, fluctuations grow sharper. Usually this development occurs as the result of some important economic or statistical force, which has a direct bearing upon the company whose shares show the development.

Considerable research has not as yet developed anything in the way of accurate indices to measure floating supply, and until such a time as these are available it will continue to be a market element which we feel logically has a bearing upon prices, but which we do not know enough about to consider as a factor in judging price trends.

If we make an index of the percentage of trading of the number of shares outstanding, which seems one logical way to approach the problem, all we find is that the trend of this figure tends to follow the volume traded and the price trend. The author has conducted

this experiment on several stocks, over a considerable period of time, and found no characteristics useful in stock price study.

We have stated that the problem of selecting individual stocks, which we term a study of the "What" question, is a study of comparative movements of groups of stocks and of individual stocks. This problem may be approached from two angles.

Two Chief Methods of Comparison: Fundamental and Technical

Fundamental comparison is affected by:

1. Study of economic trends to determine current and coming phases of the business cycle (see Appendix II, Chapter I).
2. Study of industrial and financial conditions to determine what industries will benefit to the greatest degree in current and coming phases.
3. Study of the companies in a given industry to determine which are most favored and have brightest prospects (see Appendix I, Chapter I).

This approach is, of course, a study of causes. If it included all the elements which have an important bearing on stock price changes, it would probably be measurably more certain of profit-making results. Some of these elements are:

1. The "willingness" of interested persons, financially able to create, as a group, a preponderance of supply of, or demand for shares. The development of this "willingness" may be quite removed in point of time from the origin or birth of fundamental factors which cause changes in stock prices. It may appear before a fundamental change, thus discounting it, or may not appear until some time after the change has been apparent. Any well-informed fundamental student knows that there are often times when the published reports of a change in the fundamental position of a company causes no appreciable difference in the price of its shares, because the change has already been discounted; while there are other times when there is a long lag between the development of a fundamental change and the time the price trend responds to it.
2. Temporary waves of buying and selling, which are often examples of mob psychology, wherein all stocks advance or decline without apparent cause.
3. Sudden news of a political nature, which cannot be anticipated.
4. World catastrophes of various kinds, including war, which, although they may be anticipated by a few if they are man-made, nevertheless develop suddenly.

Many fundamental students (to their intellectual discredit) choose to rule out these four elements with the excuse (not explanation) that they are the imponderables in the investment picture, some of which are always present. Some investment counselors, for example, have the habit of saying that these

factors influence only the minor fluctuations, and thus they are not considered, as the investment policy being pursued is for the long term a nice explanation, but not entirely practical when closely examined.

The great weakness of the fundamental approach is that it often leads to a resolute blindness to the factors which develop in the marketplace, and which, deny their importance or not, do have an influence upon the profit-making results of the fundamental approach.

It is, of course, true that no solution can be found to the problem of consistently anticipating unpredictable political developments or catastrophes, which of course cannot be forecast. But as to the supply and demand situation for shares in the marketplace, and as to the sudden waves of buying and selling, these may be studied and crudely measured (nothing about the stock market is precise, fundamental studies included), as a means of more accurate timing of commitments.

This is the foundation of the second approach, which we call technical study.

Technical Comparison

Technical comparison is affected by studying stock price changes as shown by the tape, which records the trading taking place on the floor of the Stock Exchange. From summaries of this trading analyses are made. Most of them are studied in chart form. The advanced technical student carefully segregates and refines the data which comes up from the Floor by way of the tape and the newspaper quotation columns, so that it shows the relative movements of groups and individual stocks. Thus, he is able to see the development of the "willingness" to buy and sell, and the reactions to sudden buying and selling waves, the two elements which the fundamental student usually neglects, and which frequently cause his commitments to be badly timed.

Technical Approach is, On the Other Hand, a Study of Effects

In studying stock price trends themselves, we see all of the causes which operate to change prices focussed at a single point. We see the price movements which anticipate fundamental changes, as well as those which follow them.

Frequently the technical student is quite ignorant of a particular cause, but he is not unaware of its effects. The interest of the technical student is in discovering a change in trend. To see this at an early time is his objective. To follow the new trend is the means by which he makes a profit.

Although it is interesting to know the cause of such a trend, it is perfectly possible to make substantial profits in the stock market without ever knowing such causes.

The author likes to feel that the sound approach to the problem of buying and selling stocks is a neat combination of both the fundamental and technical

approaches. It is his belief that the fundamental student can profit by a knowledge of the technical side; while on the other hand, the technical student should never be blind to the fundamental developments.

Although this is contrary to some of the views expressed by other writers on the subject of technical studies, the evidence which it has been possible to collect seems to point rather definitely in the direction that technical students who claim that the fundamental side should not be considered sneak a look every now and then at balance sheets, earnings statements and the opinions of fundamental students.

Comparative Studies and the Three Trends

With general qualifications, we have said that all stocks tend to move together, but not in like amount. As we study comparisons of individual stock movements, the problem naturally arises as to whether such comparisons are classified in terms of the three trends about which we learned in Chapters IV to VII.

The answer is that technical students depend upon the trend in which their interest lies, comparing individual stock movements over the longer and shorter periods. But there are no generally used studies which can be exactly termed major, intermediate or minor trend comparative studies.

From time to time, *The Annalist* has published a series of charts concerning individual stocks, which show from 10 to 15 years back history, usually plotted on ratio scales, and showing adjusted stock prices and adjusted earnings curves. These might be considered major trend comparisons. They are chiefly valuable to the large corporate investor interested in the major trend swings.

In studying such long term comparative charts, it is found that most individual stocks fall into two categories, namely:

1. *Trend stocks*, which over a period of years show either a long term advancing or declining trend; and
2. *Cyclical stocks*, which over a period of years are subject to cyclical movements, showing the forces of prosperity and depression.

A good example of the first is International Business Machine, which, for the past ten years, with a short interruption from 1931 to 1933, has shown a steady upward trend in both earnings and the price of its shares. This might be termed as a long term uptrend stock, while on the other hand, American Steel Foundries has shown a rather steady downtrend over the past ten years in its earnings and stock price curves. Thus, it might be called a downtrend stock.

On the other hand, as we look back over the past 35 years' history of U. S. Steel common, we see that its earnings curve has oscillated in wide range as the stockholder has been either a prince or a pauper. U. S. Steel is a good example of a cyclical stock, which will tend to follow the general business curve, slow to recover after a depression, and enjoying considerable expansion in the last stages of a boom.

A few stocks, particularly of Consumer industries (foods, clothing, tobacco, et cetera), show steady trends, which, although they advanced in 1926-1929, and declined in 1929-1933, nevertheless appear on the charts as a sidewise movement, and have a less pronounced long term trend.

The majority of the comparative studies which will be outlined in this Chapter concern the intermediate trend. However, many of the methods suggested may be applied to the minor trend. Our emphasis will be laid up on the all-important intermediate trend.

Two Methods of Comparison

In studying stock price comparisons, two general methods may be adopted:

1. *Static*: Comparing the prices of two or more stocks or groups at a given time, with their prices at a previous time, thus measuring the difference in the interval.
2. *Dynamic*: Comparing the price trends of two or more stocks or groups progressively during a period of time.

Naturally, a large number of combinations of such comparisons may be made. Before suggesting such combinations, it is necessary to classify the categories customarily used in "breaking down" a stock price trend study.

When we approach the problem of "What" to buy or sell, we begin with the market as a whole, and progress downward by groups, to the consideration of individual stocks. The materials for such a study might be tabulated as follows:

1. *General market indexes*, including a substantial number of various stocks in Industrial, Railroad and Utility classifications.
2. *Major group indexes*, including a number of stocks in a single general classification, such as:
 - a. Industrials
 - b. Railroads
 - c. Utilities
3. *Minor group indexes*, which include only those stocks in a single industrial classification, such as, for example, the Steels, Oils and Automobiles, or the Utility Holding and Utility Telephone, or the Railroad Granger and Railroad Eastern Trunk groups.
4. *Individual stocks*, such as Chrysler, U. S. Steel, Pennsylvania Railroad, Consolidated Gas, et cetera.

Naturally the large number of both static and dynamic comparisons may be made with various combinations of these categories, such as the following: 1. *We may take the general market as our base of comparison*, using some composite index, such as the Standard Statistics daily or weekly, the Dow Jones 70-stock composite, the New York Herald-Tribune 100, the New York Times 50, the Associated Press 60, or the Gartley 225-stock aggregate, and compare with it: a. One of the three major groups—Industrials, Rails, Utilities;

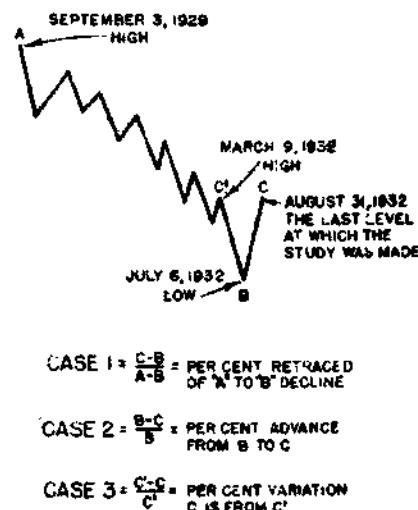
- b. One or more of the minor groups, such as the Steels, Oils, et cetera; or
- c. One or more individual stocks.

2. *We may take one of the major groups as our base of comparison*, using, for example, the Dow Jones 30 Industrials, the Standard 50 Industrials, or the New York Times 25 Industrials, and compare with it:
 - a. Another of the major groups.
 - b. One or more of the minor groups.
 - c. One or more individual stocks.
3. *We may take a minor group as our base of comparison*, as, for example, the New York Herald-Tribune group averages, *The Annalist* group averages, the Standard Statistics group averages (weekly), or the Gartley 45 group aggregates (daily), and compare with it:
 - a. Another minor group.
 - b. An individual stock
4. *We may take an individual stock as our base of comparison*, and compare with it:
 - a. Another individual stock.

Static Comparison

Let us first dispose of the subject of Static Comparison, which is of only moderate value to the average trader, its chief use being in illustrating, for statistical research, the comparative movements of some historical period. We will then proceed to the important subject of this Chapter, which will be various methods of Dynamic Comparison.

Figure 1



Let us begin with the diagram in Figure 1, which shows the course of the market from the September 3, 1929 high to the closing of August 31, 1932, preceding the September high by a few days.

On this date, the problem arose as to the progress of various groups in the recovery from the July 6, 1932 low.

The bases for the study were the Standard Statistics weekly group figures. To determine the progress in the

advance B-C, three different approaches were made, as are illustrated in Cases 1, 2 and 3, shown in Figures 2, 3 and 4. The formula for each case appears in Figure 1.

First, the amount of the bear market which was retraced was observed. Secondly, the percentage advance from the bear market low was examined; and thirdly the variation from the previous intermediate high point, which happened to be March 9, 1932, was compared.

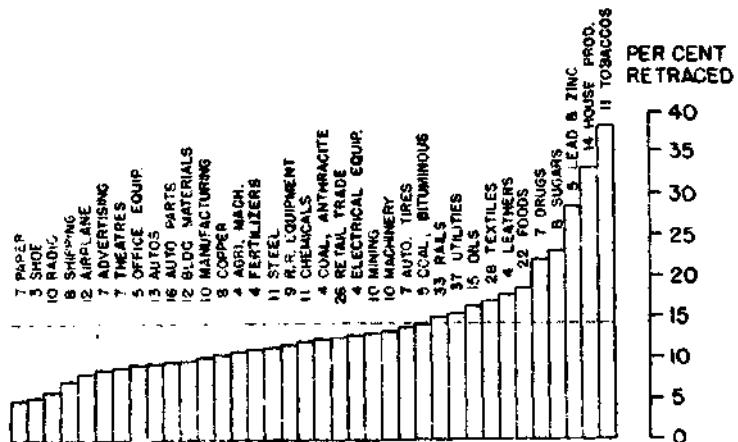
The purpose of the investigation was to determine, in the event that a bull market had begun (which was the opinion then held by several technical students including the author), which groups might represent the best long side opportunities for a major uptrend. In the groups shown in Figures 2, 3 and 4, the various groups were ranked from the poorest to the best, and then a comparison was made to see what it might show.

Let us discuss the three cases separately.

Showed the smallest percentage retraced. On the other hand, the consumers' goods groups (which had resisted the most drastic decline in stock price history because of relatively well sustained earning power) appeared in the section which showed the greatest percentage retraced. In the central section ranging from 10 to 17 per cent retraced, the Copper, Steel, Chemical, Mining, Auto Tire, Electrical Equipment, Oil and Textile groups appeared; these proved to be the groups which have since shown the largest net advances. Thus we have some worthwhile evidence that in the first major phase of a bull market the groups which appear in the central section of such a comparison are likely to be the most opportune for that particular bull market. It is to be remembered that those groups which lag behind in the initial movement of a bull market are likely to be "sick" and that those which retrace much of their decline first are likely to be defensive groups with sustained earning power. Although the latter

Figure 2

CASE 1
SHOWING PERCENTAGE RETRACED
IN THE
JULY 7 - AUGUST 31, 1932 RALLY
OF THE
SEPT. 3, 1929 - JULY 6, 1932 DECLINE



Relative position of a stock or group of stocks determined by measurement from preceding major top or bottom. Figure 2, prepared when the Summer rally of 1932 had made considerable progress, shows what percentage of the September 1929-July 1932 bear market decline had been recovered by some of the Standard Statistics group averages, as of August 31, 1932. Note that the average for the "sick" paper industry retraced the least and the tobacco average, which had strongly resisted the decline, retraced the most. The dotted line indicates the arithmetic mean of the series.

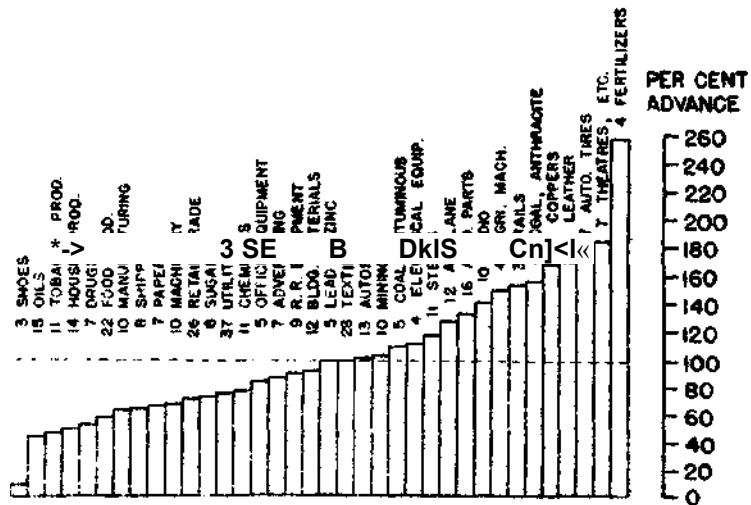
The heavy industry groups such as the Automobiles, Building, Coppers, Agricultural Machinery, Steels, Railroad Equipment, Mining and Machinery groups were all in the section of the comparison which

groups have a relative brisk movement in the early part of a bull market, they are not likely to keep up their pace, because their earning power is relatively so stable that it is not subject to the wide fluctuations from depression to prosperity which influence more strongly the less defensive earning trends and cause cyclical stocks to rise sharply from more greatly depressed levels caused by a complete collapse of earning power.

This study compares the amplitude of the major phase of an intermediate bull market cycle with the total decline of the preceding bear market.

Relative position of a stock or group of stocks determined by measurement from preceding intermediate top or bottom. Whereas the previous study in Figure 2

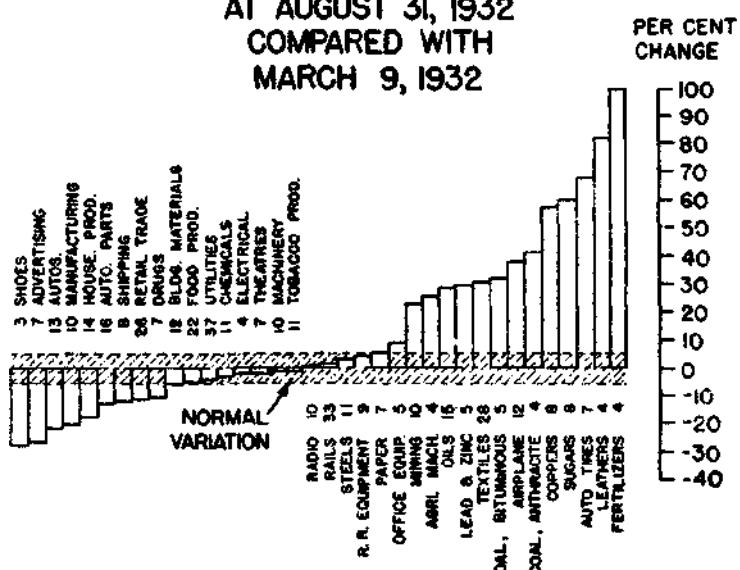
Figure 3
CASE 2
SHOWING PERCENTAGE ADVANCE
FROM
JULY 6 - AUGUST 31, 1932



more or less assumed that a major turn had occurred in July 1932, and compared the Summer advance against a three-year bear market, Figure 3 contemplated the July 1932 bottom as an intermediate reversal. In this study the closing levels of July 6, 1932 were used as a base and the advances of the various groups to the closings of August 31, 1932 were computed in percentage of that base. The dotted line indicates the arithmetic mean of the series.

One of the purposes of the study was to determine which of the groups appearing in the center section of Figure 2 advanced the largest per cent from their lows of July 6, 1932. This comparison, of course, showed that some of the greatest percentage rises were in groups wherein the shares were at very low levels as for instance, the Radio, Rails, Coal, Copper, Leather, Auto Tire and Fertilizer groups. This fact had to be considered in judging the various performances.

Figure 4
CASE 3
SHOWING PERCENTAGE RELATION
PLUS OR MINUS
AT AUGUST 31, 1932
COMPARED WITH
MARCH 9, 1932



Relative position of a stock or group of stocks determined by a measurement from the same level in a preceding intermediate trend. In Figure 4, the dates chosen were February 24 and August 31, 1932, because the Standard Statistics composite index of 421 stocks was at the same level on each of these dates. The picture shows at what per cent above or below their February levels the various groups stood in August. The cross-hatched section includes the area five per cent above and below the zero line, and indicates what may be called a normal zone.

The method of Case 3 is superior to that of Case 2 in that it eliminates the effect of any unusual movement in the previous intermediate trend. In the example shown in Figure 3, many students felt that the decline from March to July, 1932, was abnormally severe, due to the cumulative pressure of distress liquidation. Furthermore, many groups such as the fertilizer stocks, were so depressed that their percentage recoveries were far out of line with the market and of doubtful indicatory value as to future trends. Similar conditions existed in such single stocks as American and Foreign Power, Foundation Co., Revere Copper, Otis Steel and Republic Steel, which had receded to receivership levels.

The Case 3 method helps to eliminate the distortion caused by such unusual recoveries, because the comparison bridges over the trough to the unusually severe decline and connects the same average price level at different periods of time.

On the whole, static comparisons, as just described, although of interest in observing past market movements, are of little use to the trader, except one branch, which has been used in the last five years with some success in selecting stocks. This branch we designate as Velocity studies.

Velocity Comparisons

What this author chooses to call velocity comparisons, although used in a small way by Wall Street statisticians, for a number of years, were first publicized on January 7, 1933 by Robert Rhea in supplements as part of his "Dow Theory Comment". Later, Rhea described these studies in an article published by *Barron's Weekly*, dated May 8, 1933. After giving due credit to Mr. Rhea, we will proceed to look into similar studies developed from a different base.

In comparing the movements of individual stocks, the natural impulse of the statistician is to try to create what might be called a performance index. As we have learned earlier, although all stocks tend to move in the same direction simultaneously, the extent of their movements varies greatly. Thus, by a study of comparing movements in a series of advances and declines, we can learn something about individual stocks, and determine whether they have particular characteristics which appear consistently.

The author has chosen to use, as his yardstick of measurement, the Standard Statistics 90-stock index, and its component indexes, consisting of the Standard 50 Industrials, the Standard 20 Rails and the Standard

20 Utilities. As has been noted in Chapter II, the reason the Standard Statistics indexes are used is because they are considered superior, in that they are the percentage of a given base (the average of 1926) and are corrected for capital adjustments in each company composing the index.

In the author's work, 325 of the more active stocks have been observed. The procedure was similar to that used by Rhea, and may be divided into three stages, as follows:

1. *As soon as the Standard Statistics 90-stock index advances or declines 10 per cent from a reversal point (closing levels), the total percentage of the preceding move of 10 per cent or more (closing levels) is calculated.* That is, for example, as soon as the Standard 90 had advanced 10 per cent from its March 1935 low of 64.0, or to a level of 70.4, which happened to be on April 9 when the Standard 90 closing was 71.01, the percentage decline from the January 7 high at 76.0 to the March 14 low of 64.0 was calculated. This was a decline of 15.8 per cent.
2. *Next, the percentage movement for the same advance or decline for each individual stock is calculated.*
3. *The percentage movement of the individual stock is then divided by the per cent move of the Standard 90 stock index.* The figure so obtained is the velocity of the stock in that particular advance or decline. In the case of Steel, we have $37.4 \div 15.8 = 236$ per cent of the market.

If both the stock and the average rallied the same percentage, the result of the division would be 100, showing a performance no better or worse than the market. If the result exceeds 100, the stock has done better than the market. If the result is less than 100, the stock has done worse than the market.

In the case of Steel, in the January-March decline, the result was 185.60, showing that the stock was doing better than the market.

4. *The relative movements, or velocity ratings, may then be plotted on an oscillator scale, such as that illustrated in Figures 5-9 inclusive.*

In computing velocity ratings, all movements of a minimum of 10 per cent in the composite index are used, because a long study of speculation shows that in movements of lesser amount, trading operations are likely to be seriously handicapped by the cost of commissions and taxes. Also, velocity studies, as now developed, are primarily a working tool of the intermediate trend trader.

It is, of course, possible to make similar studies using a minimum of 5 per cent instead of 10 per cent, but the work involved is not warranted by the conclusions which may be obtained. The author has experi-

merited with the idea.

The practice of using the Standard 90-stock index or, for that matter, any composite including the three major groups, as the base for computing velocity moves, may be subject to some criticism in that if velocity moves are computed, as is done by Robert Rhea, on the basis of comparing each stock with the group in which it appears, it may be contended that the appreciation or depreciation indexes, or, as we call them velocity ratings, may be statistically more accurate. But a study of velocity ratings computed in both ways shows that in the majority of cases, over a period of time, there is only a small difference between the two types of figures.¹

Thus, a Railroad stock which has a high rating against the market will almost always have a high rating against the Railroad group as well. And so with other stocks, in other groups. The same was found to be true of Group Ratios, which we will discuss at a later time.

Using the composite index as the base for computing velocity ratings has the advantage of saving time, and standardizes the observation of a large list of stocks.

Velocity ratings for more than 200 stocks are published as part of the data service distributed by the author's organization, every time a move of 10 per cent in the Standard 90 makes a computation of the preceding trend possible.

In preparing the computations outlined above, the actual high and low prices of the individual stocks are used, although trends are measured by the closing prices of the index. Naturally, a series of such computations are alternately from the plus to the minus side. These may be plotted on an ordinary arithmetic center line chart, such as may be seen in Figure 5, which shows the velocity moves in Chrysler from June 4, 1932 to March 14, 1935. Appendix I of this Chapter shows a sample velocity data sheet for Chrysler, covering the period shown in Figure 5. The figures in Columns 5 and 13 are those which appear on Figure 5.

the bull market period shown in Figure 5. In the period prior to the Bank Holiday, this stock showed some tendency to slow down in its more than the market movements (the period in the circle).

In the two years which have followed, it has shown a tendency to increase its greater than market movements, and in the March-September advance of 1935, which was not interrupted by a single decline of 10 per cent in the Standard 90 composite (this is the reason why there is no plotting on Figure 5 since the March low), Chrysler has shown a substantially greater than market movement, which may be noted on Chart 39.

Observe that in Figure 5 the 10 per cent swings, regardless of their time intervals, have been plotted at regular spacings. It is, of course, possible to prepare a velocity chart, such as that in Figure 5, introducing the time element, but this has a tendency to spread out the picture, and as our chief interest is in seeing a tendency which makes itself shown by the manner in which the curve stays within, or extends beyond them, the two lines marked 100, there is no need for a time scale.

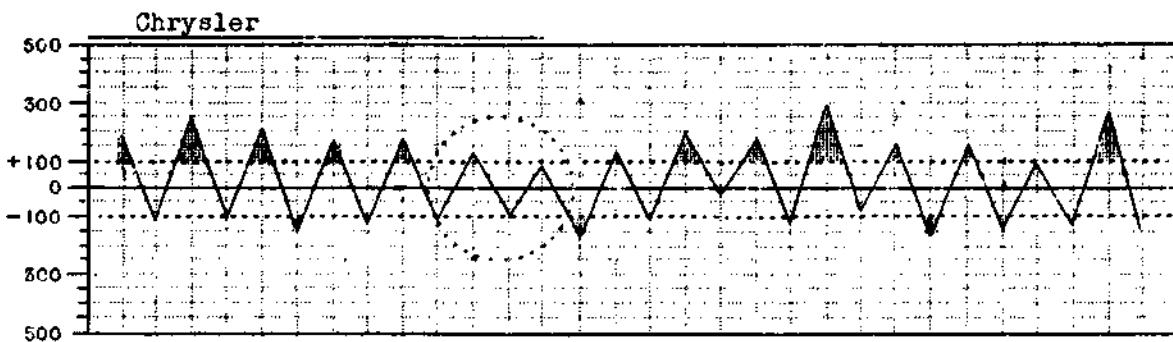
From Figure 5 we can properly conclude that Chrysler is a good trading medium, in that it is a stock which moves more than the market.

Figure 6 shows the velocity graphs, covering the last two years, for American and Foreign Power, Electric Bond & Share (the dotted lines on the graph indicate that these two stocks moved counter to the market in the last two moves), Adams Express and U. S. Rubber.

Here are four low-priced issues, in which the price level has an important effect in making them move more than the market.

In trading in low-priced stocks of this calibre, the trader has to guard against accepting the high velocity ratings, as a means of potential profits, because of the thin markets at turning points. By the time the trader decides the reversal has occurred, stocks of this kind have reached the turning point and have proceeded a substantial way on the next move.

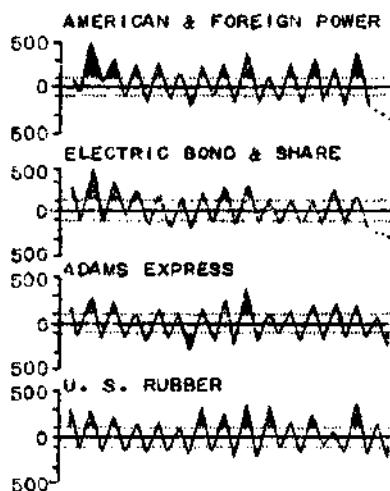
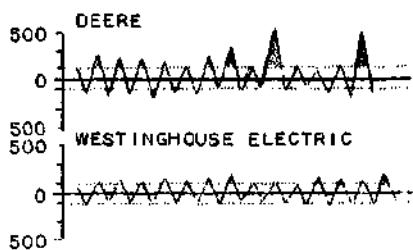
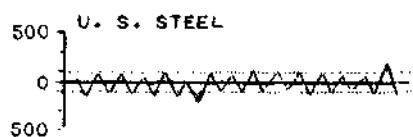
Figure 5



It will be noted that Chrysler habitually moves more than the market, and has a tendency to move to greater extremes in advances than in declines, during

¹ SEE APPENDIX I, CHAPTER II.

Now let us look at the velocity graphs of Deere and Westinghouse Electric, shown in Figure 7. Here we have two stocks which are not low-priced, and thus their velocity ratings are real indicators of speculative opportunity. Deere, it is true, has a much higher velocity rating than Westinghouse, due, of course, to

Figure 6**Figure 7****Figure 8**

its smaller capitalization, and more limited floating supply.

Another interesting velocity study is that of U. S. Steel, shown in Figure 8. Note that all through 1933 and 1934, Steel tended to move just about with the market, but that in 1935 it has shown a tendency to expand its movements. The trader may rightfully, therefore, conclude that Steel will be a particularly good trading medium until such a time as it again shows a tendency to slow down.

Theory of Velocity Charts

Considerable observation of a substantial number of velocity charts indicates that the following general premises, which may be used in the interpretation of velocity charts, are worthy of consideration, namely:

1. Velocity charts (or tabulations such as Appendix I) definitely show that certain stocks habitually move more than the market in both advances and declines, while others move less than the market.
2. Investment stocks, such as American Telephone and Woolworth, tend to move much less than

the market, and in the case of some inactive stocks, such as International Shoe, General Mills and Homestake Mining, average only about 50% of the market.

3. Low priced issues, merely because of their price level, usually show movements which are much larger than the market. These must be considered with an understanding that the low price level itself is the chief cause of the greater than market movements. Also, *it is to be understood that an attempt to trade in these low priced issues, because they apparently have much greater-than-market movements, usually proves disastrous, because frequently the lower priced issues have very thin markets at reversal points, with the result that although they may show much greater-than-market movements when computed from extremes (highs and lows), it is almost impossible for a trader to obtain even a substantial portion of the fluctuations between these extremes.* The result is that he gets in and out too late, and finds that there are frequent whip-saws, particularly in trading areas, discovering after losses that a high-velocity stock which moves a great deal more than the market, isn't a particularly good trading medium.
4. *The best trading mediums are those stocks which tend to move between 110 and 140% of the market.* Stocks which have a velocity rating of between 140 and 300 are likely to be low-priced issues. If they are moderate to high-priced issues, some of them merit attention, providing they are in the range of from 140 to 200. Over 200 is almost a danger signal as a good trading medium.
5. One of the values of velocity studies is that they show, over a period of time, if there is an important change in the characteristics of an individual stock movement. If a stock which habitually trades between 80 and 100% of the market shows a consistent tendency to gain in velocity, and begins to trade in the 110-140 bracket, in several consecutive 10% (or more) moves, the trader may be sure that that stock has changed its market characteristics. And conversely, if a stock habitually swings twice the market, and then slows down for several successive movements, to trade 70-80% of the market, a change has come about in the issue. Both are warnings to the trader if he is interested in the particular stock.
6. One of the author's clients, who has made a very complete study of velocity charts, is responsible for the statement that in a large number of cases, if a particular issue establishes a market characteristic in three successive declines, let us say, which averages 125% of the market, that issue may be expected to decline at least 125% in the next market recession. Conversely, if in the course of three successive ral-

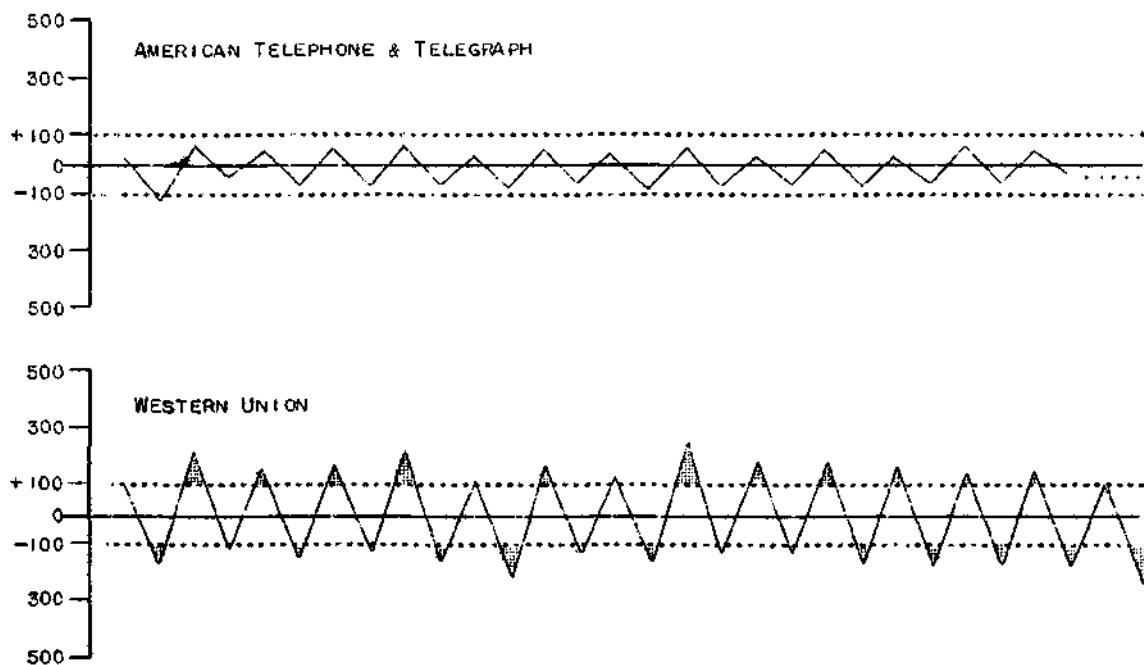
lies, a particular issue shows a velocity factor of 125% on the upside, the expectancy is that it will do 125% or better in the next rally. This brings up the question as to whether the velocity of a stock should be measured in terms of rallies and declines separately, or whether the figures for both rallies and declines should be averaged. A study of the problem, over a considerable period of time, indicates that there is a slight advantage in studying rallies and declines separately; but it has also been proved, to the satisfaction of the author, that in a majority of cases, if from 10 to 20 successive rallies and declines of 10 % or more are averaged in determining the characteristic velocity of a given stock, the figure will be fairly close to that obtained by averaging rallies and declines separately, even though rallies and declines are mixed in making the observation.

It is probable that this is true, because individual stocks have a tendency, not pronounced in every issue, wherein the forces of action and reaction frequently cause one movement to be relative in amplitude to the next; thus, a large advance will be followed by a large decline. This is not true in the market as a whole, as we learned in Chapter V.

has against such a change, when he is depending upon an actuarial study of previous velocity in selected issues, and that is to employ the investment principle of diversification. Careful studies indicate that if a group of from 5 to 7 (minimum) issues, which have velocity ratings which, let us say, averaging 125, are traded in simultaneously, the trader may rely on the fact that the group as a whole will accomplish a movement of average expectancy, as indicated by the previous velocity ratings as a group. Naturally, in any particular movement, there may be one or two of a group of from 5-7 stocks which show quite a change in their characteristics, and, let us say, in an advance fail to rise as much as they had habitually done before. But in the same movement, one or two other stocks in the group selected will exceed the ratings, and thus maintain the average for the group.

Before leaving the subject of velocity, let us look at two other illustrations of velocity curves. In Figure 9, we have velocity charts of American Telephone and Western Union, two stocks of companies in the communications field. As a general proposition, Telephone sells on the average in the market, about 2 1/2 times the price of Western Union. From the

Figure 9



The average trader should try to confine his operations to issues which have a velocity rating of not less than 100, and not much over 200, based on the observation of at least the last three advances or declines, and preferably an average of the last 10 or 20 moves. In the past several years, the most attractive trading mediums have been in the range between 100 and 150.

Velocity studies, conducted with a large number of stocks show that from time to time an individual stock will change its characteristics quite sharply for one or two moves. There is only one defense which the trader

velocity graph of Telephone we see that it habitually moves from 70 to 80 % of the market, and in rare instances, slightly exceeds the market.

We also see that the habit of Western Union is to move from 1 1/2 to 3 times the market. Thus speculative capital used in trading in Telephone for the intermediate swings, works at a tremendous handicap to that employed in Western Union.

Here is an excellent example of the way in which a variation in individual stock fluctuations can change the profit results, no matter how accurate the "When"

question judgment may be. Roughly speaking, because of its lower price and higher velocity, about 16% of the capital in Western Union will do the same work as 100% in Telephone.

Obviously, a speculative pyramid thus provided, works against the trader as well as for him. If he is wrong in his "When" question judgment, his losses will be greater in Western Union than in Telephone. But when a trader takes the risk of speculating, if he is ignorant of the comparative velocity of the issues in which he trades, he is unnecessarily handicapping his operations, and without knowing it, is expecting gains which he has no right to.

In most cases, the average trader has no reason to make a series of velocity charts such as those shown in Figures 5-9, as he can obtain the velocity ratings for most stocks in which he may be interested, from published tabulations. (See Appendix I, Chapter II.) Then, with a few minutes of work once a month, he can easily keep up to date a series of velocity data sheets for the issues in which he has a particular interest, such as that shown in Appendix I of this Chapter.

Before proceeding to the subject of dynamic comparison, a word might be said about a fair criticism which has been made of velocity studies. As has been noted above, the velocity rating of an individual stock is not computed until considerable time after a particular advance or decline occurs, because time must elapse to establish a counter movement equal to 10%, before the figures for the present movement are computed. This naturally brings up the question as to whether it would not be advantageous to employ methods which would furnish information concerning the progress of any given stock in a current move; or in other words, to establish the current velocity rating so that it might be compared with the previous habits of the stock, in order to see whether a change is occurring.

Considerable thought and research have been applied to the problem, on the theory that possibly it would furnish a means of a logical switch from one stock to another during a given move. For example, if a stock which habitually trades 150% of the market had already accomplished such an advance in an uptrend, while another which also had the same rating, only advanced 60-70 % of the market, would it not be logical to switch from one to the other, on the theory that a greater part of the potential profit in the remaining part of the move would be obtained by the switch?

At first, this seems logical, but it runs the risk that the slower moving stock might be having either a temporary or permanent change in its velocity characteristic.

Experiments have been conducted, with preparing what might be called temporary, or preliminary velocity figures, as soon as an advance or decline in the general market has exceeded 5 %. Other experiments have been made by preparing velocity ratings in a long advance, such as that following the March 1935 lows.

Also, at first thought it might be expected that such studies would yield very valuable information, from which useful conclusions might be obtained. The fact of the matter, however, is that it has been found advantageous to observe the daily ratios, rather than a series of velocity ratings computed at various stages in an advance or decline. *Price ratios are the most used dynamic type of comparison.* These we will now discuss.

Dynamic Comparison

Above, we listed stock comparisons, in two general categories of static and dynamic. Of the two, the most important and more useful is dynamic comparison, wherein a running study is made of daily, or perhaps weekly price trends of two or more stocks or groups.

There are two methods of making dynamic comparison which are now most frequently employed, namely:

1. Comparison developed by plotting the trends of various stocks and groups on a ratio scale of the same length; and
2. Comparative studies based on the observation of price ratio trends.

Logarithmic or Ratio Charts to Show Comparative Movements

The ratio (logarithmic) scale is an invaluable medium for comparative trend study, because the purpose of almost every investment or speculation is to obtain the largest percentage return justified by the risk of the transaction. Ratio charts permit visual percentage comparison, eliminating the calculations necessary when an arithmetic scale is used. An advantage of a ratio chart is that mechanical scale dividers may be used to determine the percentage of price changes without computation. (See Chapter II.) Reduced to its simplest terms the idea is that a greater profit results from a 2-point move when a stock at 10 advances to 12 than when a stock at 100 advances to 102. In the first case the move is a gain of 20% while in the second it is only 2% or one-tenth of the first. Conversely, a 2-point decline in a stock selling at 10 represents a loss of 20 %, while a similar decline in a stock at 100 is a loss of only 2%. On a chart with an arithmetic scale, all these movements would appear alike to the eye, and unless one calculated the movement in each case, a true comparison would be impossible. Not so, however, on the chart with a log (ratio or logarithmic) scale. Each of the 2% moves would appear as one-tenth the size of the 20 % move which, of course, is their proper relation. A study of the remaining material in this Chapter and the illustrating charts will serve to emphasize this simple example with practical applications.

Price trend comparison on ratio scale may be applied in two ways:

1. Two price series plotted on separate charts may be superimposed at any given starting point, depending upon the movement which the user wishes to observe; and

2. Two price series may be plotted on a single chart.

In both applications, the variation between the lines provides the basis of interpretation.

Superimposing one chart on the other is probably better, because any number of advances or declines may be exactly compared at will, and any number of charts may be compared. When two series are posted on the same chart, the user must depend entirely on measuring the vertical variation between the lines. Because of its convenience, most advanced students prefer to use the method of superimposing one on the other.

A Minor Group Compared With the Market

Figure 10 shows an excellent illustration of a group compared with the market as a whole. The Standard Statistics 90 Stock Index is plotted on ratio scale, as is the Tobacco Stock Index (computed by adding the prices of the "Big Four" tobacco stocks—American Tobacco B, Liggett & Myers B, Lorillard and Reynolds B—and dividing by four). While the price ranges in the two groups are quite different, they are plotted on the same ratio scale. The volume shown in Figure 10 is the daily total for the four Tobacco stocks. It is plotted on a "reducing scale", which is a ratio scale using zero instead of one as a base. The two plottings were superimposed at June 1, 1932. This illustration was prepared to show how charts of the two groups would appear if placed on a light table or held up to a bright light. If the percentage swings in the two groups had continued similar throughout the whole period, the two lines would have developed close together.

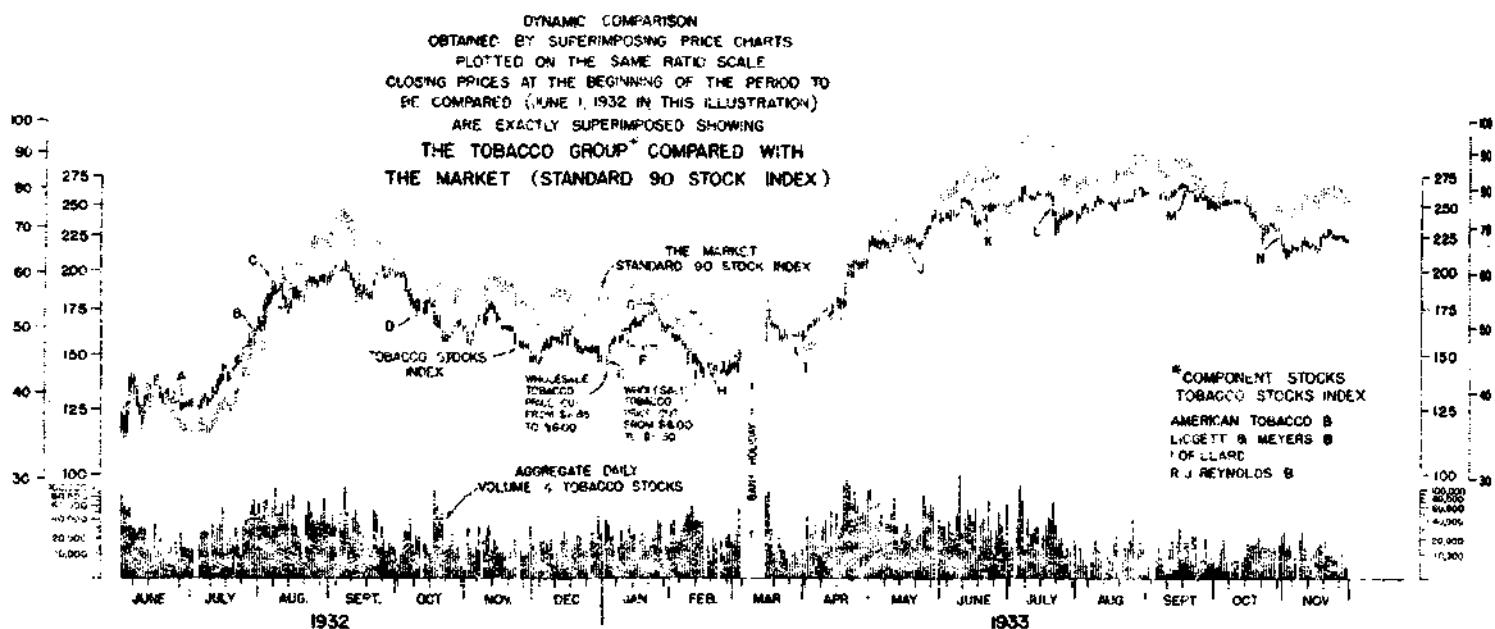
It will be noted that late in June 1932 at (A) the Tobacco index failed to decline with the market and levelled off above it. This better position continued

until about the end of July, when the converging of the two indexes indicated that the market was catching up at (B). By the second week in August (C), the market had exceeded the Tobacco group. From then until early in April 1933 (I), the Tobacco group lagged behind the market, except in the days early in October 1932 (D).

Note how well the Tobacco group resisted rumors during December 1932 concerning a cut in cigarette prices and how, as soon as the cut was announced (E), the "bad news being out", the Tobacco stocks rose more than the market and continued the advance in the middle two weeks of January, while the market was actually declining (F).

The decline in the Tobacco group from the high January 24 (G) to the February lows which preceded the second cut in the wholesale prices, illustrates how stock prices reflect industrial problems (the cut in cigarette prices early in January from \$6.85 to \$6.00 did not result in any notable stimulation of demand). It is interesting to note how the Tobaccos flattened out in the latter half of February, while the market continued to decline. This demand area (H) occurred while many financially minded persons were of the opinion that the second cut in cigarette prices from \$6.00 to \$5.50 seriously injured the earning power of the Tobaccos. Nevertheless the Tobaccos had a substantial rise thereafter. A similar demand area (I) occurred following the Bank Holiday, while the market was declining from the high levels immediately after the re-opening of the Stock Exchange. From this time until the middle of May (J), the Tobacco group advanced about equally with the market. Then it began to lose vitality and by the middle of June (K) had flattened out long before the market and did not enjoy the advance of the other Industrials to the July 18 top. However, as a result, its July 18-21 decline (L).

Figure 10



was much less. On the other hand the Tobaccos lagged behind the market in the rise to the September highs (M). In the September decline, they again showed defensive characteristics and failed to decline as much as the market until the latter part of October (N). Following that, through the end of November, the Tobaccos again notably lagged behind the market.

Summarizing, we see clearly the defensive tendency of the Tobacco group, consisting of the cigarette producers. As a whole, this illustration should serve to show conclusively that Tobaccos have been prime investment mediums. It is clearly shown that they fluctuate less than the market. Considering that a bull market was under way during the period shown on Figure 11, the conclusion might be reached that the Tobaccos are not a preferred medium of speculation, but on the other hand should be considered notably as mediums for investment.

Two Major Groups Compared

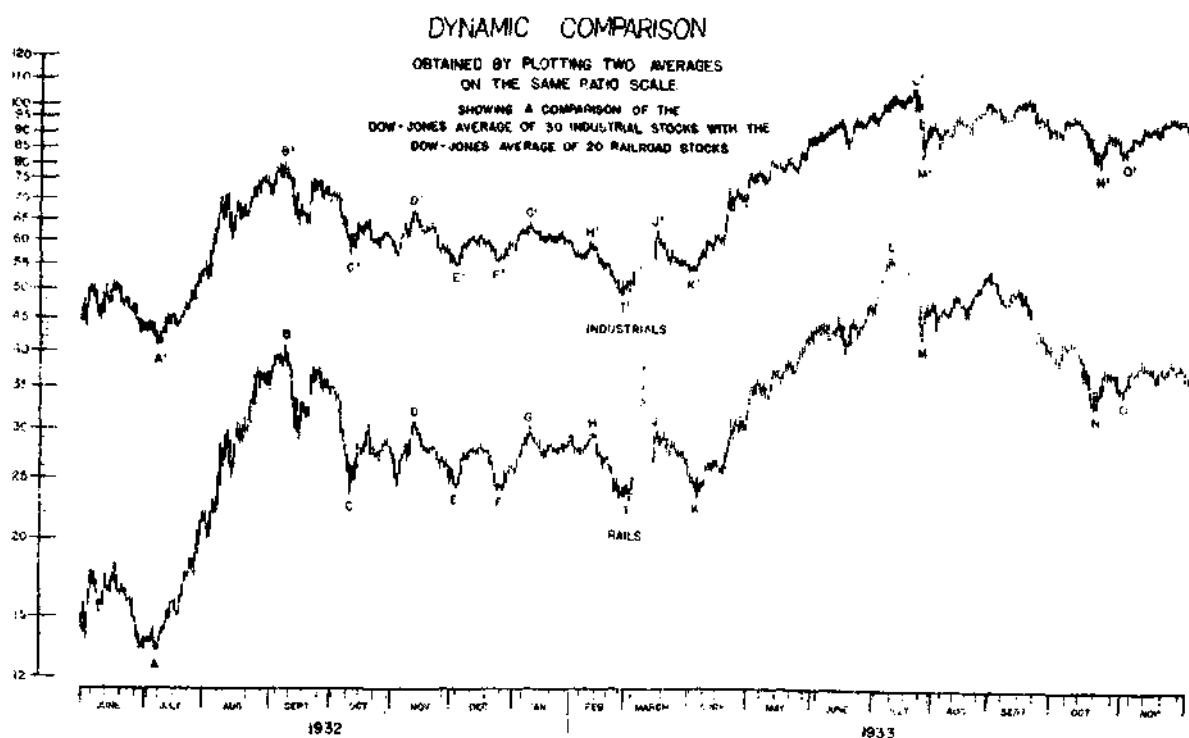
Figure 11 shows how two well known averages were plotted on the same ratio scale. (See Chart 15.)

Industrials, by visualization. The same may be said of the decline from (B) to (C) as related to the decline from (BI) to (CI).

The Rails had declined considerably more than the Industrials from February to July 1932. Note, therefore, that since they were more severely oversold than the Industrials, the Rails rallied almost twice as much in the summer. An oversold group such as this frequently offers a prime opportunity in the succeeding uptrend.

Note how the tendency of greater amplitude in the swings in the Rails index continued on during the trading area from October 1932 to April 1933 (C-K). The movement of the Rails from the first week in January (G) through the second week in February 1933 (H) is notably emphasized in this diagram. See how this group formed a trading area with a flat bottom, while the Industrials decline. Then note how in the February decline (H-I), this strong tendency in the Rails was completely reversed, as they declined more sharply than the Industrials (HI-II). As the February 28-March 4 lows (I) were reached in the Rail group,

Figure 11



In this case they were not superimposed. Remembering that these started in the relation of 15:45 (the approximate prices as of June 1, 1932), the difference which then separated the two averages forms the basis of measurement. If the two groups had moved parallel throughout the period, they would have maintained this distance apart. Note how the Rails in the July-September 1932 advance climbed up close to the Industrials. The advance from (A) to (B) in the Rails is quickly related to that from (AI) to (BI) in the

many Dow Theory students became quite bearish, because it was believed that the penetration of the November-December lows (El and Fl) by the Industrials in February (II), had been confirmed by the Rails (I, as compared with E and F). However, the Bank Holiday intervened, and many of these bearish students returned to the bull side when the Stock Exchange re-opened (J and JI), on the theory that the margin by which the rails had penetrated their previous lows was too small to be conclusively bearish.

Following the long trading area from October to March 1933, it is to be noted that the two indexes moved about the same distance apart. Therefore, the differentiation as of the March lows was a better basis of measuring future movements. With this in mind, note how the Rails again pushed up toward the Industrials. In the advance from March to July (I - L and II - LI) they again showed a larger rise. Their subsequent decline in the July correction (L-M) was also modestly greater, as may be noted by the length of the vertical drop. The same might be said of the decline from the July high to the October low (I-N).

Thus, it may be noted that the tendency of the Rails to advance more than the Industrials was reversed in the subsequent decline, leaving them slightly poorer in October-November 1933 (N-O). This is shown by the greater distance between the lines at this point (C and O) than that which existed early in March.

By consulting Chart 15, it will be noted that in the 2 years and 3 months which followed the July 1933 high point, the Rail group failed to recover its relative position with the Industrials. As may be seen on this chart, the tendency which developed at the July 1933 high, as shown in Figure 11, was the beginning of a long poorer-than-market period for the Rails.

An Individual Stock Compared with the Market

Figure 12 shows a study of Coca Cola compared with the Standard 90 Stock Index during the bull market since July 1932. The method of superimposing, such as was shown in Figure 10, was again in this illustration. Note the wide variations which have occurred in Coca Cola. In the final liquidation of the bear market, Coca Cola broke from 83 on July 1 to 74 on July 11 (A) while the market as a whole held within a narrow trading range (AI), in the first eight days of July 1932. On the upside, following the major reversal in July, the first bearish development in Coca Cola appeared early in August, when the stock (B) failed to advance sharply with the market. This tendency became more pronounced later in August, at (C). Then a strange, unexplained and belated rally occurred at (D), while the market declined sharply. However, this was short-lived, and did not make up for the backward tendency of this stock. From the September highs to the Bank Holiday, a pronounced tendency to decline was apparent. Four days following the election of Roosevelt on a wet platform (E), an unusually sharp decline from 90 to below 70 occurred in ten trading days, as the stock receded to a new low (F), several points under that of July. Thus the stock was one of the very few stocks to penetrate the level established at the major reversal. A technical rebound then occurred, which appears to have been assisted by the debates pro and con in Congress to legalize beer. During this rally, the stock moved counter to the market until the middle of February (G-H), but as soon as Congress legalized 3.2 beer following the Bank Holiday, Coca Cola resumed its decline and moved downward counter to the market during April (I-J).

The "bad" news being "out", the stock then rallied parallel to the market, but to a much lesser degree, as may quickly be noted by the widening distance between the two lines from (I) to (K). In late July and August, while the market recovered from the July 18-21 break, demand occurred in the low 90's (L) but soon the stock was again declining against the market (M-N). In late September (O) the influence of repeal had its effect, while rumors that Coca Cola was going into the liquor business were numerous, and in the middle of October the stock began to show better than the market tendencies, until early in November (P-Q). In the late Fall, way behind the market, activity in the stock dried up.

Thus we have a picture showing a stock which was a strong defensive medium during the decline, (1929-1932) but had an adverse factor (repeal) entering its business as a change in the political picture occurred.

When the stock recovered from the psychological bugbear of the Repeal of Prohibition, and the earnings began to show sharp increases in 1934, the stock resumed its defensive tendencies, and in addition exceeded the market on the upside, particularly in the last half of 1934, and the first half of 1935.

An Individual Stock Compared With a Minor Croup

Figure 13 shows a study of Bethlehem Steel compared with its own group.² This is a case which portrays the movement of a stock which fluctuates substantially more than the market. Again it is an illustration of the method of superimposing one chart upon another, as in Figures 10 and 12. Generally speaking, Bethlehem Steel fluctuated quite parallel to its own group. This may be noted by the close relation of the dotted line representing the steel and iron group and the series of bars representing Bethlehem Steel. It will quickly be seen that in both the advance of July-September 1932 and that of February-July 1933, Bethlehem Steel exceeded its own group as the highs were made. Note how this tendency became more pronounced in the second of these two advances. However, the decline which followed this greater advance in June-July 1933 (B) substantially exceeded that in the steel group (C-D).

Ratio Trends to Show Absolute Comparisons

We have just examined the methods of comparing two or more price trends of stocks and/or groups employing ratio scales by plotting two series on the chart or by superimposing one chart upon another. This affords a *relative* comparison. However, advanced technical students have found that an *absolute* comparison is even more valuable because it shows graphically and accurately whether a price trend is proceeding parallel, or advancing, or declining, compared with another. *Any change in the comparison is instantly visible.* If the lines representing the

² ONE OF THE 45 GROUP AVERAGES SHOWN ON CHART 37.

Figure 12

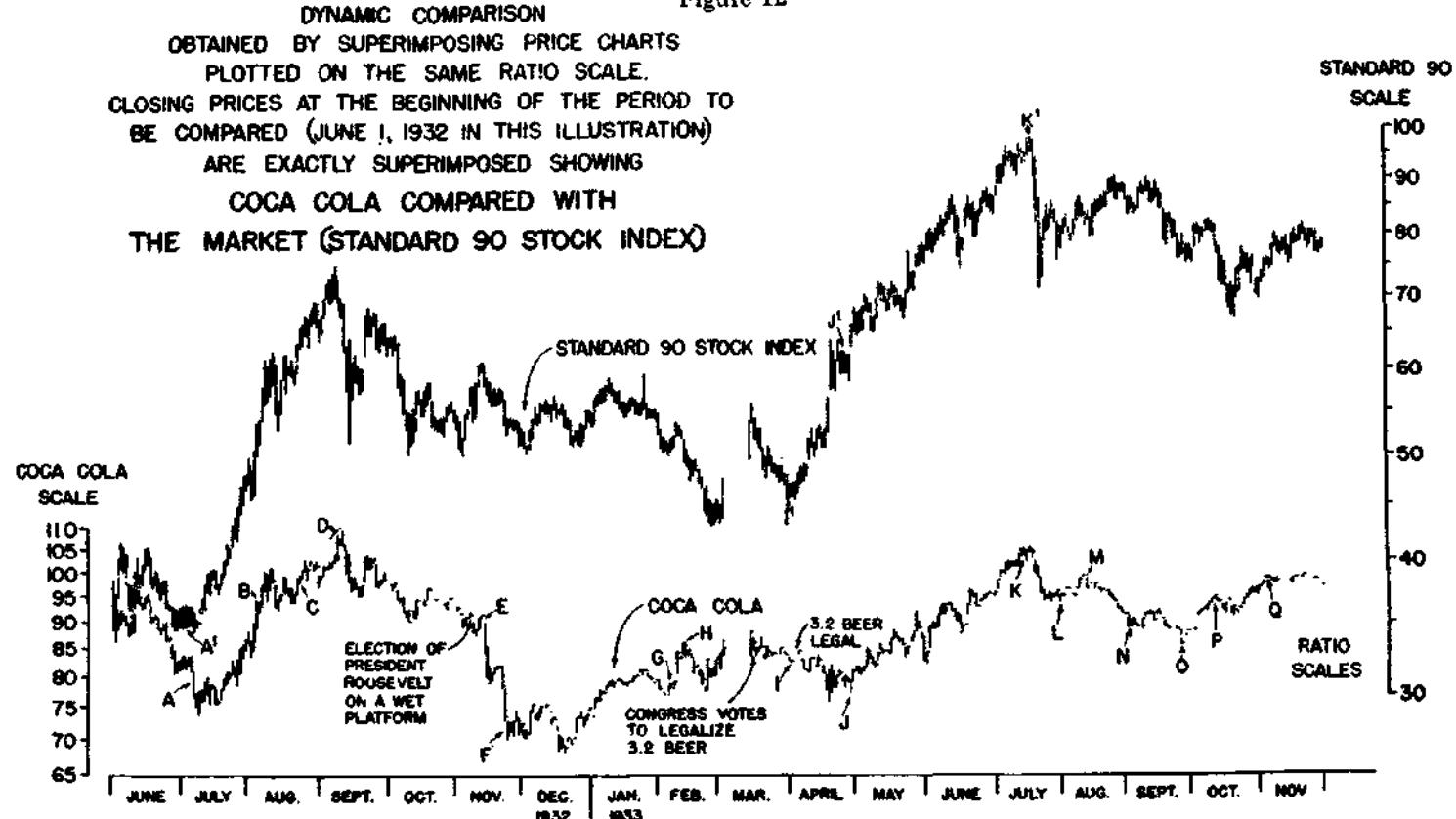
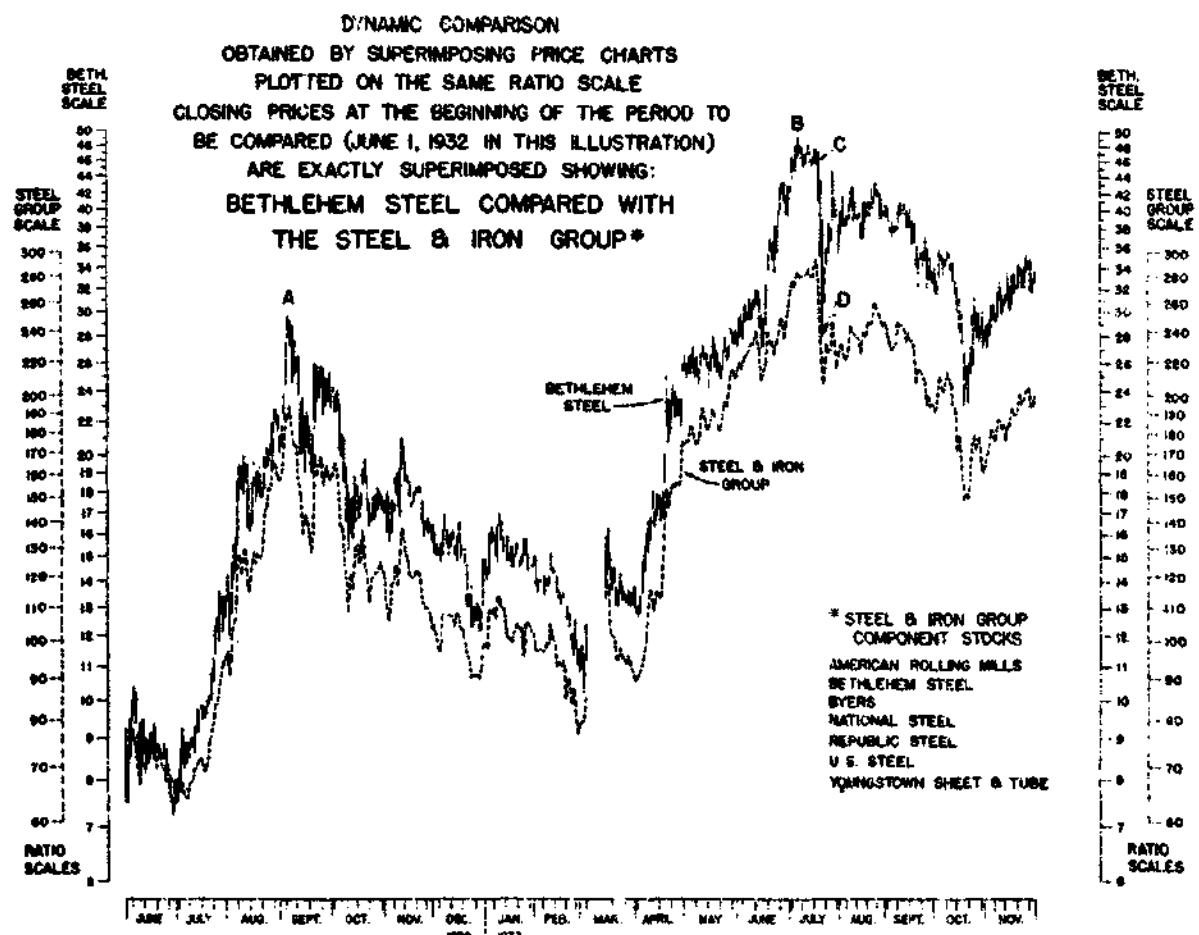


Figure 13



trend of these ratios are to be understood, eight conditions must be comprehended. These are divided into three groups.

1. A Ratio Line Will Ascend When:

- a. A stock is moving upward more than the market in a general advance.
- b. A stock is moving downward less than the market in a general decline.
- c. A stock is moving counter to the market by advancing in a decline.

2. A Ratio Line Will Descend When:

- a. A stock is moving downward more than the market in a general decline.
- b. A stock is moving upward less than the market in a general advance.
- c. A stock is moving counter to the market by declining in an advance.

3. A Ratio Line Will Move Horizontally When:

- a. A stock is moving upward exactly with the market in an advance.
- b. A stock is moving downward exactly with the market in a decline.

Thus, absolute comparison is furnished by studies of this type. (See Figures 14, 15, 16, 17.)

The ratio lines of investment stocks have a tendency to move more horizontally than the ratio lines of highly volatile stocks, which usually exceed the market in their movements.

The longer trends of ratio lines tend to follow the major trends in prices, that is, during a bear market ratio lines will descend and conversely in a bull market they will ascend. At first sight the reader may believe that all ratio lines constantly follow the price curves as seems apparent on charts 38, 39, 40, 41 and 42. But there are often periods when a ratio line will trend contrary to the price curve for several months at a time. These are the occasions which are usually very

significant.

The statistical basis for Figures 14-17 is the ratio relation of one number to another, which is obtained by dividing one number by another. For example, the ratio of 1 to 1 (1 divided by 1) is 1. The ratio of 4 to 2 is 2. The ratio of 9 to 3 is 3. The ratio of 2 to 4 is .5.

Thus, ratio charts do not show the actual prices of the averages or stocks involved. They do show the ratio of the individual stocks to an index or average chosen as a base or standard (divisor).

Steps in the construction of the graphs shown in Figure 14 were as follows: First, the closing prices of the individual stocks (International Harvester and Deere) were divided at successive intervals (monthly in 1930 and 1931 - weekly - 1932 to October 1935) by the price, on the same dates, of the Standard Statistics average of 50 industrial stocks.

Second, the resulting ratios for Harvester were plotted on logarithmic scale on one sheet of paper, and the ratios for Deere on another sheet of paper. These two graphs were then traced on a single sheet of paper with the plottings superimposed as of the first week in January 1930.

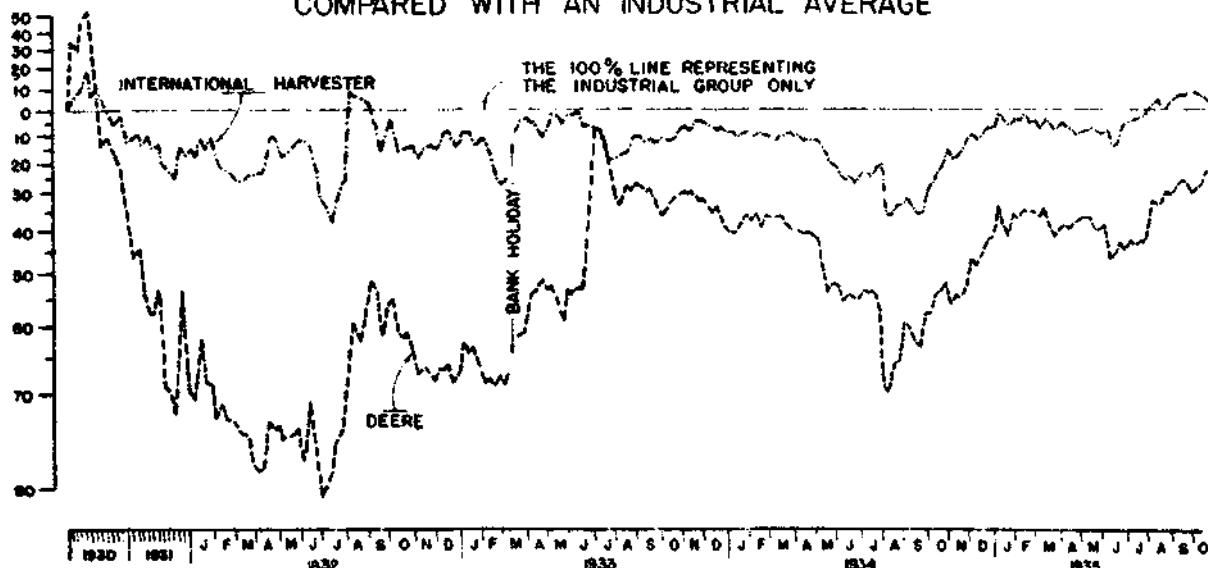
Third, a comparative ratio scale divider was then constructed, showing the percentage advance or decline from the axis designated as the zero line, and placed at the left side of the chart.

A similar procedure was used in the construction of Figures 15, 16 and 17.

The theory of Chart 14 is that in January 1930 (another date might have been chosen, especially a major or intermediate reversal) the prices of Harvester, Deere and the Standard average of 50 industrials were in a certain relationship. As time went on, however, and the price of Harvester receded a bit, its ratio was smaller and declined away from the zero line, which theoretically stands for the 100% line of

Figure 14

TWO INDIVIDUAL INDUSTRIAL STOCKS
COMPARED WITH AN INDUSTRIAL AVERAGE



the Standard 50 industrials. If Harvester had fluctuated exactly the same percentage as the average for a period of time, during that period its ratio line would parallel the zero line. But such occasions were rare. For practically all the period shown, Harvester was either declining faster than the average (causing the ratio plotting to decline) or rising faster than the market (causing the ratio plotting to advance). Deere is similarly plotted.

Figure 14 shows that while Harvester was poorer than the industrial average through most of the period, it was quite steady compared with Deere. In the 1932 rally, however, Deere rallied nearly twice as much percentagewise and in the 1933 rally nearly three times as much as Harvester. Deere would therefore have shown a much greater profit on the same capital than Harvester. Thus we see Deere is a stock of much higher velocity than Harvester.

Figures 15, 16 and 17 are based on the same

general theory. Generally speaking, when a stock such as Deere declines for a long period of time much more than the market, if the condition of the company is sound financially, it may be expected to have a sharp technical rebound compared with the market, such as occurred from June 1932 to July 1933 and again from July 1934 to October 1935 following the much greater than market decline from July 1933 to July 1934. A recognition of this probability often gives the technical student opportunities for substantial profits. The same is conversely true about a stock on the upside. Auburn was a good example, especially from 1928 to 1929.

Figure 15 shows Consolidated Gas of New York, the Standard Average of 20 Utility stocks and Electric Bond & Share, all compared with the Standard 50 Industrial average as a base.

In this illustration, we compare two Utility stocks and the Utility average, against the Industrial average, with the idea of showing how much more

Figure 15

A UTILITY AVERAGE AND TWO INDIVIDUAL UTILITY STOCKS COMPARED WITH AN INDUSTRIAL AVERAGE

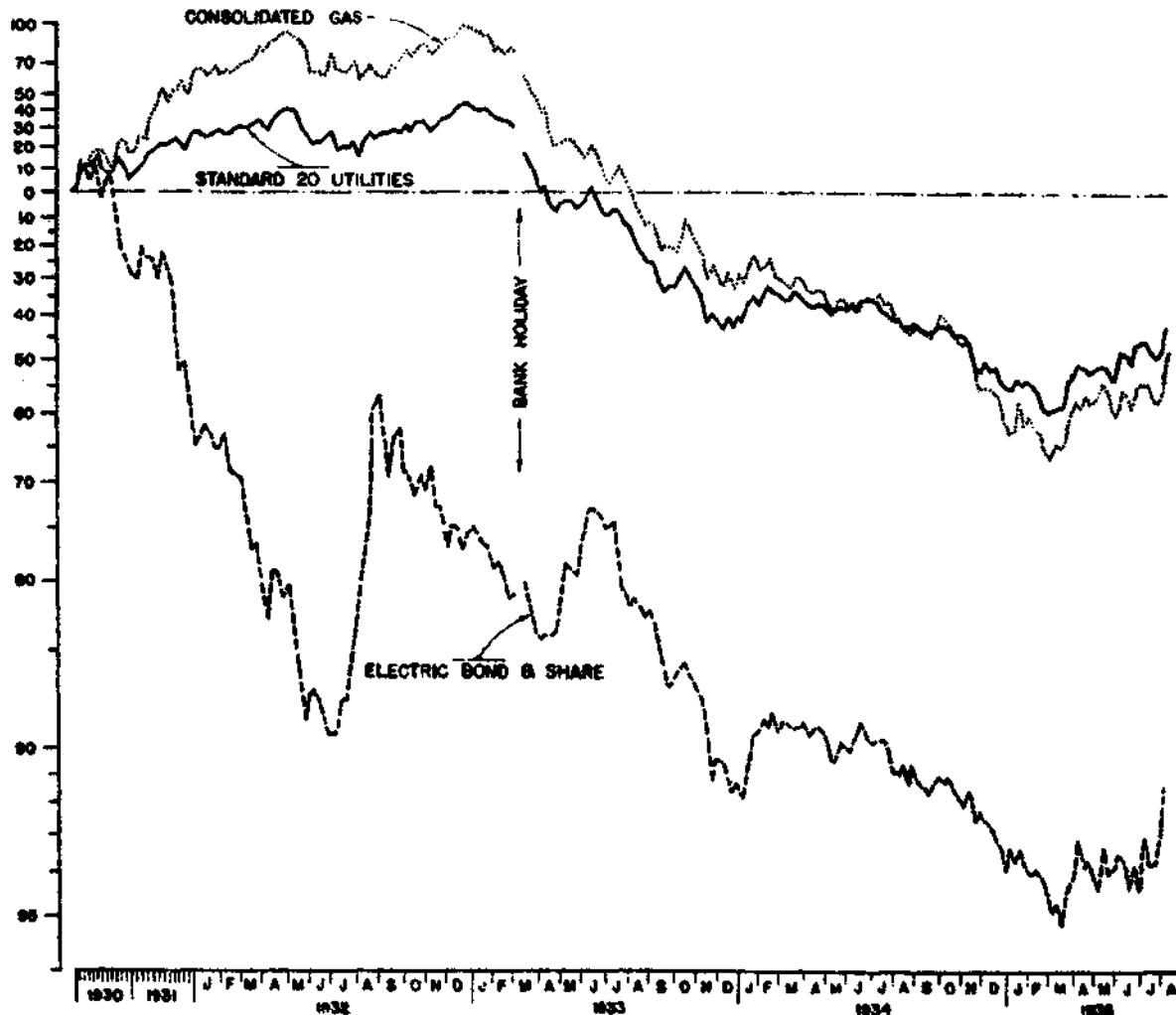
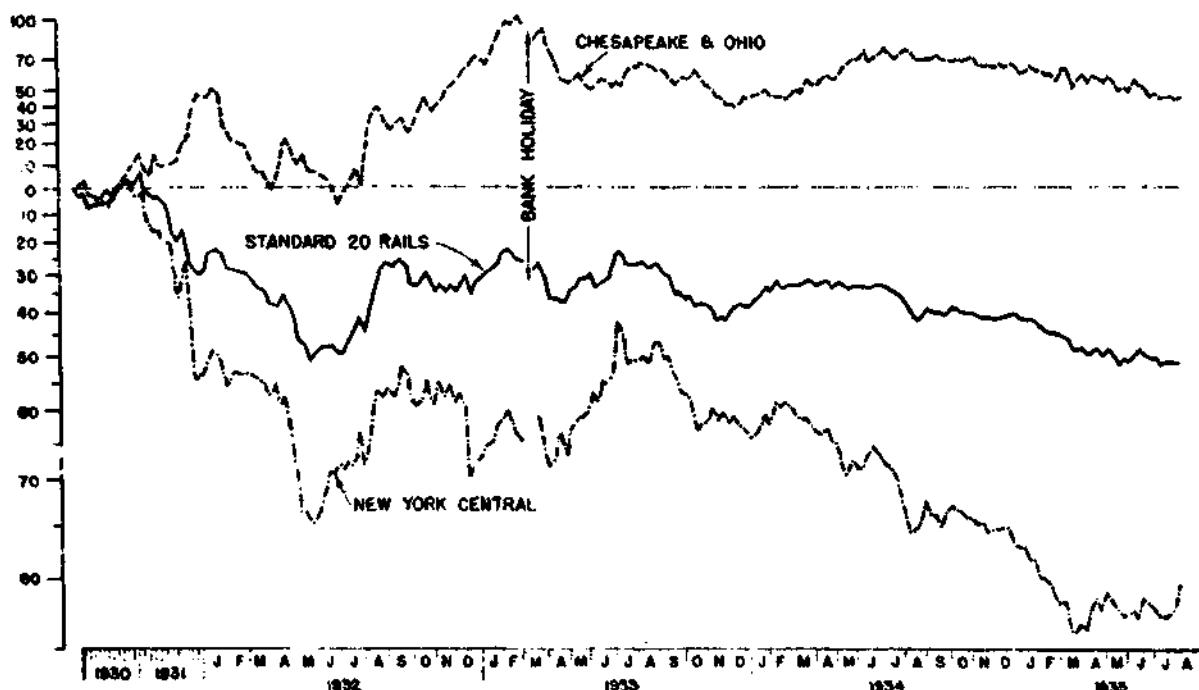


Figure 16
**A RAIL AVERAGE AND TWO INDIVIDUAL
 RAILROAD STOCKS COMPARED WITH
 AN INDUSTRIAL AVERAGE**



poorly than the Industrials, the Utilities performed from the time Franklin Delano Roosevelt was inaugurated as President of the United States, in March of 1933, to the period in June 1935 when the Utility Bill was signed. If the Utility group had been compared with the market as a whole, it would have shown a similar decline, although not so pronounced, because the Utility group would have been included in the base.

In appraising the progress of the New Deal, it is evident that we should include in the cost of the depreciation in Utility securities caused by this decline.

During the period shown, Consolidated Gas was substantially better than the Industrials, and Utilities did comparatively well until about the Bank Holiday in 1933, but Electric Bond & Share suffered terrific deflation and then enjoyed one of the sharpest rallies on record in the first upward swing of the new bull market, but this rise was short-lived and soon followed by a resumption of a decidedly poorer-than-market trend.

Beginning with the Bank Holiday, Consolidated Gas began to show the strain of liquidation, as large corporate holders, fearful of Roosevelt's Utility policy, passed the risk of owning the shares on to others. By November 1934, Gas, for the first time in many years, showed a trend poorer than its own group. Note how its ratio crossed the ratio of the Utility group at this period. By March of 1935, we can now see that Gas

was thoroughly liquidated, and it appears that in the second and third quarters of 1935, it has definitely turned the corner to the upside.

Note what a complete deflation occurred in Electric Bond & Share, both in the period from 1930-1932, and from the highs of September 1932 to the lows of March 1935. It also seems as if Electric Bond & Share has turned the corner. The spirited rally in July shows how the ratio of a highly pyramided stock moves rapidly compared with the market.

Figure 16 shows Chesapeake & Ohio, the Standard Average of 20 Railroad stocks and New York Central, all compared with the Standard Average of 50 Industrial stocks, which was used as a base (divisor). Note that early in 1931, Chesapeake & Ohio began to act much better than the Industrials, while Rails were materially poorer and New York Central underwent drastic deflation, which came to an end in May 1932, two months before the market turned. This we see by the fact that the New York Central ratio turned up in May. It does not mean that Central rallied against the market; it means that Central failed to decline as fast as the market from May to July of 1932.

Note that from the bottom of the bear market in 1932 to approximately the middle of July 1933, the Rail average and Central (which, because it is a leader, follows the Rail group, although it moves in fluctuations of wider amplitude) showed a very distinct tendency to improve as compared with the Industrial average, which is denoted by the zero line.

But beginning in July 1933, there was a steady, although not equally substantial deflation as that which appeared in the Utilities. During this period, New York Central underwent a drastic comparative decline. Note how after Central reached its low in March, the fluctuations of its ratio were much wider than those of the Rail average. Again we see the characteristic of a high-velocity stock

From the Bank Holiday onward, Chesapeake & Ohio, which had been an outstanding leader on the upside in the July-September 1932 advance, began to lose ground, and failed to advance as much as the market in the March-July 1933 rise, with the result that its ratio declined. Speculators apparently could not see great speculative prospects in this stock, although it had the unusual record of paying dividends on through the 1929-1932 period, without a reduction. Here we see a case of an important investment medium, which, after it had recovered from the panic in a greater-than-market advance because of its outstanding merit, showed a tendency to do more poorly than the Industrial group, although it did a little better than its own group.

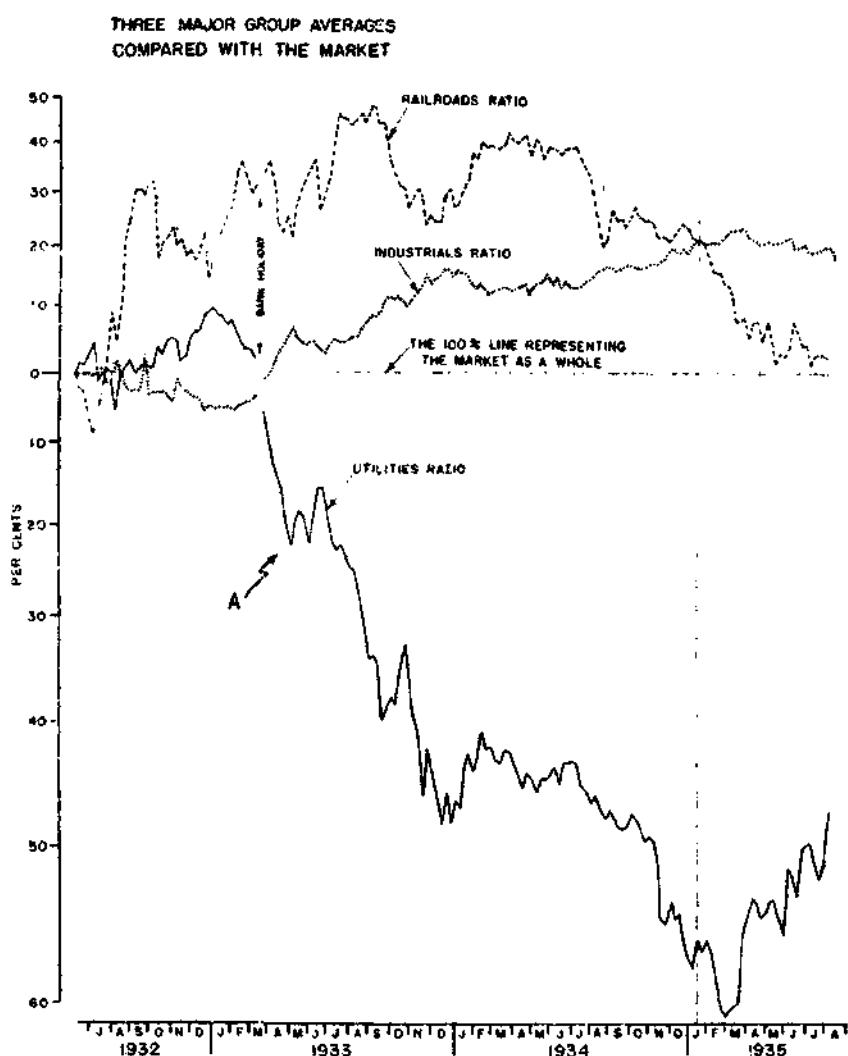
Notice that in the advance from the March 1935

lows, Chesapeake & Ohio showed no tendency to advance better than the market, as was apparent in Central. Observe also that the fluctuations in the ratio of Chesapeake & Ohio are small, and its trends are relatively smoother than those of Central. These differences are typical of comparisons of an investment issue with a speculative one.

Figure 17 shows a typical comparison of major groups with the general market average from June 30, 1932 to August 3, 1935. In this case, the Standard 90 Stock Index is used as the base or divisor to show a comparison of its major components consisting of the Standard Statistics 50 Industrials, Standard Statistics 20 Rails and the Standard Statistics 20 Utilities. The center line at zero marks the theoretical axis of the study or the 100 % line of the market as a whole. If any or all of the component major averages had moved exactly with the general market index, they would have followed this horizontal line.

Reference to Chart 8 will show the actual movement of the Standard 90 Stock Index during this period, when it rose from a low closing of 35.0 on July 8, 1932 to a high of 88.3 on August 3, 1935. During this period there were two upward intermediate

Figure 17



cycles, and what appears to be part of the major phase of the third cycle. Also, it will be remembered that from October 1933 to March 1935 the trend of stock prices, as measured by the Standard 90-Stock Index, tended to move sidewise in a broad trading area.

With this background in mind, let us turn to Figure 17. Beginning from the bottom of the bear market, we see immediately that the greatest relative recovery of any of the three major groups was in the Rails, which had an extremely sharp rise compared with the Industrials. Note how much more pronounced this rise appears on Figure 17 than it did on Figure 11.

Following this initial advance, the Rails had a larger decline than the Industrials, and interestingly enough, during the period from the September 1932 high, to approximately middle February 1933, the Utilities showed an excellent tendency, in that they did not decline as much as either the Rails or the Industrials. This is shown by the fact that the Utility ratio moved upward during this period.

See how both the Industrial and Rail ratios were moving downward. But this better-than-market tendency in the Utilities ended abruptly in middle February 1933 when Roosevelt made his attitude toward the Utilities clear, in several public utterances, a few weeks before his inauguration. Until that time, it looked as if the Utilities might be leaders in the bull market. After that time, it was very evident that they were in a new bear market of their own, as was indicated by the extremely sharp drop in the Utility ratio from its high point in middle February 1933 to approximately (A). Although this drop was relatively sharp, in reviewing the situation now, we see that it was only the beginning of the deflation, which apparently did not cease until the Utility Bill was signed, in June of 1935.

Note that for a period of time between December 1933 and February 1934, the Utilities looked as if they had turned for the better. But this was only a temporary rebound, correcting a small part of their very much worse-than-the-market trend. Observe how this better-than-market ratio trend following the lows in March 1935 differed from the rise in the ratio early in 1934. In the 1935 case, after the ratio had risen approximately the same amount as in the previous case, instead of the trend against the market continuing downward, the trend continued upward, establishing a new trend in the Utility picture. This is extremely important from the trading viewpoint, and gives clear indication that the Utilities turned the corner in March of 1935. Those market students who were bearish on the Utility industry, and quite rightly so, should not neglect this important reversal signal.

Let us look at another ratio in Figure 17. Note that in middle January 1935, the persistent uptrend in the Industrial ratio, which expressed a persistent forward movement in Industrial stocks as compared with either Rails or Utilities, crossed the Railroad ratio, or we may say the Railroad ratio crossed the Industrial ratio downward. Whichever it was, an important signal in-

dicated to the experienced ratio trend student that a switch from the Rails to the Industrials was a good trading operation. When ratios of two groups or individual stocks converge after showing a persistent parallel trend, such as the Industrials and Rails showed on Figure 17, from January to September 1933, as soon as the converging-trend can be clearly seen, in the majority of cases it is good trading practice to sell out the group or stock which is declining, and buy into the group or stock which is advancing.

In this particular case, it was not too late to make the switch when the two ratios crossed in January and February of 1935. If in future months we should see the two ratios again crossing, with the Rails moving upward through the Industrials, it would be a very bullish signal for the Rails.

Croup Ratios

Let us now proceed to the consideration of a series of group ratios, which we see plotted on Chart 37. Here we have a graphical analysis of 45 minor groups, during the period from March to June 1935. At the top of the chart, in the box to the left, is a graph of the actual fluctuations of a 225-stock aggregate, which is used by the author as a base for the computations of the 45 group ratios. In the box to the right is the Standard 90 for the same period showing a little more volatile fluctuations.

In computing a group ratio, including from 3 to 8-10 stocks, it is essential that a base including a large number of stock be used. Otherwise, the sharp movement of a group containing 6-8 stocks will tend to influence the movement of the base so greatly that it will unnecessarily distort the pictures of minor group ratios.

If we had available a daily index of all the stocks listed on the Stock Exchange, such as those published once a month in the *New York Stock Exchange Bulletin*, it would be an even better base for the purpose of studying minor group movements. But this aggregate, which is not an average, ranges between 6 and 9 thousand dollars, therefore is large enough so that the movements of a single group will not unduly distort it.

This 225-stock aggregate is merely the sum of the same 225 stocks each day (closing prices). They were picked to represent the majority of important groups. The aggregate is the sum of all the stocks in the 45 minor groups.

It will be noted by comparing the movement of the group aggregate in the box to the left, with the Standard 90-Stock Index which appears in the box to the right, that the two move much alike, except that the aggregate, being a much larger number of stocks, fluctuates in smaller amplitude.

The procedure in computing the 45 group ratio lines shown in Chart 37 is the same as that outlined above in connection with Figure 12, except that each group index is divided by the 225-stock aggregate each day. Closing prices are used in every case.

Thus, each one of the group ratio lines represents

that group's percentage of the entire aggregate. To make such computations for a single day would produce a series of meaningless figures. But by putting the figures for a number of consecutive days together, in graph form, as has been done in Chart 37, we immediately obtain intelligent appraisals of the absolute trends of the minor groups as compared with the market.

Keep in mind that the lines shown on Chart 37, with the exception of the group aggregate and the Standard 90-Stock Index, which appear in the boxes, do not reflect the price movements of the various groups. They are the ratios of the group price movements to the movement of the group aggregate. They may be likened to cardiographs showing the heartbeats of the various minor groups.

Several years' study of these ratios clearly indicates that when trends of from 2 to 7-8 months in length develop, they are important indicators of the market action of each minor group.

One of the problems of the market student and the trader is to determine which groups are moving better, worse or parallel to the market. With this knowledge, it is possible then to go on in the intelligent selection of the preferable individual stocks at any given time.

The broad theory in employing group ratios is that unless a ratio is moving upward in a bull trend, purchases should be avoided, and conversely, if a ratio is not moving downward in a bear trend, short sales should not be made. When a ratio is moving sidewise, the situation is indeterminate, and in the long run, the trader will find it worthwhile to have patience until a diagonal trend is established either maintaining a current position or staying out.

Naturally, when a long downward trend in a ratio which usually follows a declining price trend, shows a marked reversal to the upside, a buying opportunity is reached for the intermediate trend trader. Conversely, on the bear side, a selling opportunity arises when, after a ratio has risen steadily for some time, it shows unmistakable signs of turning down. It is essential in using group ratios such as those shown on Chart 37, that the trader avoid being misled by placing too great emphasis upon a trend of very short duration.

The period from March to June 1935 was selected to illustrate various theories concerning group ratios, because it was a period during when a persistent but moderate uptrend was under way, interrupted by a sharp minor decline from May 28 to June 1, followed by a resumption of the uptrend. It was certainly a typical, and therefore good diagonal trend to use as the basis for study.

Although at first Chart 37 seems to be quite complicated, it is really a very instructive series of charts which, if understood, are quite simple. In practice these charts are studied separately as shown in Charts 38 and 39. The three major groups have been segregated, with the first three columns showing the Industrials, and the last column the Rails and Utilities.

It will be noted that the Industrial section of the market is divided into 36 groups, while there are 5 Rail

groups and 4 Utility groups.

Let us first look at the Industrials. These have been arranged with the ratios showing the best trends first. It will be noted that in the upper section of the first column, there are 8 groups, with all the lines trending distinctly upward. Remember that these lines are price ratios not graphs of prices themselves. They have been arranged showing the greatest advances first. Observe how the two leading groups appear to be the Woolens and the Machinery, and the third and fourth are the Theatres and Building. Then come Electrical Equipment, Miscellaneous Manufacturing and finally the Mail Order Houses.

In the lower section in Column 1 we have 4 groups, which showed a persistently better-than-market trend from March to May, and then turned to show a poorer trend in June. These include the Coppers, Mining & Smelting, Silvers and Oils. Note that these are all the so-called commodity stocks. As the lines are sharply upward, there are indications that the March-May advance in these groups might well have indicated pronounced inflation psychology.

In Column 2 we have 14 groups, which showed a distinctly poorer-than-market trend throughout the period. This does not mean that these groups declined from March to June. It merely means that they failed to rally in an amount equal to the advance in the market, as expressed by the group aggregate. The poorest trends, it will be noted, appeared in the Meat Packing, Rubber, Restaurant Chain, Liquor, Drug and Sugar groups, which showed persistently poorer-than-market trends during almost the whole period.

Just at the end of June, the Liquors had a substantial turn for the better, which marked the turning point for the group as it started in a much better-than-market trend during the ensuing months.

Also in this column we find the Retail Grocery, Alcohol, Household Products Consumer, Chain Store and Foods (no Meat) groups. Note that all of these were Consumer Service industries. In the poorer-than-market section, only the Steels fell into the Heavy Industry classification.

Two of the groups, the Rubbers and Sugars, might be classified as consumer groups, while the Gold group, which although in the Mining classification from an industrial viewpoint, has consistently shown a tendency to move contrary to the other Mining sections, because the product it produces (gold) is on the opposite side of the economic scales from Commodities.

Next, let us examine the third column, where we find the groups which had no pronounced trends during the period, but were moving sidewise. There is one exception in the Railroad Equipment group, which appears first in this column. Here we see that after a poorer-than-market trend during March and April, meaning that the Railroad Equipment group did not rally with the market, a persistent uptrend developed, indicating the probability of a reversal.

Although this group again showed a poorer-than-market trend in September and October of 1935, at

this writing the turn-about late in April still appears to be a very important reversal in this outstanding heavy industry.

The other nine groups in Column 3 which trended sidewise, it will be noted, include four important Heavy Industry groups, namely Aircraft, Automobiles, Auto Accessories and Agricultural Machinery. These four groups showed no pronounced tendency during the period, but later proved to be some of the outstanding upside minor groups. This tendency became apparent during the month of July, just following the period shown on Chart 37. The same was true of the Steel group, which appeared in the poorer-than-market column, although it did not rise equally to the above four groups.

Also in Column 3 we see the Tobacco-Cigarette, Office & Business Equipment, Reaple Supply (including Glass) and Chain Department Store groups. The first three of these may be classified as investment groups, while the last is an industry usually considered very stable,

Now let us look at the Rails. Here we see trends which are quite divergent. The Transcontinental and Granger groups, after showing a poorer-than-market trend for the first part of the period, up to late April, turned for the better, and then moved persistently forward, while the Southeastern Trunks showed a sidewise to downward movement, and the Eastern Trunks fluctuated in wide amplitude, without a pronounced trend. In the meantime, the Coalers, which are primarily an investment group, continued their customary characteristics of moving about with the market, as is expressed by a horizontal ratio line.

The Utilities also showed quite distinct divergences. The Holding Company group, in line with the important reversal which we saw in examining Figure 17, was the outstanding upside group in this section of the market. Next was the Utility Operating group. A persistent uptrend was apparent, although not quite so intense, in the Utility Telephones. At the same time, we find the Traction not responding to the advance, as is shown by the downward drift of their ratio.

Now let us go back and look at the picture as a whole. Instantly we see that the greatest advances were apparently in the Woolens, Utility Holding and Utility Operating. For the first two months of the period, the Silvers also had an important advance, and for the first three months of the period, the Coppers Mining & Smelting and Oil groups were outstanding on the upside.

On the other hand, the outstanding downside groups were the Meat Packing, Rubbers, Restaurant Chains, Liquors, Drugs, Sugars, Alcohols, Golds and for the first two months of the period, the Railroad Equipment, Tobacco-Cigarette and Railroad Grangers.

Referring to the persistent uptrend apparent in the group aggregate, at the top of the chart, let us assume that we are bullish, and we are facing the problem of selecting preferable groups to buy. Certainly, from this analysis, we would avoid the groups which

showed the poor performances, and lean toward those which showed the good performances, with the thought that constant scrutiny of the group movements would bring to light other opportunities as those visible, let us say, at the end of April.

In considering the action of group ratios, we must, of course, remember that the price level of a group can have an important bearing upon the action of its group ratio. For example, the outstanding performance shown in the Woolens on Chart 37 is due partly to the very low-priced issues, and partly to the fact that the group did very much better than the market. On the other hand, the splendid performance shown in the Utility Holding group is not primarily because of its low prices.

Assuming that we were looking at these group ratios at the end of April, with the idea of buying stocks, our attention would, of course, be focussed upon the first eight groups of the Industrials, and the Utility Holding and Operating'groups, and the Southeastern Trunk and Eastern Trunk groups in the Rail division.

Let us assume that market positions were selected from these groups, which in all total 12. Let us examine our rise five months later, at October 1. How many of the groups showed a trend in the direction indicated at the end of April, on Chart 37? How many of the groups would have shown good profits if stocks in them had been purchased? With the exception of the Oils, Silvers, Southeastern and Eastern Trunks, a total of four, the remaining eight groups when checked up the first of October, showed a decidedly better-than-market performance. Thus, in this illustration the efficiency of selecting groups by this method appears to be approximately 67 %. Considerable study of group ratios indicates that in a diagonal trend of any importance, this record, or better, is not unusual.

A week to week analysis of these 45 groups appears on page 4 of the *Gartley Weekly Stock Market Review*, which is edited by the author. (See Appendix III, Chapter I.)

A Systematic Procedure of Selection

As we have now reviewed examples of the various studies and charts used in a modern approach to the solution of the question of "What" to buy and sell, let us look at an outline suggesting a systematic procedure, based on these studies. It was suggested that in breaking down a study of the market as a whole, technical students were in the habit of watching major groups, minor groups and individual stocks. *The process of selecting individual stocks at any given time depends upon a gradual filtration*, which might be summarized as follows:

1. *The three major groups are reviewed to determine their relative market action, with the objective of selecting the bulk of individual stock commitments in that group which, for a period of at least several months, is showing the best market performance in the case of a major*

uptrend, or the poorest performance in the case of a major downtrend. Notice that we say a majority of individual stock commitments. There are always times when individual issues in a major group which is not outstandingly the best, may nevertheless represent opportunities.

2. *Next, the minor groups are reviewed,* particularly those which form the component parts of the major group which has been selected for its better-than-market performance. For example, from 1933 to 1935, there has been no question about the Industrials being the outstandingly better-than-market group. On the other hand, as we see from Chart 37, in March of 1935 the Utilities, particularly the Holding and Operating companies, after a long poorer-than-market trend, turned to the bull side, and individual stocks in these groups became some of the best long-side opportunities. A review of the first nine months of 1935 clearly indicated that Industrials and Utilities were outstanding from March to October. The Industrials, in the period as a whole, were first, with the Utilities second and the Rails last. Thus, individual stock commitments entered for the fourth quarter of 1935, based on the relative major trend market action, would be predominantly in Industrials, moderately in Utilities and very lightly in Rails.

Thus, on October 1, 1935, for example, with the Industrials the best major group, followed by the Utilities, careful study is given the Industrial and Utility minor groups. From these are picked out the handful of outstandingly better ones. When this list is segregated, it usually consists of from as few as five, to not more than ten groups of the total of 45. The experienced technical student then looks into the fundamental situation in those groups, by making inquiries as to the causes of their better-than-market performance, in order to be certain that such trends are not possibly either too temporary, or flashes in the pan; and finally

3. *Individual stocks* in the various minor groups which have been selected are studied, in order to select those issues which seem most outstanding, *not* from the viewpoint of past performance, but from the viewpoint of past performance and the outlook for future performance.

Naturally, if the procedure outlined above were to be efficiently conducted, it is pre-supposed that the market student would have available charts of the three major groups, the 45 minor groups and the 225 individual stocks which comprise these minor groups, in all a matter of 273 charts. This obviously is conceded to be beyond the ability of the trader of average means, who spends his time conducting another business, and hopes to make the stock market a profitable sideline for employing his surplus capital.

Where a sizable investment fund is being super-

vised, the paraphernalia and work involved in keeping such a chart portfolio will usually prove to be quite worthwhile, because it permits an owner or manager of a sizable fund to be conscious of, and alive to all the important changes in the comparative status of individual stocks, which affect the capital account under management.

But to go back to the average individual. Over long periods of time, such as one to three years, or during the course of a major trend, there are usually about 25 or 30 outstanding market leaders, whose performance is better than the market because the companies which the shares represent are then the outstanding ones in industry and trade. Charts of these are usually sufficient for the average trader to study the important relative movements. Specific suggestions along this line have been made in Chapter III.

Now let us proceed to an illustration of this process of filtration. As a practical problem, let us see whether there was any way for the technical student, without any further knowledge, to anticipate and profit by the outstanding rise during 1935 in Chrysler. We will use as our example the period from March to September 1935.

Taking the steps outlined above, we find by consulting Chart 15 that the Industrial average, from the February 1934 high to the low of March 1935, had shown a far more bullish picture than the Rails, or for that matter, the Utilities. As we find the picture in March 1935, the Rails had made a substantially lower top in February of 1934 than that of July 1933, and in the course of the months between January and March of 1935, the Rails had declined below both their 1933 and 1934 low points. During this time the Industrials were showing a strong demand area, well above the low of 1934, and substantially above the low of 1933. Also, the Industrials had made a slightly higher point in 1934 than in 1933, and almost reached it again in February 1935. An analysis of the Utilities, which are not shown on Chart 15, showed a somewhat similar picture to the Rails, except that the Utilities had declined more persistently.

Thus, there was no question, as our experiment began, that the Industrials were #1 in the major group selection.

As the March lows were reached, the Utilities were in new bear market low ground, but during January and February were beginning to show a very definite tendency to cease going down. (See Figure 17.) As their position was by far the lowest of the three major groups (due, of course, to the political pressure against the Utility industry) even though they appeared to be relatively favorable, and probably substantially oversold, the trend of legislation made the group seem less attractive than the Rails.

Thus, as we enter March 1935, it seems fair to say that the average technical student would have rated Rails second and Utilities third. However, by the end of May 1935 there was no question that the Utilities had changed and deserved second place. This we can clearly see by observing the group ratios in the lower

right-hand corner of Chart 37.

But at this point let us assume that, based on the relative performances which we see on Chart 15, we have selected the Industrials for our most important market interest, thus accomplishing step 1, as outlined above.

Now we proceed to comb the minor group ratios, shown on Chart 37, as the second step is sifting out the best opportunities. Let us take the situation as we find it at the end of April, after the rally had been under way for five or six weeks. Undoubtedly, our selection would have caused us to place emphasis on the groups noted above as outstanding, namely the first eight Industrials in Column 1, the Utility Holding and Operating and the Railroad Southeastern and Eastern Trunks.

At the end of April, there would have been no reason for us to pick out the Automobile group, which, as we can see on Chart 38, by observing the ratio (top line), was moving sidewise, indicating that the group was rising about with the market. Thus, our commitments would have been selected from the 12 groups listed above.

But let us next take the situation as of the first of July, three weeks after the May 28 - June 1 crack. Now we see as shown on Chart 38, that the Automobile group price trend compared with the market is fluctuating in wide swings. The Automobile group ratio, after making a double bottom at the beginning of July, is showing a persistent uptrend, although it hasn't advanced to penetrate the top of the sidewise movement.

In examining what is causing the Automobile group to fluctuate more widely than the market, we go to Chart 39, where we see the Automobile group price (not ratio) compared with the price of Chrysler. In practice this comparison would be accomplished by superimposing the two charts. Both have been plotted on the same ratio scale, thus affording absolute comparison. Chart 39 shows these two lines synchronized as of August 1, 1934.

At first glance, it seems as though Chrysler is doing more poorly than its group, but on further examination, we see that this is caused solely by a sharp decline in April 1934, which left the line of Chrysler under its own group, for the period until early May 1935. If we synchronize the two lines at the November 1934 low, as shown in the upper cut on Chart 39, we see that Chrysler is persistently doing better than its group. This was the forerunner of its far better performance on the upside which became apparent early May 1935.

Now let us look at the lower cut on Chart 39. Here we see the line of the market, compared with the line of the Automobile group, and immediately we notice that in middle April, and through May, the Automobile group showed a distinct better-than-market trend, which became very pronounced late in June, and throughout July and August. The circle indicates the area where the substantial change developed.

Now going back to the comparison of Chrysler and

the Automobile group, we see that Chrysler had an important part in making the Automobile group average do better than the market. This is shown in the circle on the Automobile group - Chrysler comparison. Also, we see immediately that from the time this change occurred, Chrysler was outstandingly better than its own group.

Returning to Chart 38, it is obvious that in July, when the Automobile group ratio broke through the upper side of its sidewise movement from March to July, the real acceleration in the group began. Note how the ratio of the Automobile group, affected importantly by Chrysler, accelerated sharply upward, beginning early in August, when Chrysler was still selling below 60.

A number of valuable ideas can be learned in studying Chart 38. Let us go back to February 1934. From February to April, note how the ratio of the Automobile group showed a steady decline, which was sharply accelerated downward in middle April; while the price trend of the group appeared to be moving sidewise. (The shaded area shows the area.) This sharp decline in the ratio was the warning that the technical position of the Automobile group was extremely weak.

Moving on, we see that both the price of the group and its ratio showed a steady decline to middle August 1934. When the final collapse came in the price, note that the ratio showed no such sharp decline. On the contrary, it began to round off, and by early September had formed a head-and-shoulders bottom (frequently a ratio will develop the cardinal patterns as outlined in Chapter VIII).

Note that the downtrend lines applied to the price and price ratio were penetrated upside at about the same time. This is not always the case, but a study of ratios clearly indicates that *a stronger reversal is denoted if trend lines on both the price and ratio are penetrated within a short time of each other*.

The next important trend line penetration, which was of the uptrend line from August to January, it will be noted, occurred in the ratio first, and four days later in the price trend. Note how the ratio, which had been moving upward from August to January in a very well marked parallel channel, showed the typical tendency of turning downward during the price rise in the last two weeks of December 1934. This was a warning that the Automobile group was meeting stubborn supply; and when the uptrend line was penetrated downside several days later, the bearish signal was completed, anticipating the decline from January to April 1935.

Let us note next that in February 1935, when the Automobile group indicated that it was resuming its rise after the January-February correction, the group ratio failed to show any better-than-market trend, and continued to move sidewise and then decline sharply during the first weakness in early March, thus providing a clue that there was still substantial supply at the December and January highs. Frequently this performance of a ratio will develop at an important reversal, prior to a decline such as that of February-

March 1935.

Studying Chart 38, observe that in middle August, the ratio moved for a period of about 10 days in an almost horizontal zigzag. Checking the course of the market line with that of the Automobile group during this period it will be noted that both fluctuated almost exactly alike. It will be remembered that when the various conditions surrounding ratios were outlined above, it was noted that if a group or stock were moving exactly with the market, the ratio would move sidewise.

Next, we will look at the trading area in the price trend of the Automobile group during September 1935. Here was a big question as to whether this was a top or merely a consolidation area of the advance. The ratio furnished a clue. Note that during the sidewise movement in the price trend of the Automobile group, its ratio showed a steady upward trend. It will be remembered that the October 1935 advance was led by the Automobile group. A forerunner of this strength was the upward movement of its group ratio during the sidewise movement of its price in the month of September.

Naturally, with the evidence at hand as shown on Charts 38 and 39, there was little question left that the Automobile group, and particularly Chrysler, was attractive to the longside early in July 1935. Thus, even though the group had been avoided in commitments which were made in April and May, switches from other stocks and new money would naturally have been directed to Chrysler at this point. The fundamental situation was ample background to warrant the technical picture.

We have now described a typical filtration process in locating attractive individual stocks. What has been said applies conversely to a downtrend in a bear market. Naturally the market student must accumulate experience in the use of comparisons of both price trends and price ratios, before they can be efficiently used in profitable trading. But there is no question that they offer the most logical means, from the technical viewpoint, of selecting the outstanding opportunities at any given time.

Several general theories concerning ratios might be laid down at this point, before we proceed to a general discussion of charts 40, 41 and 42, which show modern stock market charts of individual stocks. These theories will be presented in the form of general axioms.

Theories of Interpreting Ratios

1. In a major uptrend, long commitments in an individual stock should not be made unless the ratio in that stock shows a tendency upward.
2. In a major downtrend, a stock should not be sold short unless its ratio shows a distinct down trend.
3. If the ratio line of a stock shows a distinct tendency to move sidewise over substantial periods of time, that stock is not attractive for speculation. It can usually be classified in the inactive or investment category, with a low

velocity rating, indicating that it moves substantially less than the market.

4. Low-priced issues which habitually swing over wide areas, and have high velocity ratings, will show ratios which swing in wide amplitude, and are thus of less value in judging better or poorer-than-market trends.
5. Whenever a distinct diagonal trend appears in both the price and price ratio of an individual stock or group, in judging a reversal it is safer to await a change in trend in both the price and price ratio. If trend lines are applied to both, the penetration of both trend lines is a more reliable signal than the penetration of one or the other. Important reversals will always be accompanied by a change in trend in both the price and price ratio, unless the stock is in active, or of investment calibre.
6. If during a diagonal trend, a price ratio shows a persistent tendency to parallel the price trend itself, in rising or declining to new high or low ground, and then suddenly rises or declines to a new high or low point while the price trend meets resistance at an old high or low, it is often the sign of a reversal.
7. When, after a persistent diagonal advance or decline, lasting for several months, a price ratio shows a well-marked sidewise or counter movement which is not apparent in the price trend, it is usually an important signal of an impending reversal, in the vast majority of cases.

Chart 40

In Chart 40, we see a modern daily stock market chart of Chrysler, the top line is the price ratio, that is, the closing price of Chrysler divided by the closing price of the Standard 90, representing the market.

The bar series which appears next, shows the high, low and last prices of Chrysler. In the next lower section devoted to volume, the solid line indicates the number of shares traded, and the dotted line shows the per cent which this trading represents of the total market volume. The lowest line on the chart shows the per cent changes of the price.

A general discussion of this chart will serve to bring about a better understanding of a modern stock price study. Chart 40 is a reduced reproduction of one of a large number of charts, which measure 26 by 31 1/2 inches, used by the author in studying individual stocks. The sheet on which the chart is printed was especially designed for stock price plotting.³

The horizontal, or time scale on this sheet covers 600 grids or approximately two years. On the original, full-sized sheet, these grids are approximately 20 to the inch. The vertical scale is divided into three sections, the upper section being devoted to a study of the price trend. This is logarithmically divided by eighths and

³ THESE SHEETS MAY BE OBTAINED ONLY THROUGH H. M. GARTLEY, INC. (SEE APPENDIX II, CHAPTER II).

quarters.⁴ There is a series of six sheets, each with a price scale covering a full log cycle, which have been selected to be used together, covering the full price range from 1 to 700.

It will be noted that Sheet No. 11, which was used to plot Chart 40, happens to have a price range of from 10 to 100. A discussion of all the sheets appears in the Appendix of Chapter II.

The second scale, used for plotting volume, is also logarithmic, and consists of three cycles, which is adequate for the volume and volume ratio range for most individual stocks. Occasionally, a very active stock like Chrysler will require a fourth cycle for one or two days at a time.

The lower scale is an arithmetic type center line scale, with the zero line in the center. This can be used for various types of oscillators, as well as for the notation of miscellaneous data which do not require a log scale for efficient comparisons.

Since the author made these sheets available, they are being widely used by investment trusts, investment counsellors, and more advanced technical students.

Let us proceed to a discussion of each of the various series shown on Chart 40.

Price-Ratio, Chart 40

Chrysler has been the most active market leader in the past two years, habitually moving more than the market, with a velocity rating of 154.67. Thus, we see that its price ratio line, which is a dynamic expression of its velocity, tends to move in a relatively wide amplitude, as compared to the price ratios of less active stocks. The sharp angles of advances and declines in the price ratio are typical of a market leader, which moves more than the market.

Going back to January 1933, we see that in the moderate price decline and rally to the February top, the ratio showed a sharp and then a gradual downtrend as indicated by the shaded areas, showing that distribution was under way. This, it will be remembered, as confirmed in the Trendograph study on Chart 30, discussed in Chapter XIV.

Looking down at the volume, we see that the shares traded during December 1933 and January 1934 were at a high level, but showed a persistent decline through January, which was more marked in the volume ratio (per cent of total trading) than in the actual shares traded. Together, these factors were decidedly bearish.

It will be noted that in the early January decline, there seemed to be no great peak in the shares traded, but the ratio showed that the turnover in Chrysler was relatively very high. A little later, the ratio showed a sharp decline in the percentage trading in Chrysler, as the top was made in late January, and during the first three weeks in February.

From the January 1933 high, until early in August 1934, the price ratio showed a persistent and greater-

than-market decline, as the price descended from 60 to 30. This decline was discussed in detail in connection with the figure chart discussion in Chapter XVI.

Observe that in middle September 1934, which is emphasized by the shaded area, the price ratio showed a gradual advance, notwithstanding the fact that the price itself declined to a new low. This indicated that, although the stock was still in a downtrend, it was beginning to do decidedly better than the market. Shortly thereafter, the trend channel shown by the shaded areas, was decisively penetrated, and at the same time the adjusted trend line on the price ratio was also broken. This provided a bullish signal.

It will be noted that as these penetrations occurred, the volume ratio showed a very substantial step-up, as shown by the crosshatched areas early in October. From the low point in August 1934, to the January 1935 high, the price ratio showed a persistent better-than-market advance as the stock moved upward in a well-marked parallel channel. When the uptrend lines across both the price ratio and the price line were penetrated downside in middle January 1935, a reversal worth following was indicated. Note that the price ratio showed a downtrend to the March low.

From January through April, the price ratio fluctuated in a well-marked trading area, indicating that the stock was doing no better than the market. In fact, in the March decline, after having failed to penetrate its January high, in February it did considerably worse. Beginning with the March low, both the price ratio and price showed a persistent uptrend although the slow advance in the price ratio indicated that Chrysler was not moving upward at its customary speed. The change which preceded the substantial advance that occurred later in the year, came in the first 15 days of May, with the rise from 36 to 49.

Observe that during this period, the price ratio emphasized by the shaded zone broke the upper side of its trading area, and showed that the upward price trend was sharply accelerating. At this time, the January and February highs were quickly surpassed, signalling unusual strength in Chrysler. Here was the signal that it was to be the market leader of the advance subsequently the ratio trended steadily upward at a steep angle showing a persistently greater-than-market trend.

Price Trend, Chart 40

In the course of the two-year period shown on Chart 40, we see that Chrysler has intermediate trends which are very well-marked by trend channels and trend lines. This is characteristic of a market leader.

Also, there were three well-marked triangles—the first in March and April 1933, with an apex at approximately 55, preceding the sharp decline to 36 5/8 in May. The second in the period from May to July, with an apex at approximately 41. This was followed by the sharp decline to 30, and the third which developed as part of the 1935 advance, and was of the strong ascending type, with an apex, and top level in the area

⁴ TO THE BEST KNOWLEDGE OF THE AUTHOR, NO OTHER SHEET WITH THIS TYPE OF GRID HAS BEEN PUBLISHED.

50-51. When this was broken, a persistent advance to well above 80 began.

Going back, it is to be noted that in the course of the two years shown, Chrysler typically makes tops in a rounding form, while its bottoms are of the V-type. Its tops follow persistent and steady advances, which round off, while its bottoms develop following a sharp decline of selling climax character. Knowledge of this is important to the trader.

It is evident from a study of the period shown on Chart 40 that when a long trend line can be applied to the price curve of Chrysler, its penetration is an important reversal point. Thus, as we look at the picture ending September 1935, we may logically believe that if the uptrend line which is then applied to the minor lows since March is penetrated sharply, it would indicate a decline of importance in this stock.

Shares Traded, Chart 40

It will be remembered that in Chapter XIV, we laid down the general axiom that high volume usually accompanies a top, low volume a bottom. By consulting the volume scale, we see that during the period shown, high volume in Chrysler was between 100,000 and 150,000 shares and that low volume was between 20,000 and 40,000 a day. Therefore, we may assume that when Chrysler trades for quite a period of time at the rate of 100,000-150,000 shares a day, if the price has been advancing, the trader has reason to beware.

It is interesting to note that in March and April, during the first part of the 1935 advance, the shares traded showed a persistent advance, while the volume ratio (per cent of total trading) gave quite the opposite impression. Subsequently, the first time that both the volume and volume ratio showed sharp advances, which was in the first week of May, there was no longer any question about the volume being on the bull side. This was the real turning point in the advance.

Until the end of April, as we can see by the price ratio, the situation was indeterminate. It is evident that the real buying came into Chrysler in the first two weeks of May.

Volume Ratio, Chart 40

There are several interesting phenomena apparent in the volume ratio picture (per cent of total volume) during the two-year period shown on Chart 40. Note first that the January 1933 top was accompanied by an extremely sharp advance in the volume ratio, which was not at all apparent in the shares traded. This increase occurred on the downside, in the first 10 days of January, and indicated that the supply coming into Chrysler was importantly increasing. It was the mark of distribution.

We see the same thing in the volume ratio on Chart 41, which shows the weekly picture of Chrysler. The persistent decline in the price ratio through January and February 1933, as the price was making a slightly higher new top, was characteristic of distribution in

this market leader, which is often subject to manipulation. During this period the persistent decline in activity was not so pronounced in the shares traded as it was in the volume ratio.

It is curious to see the sharp step-up in the volume ratio in late February preceding the minor top early in March. This is characteristic of distribution, and indicated that strong supply was again being encountered.

In April of 1933, we see the typical decline in activity which accompanies the development of a triangle. As soon as the triangle broke downside, the volume ratio had a very sharp advance, reaching a new peak as the selling climax occurred in May. Relative to past peaks, this high in the volume ratio was more pronounced than in the shares traded.

Again in May, June and early July, we see a typical decline in both shares and volume ratio, accompanying the triangle which was then developing. After the downside breakout, both indexes of activity again showed a sharp advance, as liquidation came in. Here the shares traded shot up to a high peak in the third week of July, while the ratio showed no appreciable advance in percentage trading. On the other hand, the ratio showed a real peak accompanying the selling climax bottom, in August, which was not at all visible in the shares traded. Frequently, volume ratios will show such peaks, and give proper warning that activity has reached a reversal level, which is not shown in the curve of shares traded.

Volume turned very definitely to the bull side, as marked by the decline in the volume ratio, late in September 1934, during the first reaction following the double bottom at 30. Note that there was little change in the shares traded; but the volume ratio dipped sharply on the minor decline over the month-end between September and October, and in the first three days of October, sharply advanced as the price resumed its upward course. Again the ratio scored in furnishing technical clues of value.

In January 1935, after the price made a high in the first several days, there was a persistent decrease in activity as the recession proceeded, indicating that liquidation was not pronounced. In the last week of January, during the quick decline to the low, activity increased rapidly. Observe again in this case, that the volume ratio reached a far more pronounced peak than the shares traded. But the activity did not follow through, as it will be noted that during the moderate price rise testing the January high, activity showed a steady decline, which was much more notable in the ratio than in the shares traded.

There was a very definite increase in liquidation in the first two weeks of March, as measured by the shares traded; but in terms of the percentage of total volume, it was not apparent. This was a helpful clue in judging the intermediate bottom.

Then it will be noted that through March and April; before the picture of the stock became very definitely bullish in the first week in May, that there was a steady recession in the percentage of volume

ratio which was not apparent in the shares traded; and it was not until both the shares and the percentage of trading advanced sharply over the month-end of April, and early in May, that the definite bullish signal developed. The sharp advance in the volume ratio to a peak, which had been exceeded only by that of January 1933, was the tip-off that the accumulation had been completed, and that the markup was under way.

In the ascending triangle during May and June, activity showed a peculiar phenomenon, in not developing a pronounced decrease, which is so customary with triangle patterns. In late June, observation of the price trend alone left the impression that the stock was meeting very stubborn resistance. But the volume ratio showed that turnover was decidedly on the upside in the minor rallies, and dropped off sharply during the two minor reactions.

Again in early July, we see a pronounced advance in the ratio, when the triangle broke upside, which was not so apparent in the shares traded. Again the ratio scored.

Late in the sidewise movement in the price trend during August, both the shares traded and the volume ratio showed a steady increase. When the markup of early September occurred, the volume ratio quickly went to a peak.

Per Cent Net Change Oscillator, Chart 40

It will be remembered that in Chapter XIII (page 294), it was noted that whenever a well marked converging trend could be seen in the per cent net change oscillator, the first sharp move in the oscillator, which crosses the center line, following the point of convergence, marked a trend which was usually worth following. In the course of the two years shown on Chart 40, there were 15 completed convergences, of varying lengths, which are indicated by small arrows on both the oscillator and the price trend.

In all but two cases (8 and 15) the center line was crossed decisively from 1 to 3 days following the intersection representing the convergence. In these two cases, the oscillator approached the center line and then moved sharply away from it, producing a signal in an alternative manner. In the majority of such cases, the buying or selling signal occurs as the center line is penetrated.

In the alternate cases, such as 8 and 15, the oscillator, after approaching the center line, in the neighborhood of the convergence, moves sharply away from it. In these cases the direction of net change away from the center line signals the direction of the ensuing price movement. If it is down, as in the case of 8, it is bearish; while if it is up, as in the case of 15, it is bullish. Note that many of the intersections or convergences of the trend lines on the net change oscillators occur at points above and below the center line, and not always at the center line.

Looking back over the two years, we see that the periods of largest price change, as measured by the percentage variations, were in the months of October

1933, July and August of 1934, and between April and May of 1935. These areas appear in the circles. The first two marked important bottoms, while the third was the point where the 1935 advance began to assume importance.

Usually, the daily per cent fluctuations in a market leader ascend to a series of plus and minus peaks in the latter part of declines during nervous fluctuations at bottoms, and in the nervous periods in the early part of a markup. Technical students, alert to this fact, find it an aid in judging the price trend. Now let us proceed to a discussion of Chart 41.

Chart 41

Chart 41 shows a much-reduced reproduction of a chart similar to Chart 40, except that it is a weekly study of Chrysler from January 1932 to October 1935. If a market student has the opportunity and time, or facilities and help to prepare and keep up a series of weekly charts as a long-term background, they can be of great value in studying the intermediate trend. For many traders, interested only in the intermediate trend, they are to be preferred over daily charts, in that they require so much less work, and yet provide a basis for judgment which in most cases is ample for the intermediate trend.

If the average trader can get himself out of the habit of watching all the fluctuations in the market, which unfortunately most people find it most difficult to do, weekly charts can be of the greatest value.

Chart 41 shows the price ratio, which in this case appears under the price trend most of the time, merely because of the relation of the figures as they are plotted on the scale; the weekly high, low and last also appear in the upper section of the chart. In the middle section we see the shares traded, and the percentage of total volume, on a weekly basis, similar to those shown in Chart 40. In the lower section, there are two price oscillators, one showing the usual weekly percentage changes, similar to that shown on Chart 40.

The other, at the bottom of the chart, is a more refined price oscillator, based on the per cent weekly changes in Chrysler, as compared with the per cent weekly changes in the Standard 90-stock index. This oscillator, something like that on Chart 30, shows the true change each week, as compared with the market, and is another way of expressing the price ratio on a broken-down basis. In the longer term pictures, such as the weekly chart, this type of oscillator proves much more useful than the ordinary per cent change oscillator. Now let us proceed with a discussion of the various series.

Price-Ratio, Chart 41

The general theories which apply to daily price ratios, apply also to weekly price ratios. Let us note several interesting phenomena on Chart 41. First it may be observed that in December of 1932, the price ratio declined to show that important supply was being encountered, as the price trend made numerous

tops between 16 and 16 3/8. This was the forerunner of the sharp decline to 7 3/4 which followed.

From September to November 1933, the next important signal in the price ratio appeared when, during the decline which preceded the advance to the January-February high, the price ratio showed a steady uptrend, indicating that strong support was appearing, notwithstanding the fact that there had been an advance from 7 1/4 to 52 7/8.

Later, during January 1935, we see an extremely sharp drop in the ratio, accompanying only a modest drop in the price trend, indicating that Chrysler was doing very much more poorly than the market. Looking at the price trend, this drop was not particularly obvious. Distribution was indicated by the price ratio.

In the succeeding advance to the early March high, the price ratio changed again, and shows where the final support came in, preceding the decline to below 30. But early in April, the price ratio again sharply changed downward, showing that an increase in supply had come into the market, following the final distribution between 58 and 60. The final rally showed no greater-than-market strength, and then the price ratio dipped sharply as the decline got under way.

Next, we see an important indication in the ratio in September and October of 1934, when, after dipping below 30 to make a double bottom the price ratio showed a sharp change upward, as the stock rallied to 37. Late in October, after the decline of January-March 1935, we see the ratio stop declining in middle March, and start to advance through April; and finally in early May, a sharp advance in the price ratio indicated that the trend had definitely reversed.

Price Trend, Chart 41

Looking at the longer-term picture of Chrysler, we see that its price moves in swings of wide amplitude. In the 1932 advance, a rise from 5 to 21 3/4 was followed by a decline to 7 3/4, at the Bank Holiday in March, 1933. This was succeeded by the rise to 60, and a subsequent decline to 29 1/4.

In the first advance from A to B, the reaction B-C cancelled 83.6 %, while in the second advance, from C to D, the reaction D-E cancelled 58.7% of the advance. Thus, it is logical to assume that the 1935 advance will sooner or later be followed by a substantial correction.

In further observation of the price trend, we may observe that the 1934 high was a pronounced rounding top, while the lows of 1932 and 1933 were of the selling climax, or V-type. Also, it is to be noted with interest that the 1935 advance developed from a double bottom, formed in September 1934 and March 1935.

Shares Traded, Chart 41

The actual weekly volume of trading gives us little but general information. However, it will be observed that weekly volume at the two intermediate tops in

1933 and 1934 had risen to an average of between 300,000-400,000 shares, and in the 1932 case nearly 300,000; while on the other hand, the important lows were accompanied by volume between 8,000 and 40,000 shares a week.

Volume Ratio, Chart 41

It is interesting first to observe the increase in percentage of volume in the last four months of 1932, as compared with the shares traded. Following just the shares traded, one might have gained the bullish idea that volume was decreasing. But watching the ratio of trading, it was evident that considerable supply was being met.

The same situation was indicated in the final three months of 1933, wherein the shares traded showed a steady, although not sharp decrease, while the ratio showed a persistent high level, near its peak, indicating again that trading was very heavy.

In the May advance of 1935, although shares traded showed an increase, the ratio rose to a peak, and much more clearly indicated that turnover was substantially up. Otherwise, the shares traded and percentage of total volume showed parallel trends.

Per Cent Net Change Oscillator, Chart 41

Weekly oscillators of individual stocks are often confusing, whether they are plotted on an actual or percentage basis.

In the case of Chart 41, we see a percentage price change oscillator of Chrysler on a weekly basis. The two or three fairly well marked convergences proved to be of little or no value in indicating changes in the price trend. About all that could be gained through observing this oscillator was that the extent of fluctuations was extremely high in the last quarter of 1932, and the first three quarters of 1933. This observation alone was of no real value. But let us look at a slightly different oscillator on a more refined basis.

Comparative Per Cent Net Change, Chart 41

In the lower series on Chart 41, we have a further refinement of the oscillator, which, as outlined above, presents the picture of the percentage differences in the per cent changes of Chrysler, as compared with the Standard 90. By this procedure we see immediately that the percentage changes weekly in Chrysler, over and above the market changes. It is similar to a price ratio. Having used this refinement, we immediately see some interesting convergences in the oscillator. On six occasions, it suggested worthwhile reversals in trend, indicating six good buying and selling spots.

Applying the formula suggested for the daily oscillator to this refined weekly oscillator wherein the first important movement following the convergence of two oscillator trends is the signal to buy or sell. We see that shaded areas on the oscillator show the direction of the signals.

Now let us proceed to a discussion of another daily individual stock chart.

Chart 42 - U. S. Steel

On Chart 42, we see nearly a full-sized reproduction of another chart, designed especially for stock market study. The original of this chart measures 11 inches by 17 inches, and is constructed with 200 time scale divisions, thus covering a time period of one-third of the large charts such as the original of Chart 40, which measures 28 inches by 31 1/2 inches. This smaller chart sheet, which was designed for the average trader who cannot conveniently use the large-sized sheets, is interchangeable with the larger sheets, in that the price scale and time scale on both are exactly the same.

This smaller chart is also divided into three sections, which, however, are arranged slightly differently from Chart 40. The oscillator scale appears at the top, and is smaller in size. Then comes the price scale, which, due to the smaller size of the sheet, has not so much range; and finally, at the bottom is a smaller size volume scale covering three log cycles. The price scale in the center is logarithmically divided by eighths, similar to the large sheets. This sheet has found wide favor among business and professional men, who have only moderate sized interest in the market as a sideline, but who desire to use more advanced methods of comparing stocks.⁵

The time period covered on Chart 42 is from the beginning of March to the end of September 1935. At the top we see a percentage daily net change oscillator. Then comes the price ratio to the Standard 90-stock index. Next is the ordinary bar chart of the high, low and last; and at the bottom of the chart, the dotted line is the volume ratio, or percentage of total trading, and the solid line is the volume or shares traded.

First let us compare the price ratio of Steel with that of Chrysler, which was discussed in connection with Chart 40. By referring to the cut in the lower right-hand corner of Chart 38, we see the two *ratios* (Chrysler and Steel) synchronized as of the first of March.

Note that although Steel showed a poorer trend in March, the two ratios moved closely together. Late in April, and in the first two weeks of May, there was a sharp change. The Steel decidedly showed a much poorer trend while the Chrysler ratio moved sharply upward, indicating that Chrysler was advancing much faster than the market, while Steel was advancing much more slowly than the market.

Here we have an excellent example of how price ratios may be used in exactly determining the relative trends of two or more stocks. By comparing one ratio with another, from a given point, preferably a minor top or bottom, an exact comparison can be followed, by nothing more than simple inspection.

Note the change in Steel in the first week of July, when the ratio which had been declining for four months turned sharply upward, indicating that Steel

was a buy.

Now let us go back to Chart 42. We see that the price ratio showed a steady and persistent poorer-than-market trend from the March low to the first week in July. The ratio moved downward in a well marked parallel channel. But in June it showed a swing out to the upside at B, while the price trend was forming a well marked ascending triangle, which lasted about five weeks. When this triangle broke out upside from the 35 level, the price ratio changed to a better-than-market trend.

Coincidentally volume stepped up sharply, as is shown both in the shares traded and the volume ratio, and the whole market complexion of Steel changed from a stock which had been behind the market to a stock which was advancing more than the market. This breakaway from the triangle was followed shortly thereafter by a symmetrical dynamite triangle, characteristic of sharp diagonal trends.

The upside break of the trend line on the ratio at C was a confirmatory bullish signal. Note that after the minor correction early in August, during which the ratio declined from D to E, the ratio again proceeded upward, showing a steady, although not pronounced, greater-than-market trend, which was not reversed until middle September, when the new high in both the ratio and price was reached at F. Then a poorer-than-market trend again set in.

The reversal in middle September was important, in that a sharp decline, with a downside gap, was accompanied by a notable increase in volume, as may be seen in both the ratio and shares traded, providing the trader with a good signal to sell the stock he bought between 35 and 36, in the neighborhood of 46-47.

Fashions in Stocks

A discussion of comparative studies of individual stocks and groups would not be complete without some mention of the fact that from time to time, in the course of years, market observers realize that various stocks emerge from dullness and inattention into great activity and wide fluctuation.

These speculative favorites enjoy the spotlight for varying periods, ranging from a few weeks to several years. In some cases they are solely undervalued manipulative influence, probably because of a small capitalization, but usually there is some favorable factor in the background which is stimulating to speculative psychology and too vague to be measured with any exactness. In this category in recent years, the reader may recall such issues as Auburn Auto, Alleghany, Case, Simmons, Vanadium, Radio, United Corporation, U. S. Industrial Alcohol, Worthington Pump, and more recently Greyhound, Spiegel-May-Stern and Mesta Machines.

Fashions in Croups

Similarly, entire groups of stocks catch the public fancy from time to time. During 1919 to 1923, oil stocks had a large following; in 1922-1924 radio shares

⁵ A SUPPLY OF THESE SHEETS CAN BE OBTAINED FROM H. M. GARTLEY, INC.

were in great demand, and ultimately in greater supply; in 1925-27 electrical refrigeration issues were the speculative fad. Following Lindbergh's flight to Paris, aviation stocks were very popular from 1927 to 1929; in the later stages of the great bull market, in 1928-29, investment trust issues were sold like hot cakes; and just before the crash in the latter year, natural gas stocks were gaining favor. The utility group, incidentally, enjoyed rising popularity from 1922 to 1929. Through the depression of 1929-32 gold stocks were favorites, because of increasing purchasing power of the metal, and this favor continued under the inflationary policies of the Roosevelt administration. No group could be called outstanding in the first cycle of the bull market which began in 1932, but the advance of March-July 1933 was featured by "repeal" stocks (any issues remotely connected with the liquor industry). The Liquor stocks in 1935 gained in public interest, as the distilling industry came back into its own, following Repeal.

Air Conditioning companies have appealed to the public in recent years, as one of the coming industries. Also outstanding in 1934 and 1935 have been the shares of companies connected with the Diesel Engine industry. During early 1935, as the Machinery industry showed a very sharp increase in its business, shares in this line gained public favor rapidly.

Until the advent of the SEC, great activity in fashionable issues on the organized exchanges was supplemented by intensive selling of new issues directly to the public, by all types of sellers from conservative investment bankers to wildcat promoters. Even under the Securities Act of 1933, but before the Securities Exchange Act of 1934, floods of questionable "repeal" promotions were issued. The inference is that early purchase of seasoned listed stocks which are becoming popular is more profitable than the purchase of new issues, which rarely appear until the peak of popularity is reached or passed.

Under the inflationary conditions of 1933-34, considerable interest was attached to those groups expected to benefit from inflation, such as the oil, farm implement, metal, rubber, and leather groups, and the broad list often called "farm stocks", including farm machinery, mail order and fertilizer groups.

Future Possibilities

Future developments which may well stimulate the interest of the public in representative stocks include air conditioning; aluminum alloys; plastics; modernization of railroad equipment; mass production of housing to rent and sell at low figures; vertical landing and take-off of aircraft at low speeds and other technical possibilities. In the case of television, many authorities hold that this is still far from practical, but ambitious promoters are reported to have sold some \$40,000,000 worth of "television" stocks to the unsuspecting public.

A Sound Theoretical Formula For Stock Profits

As mentioned before, the informed student reduces

his objectives to:

1. *When* to buy;
2. *What* to buy.

Specifically, he desires *first* to profit from the maximum part of a given movement, and *second*, to hold stocks during that movement which enjoy an intensified participation in the swing.

What Part of a Given Movement Should Be Obtained Consistently as Normal Performance?

Let us assume that a reversal of trend occurs and that the major phase of an intermediate bull cycle develops.

Of course, the trader aims always to buy at the bottom (A, Figure 1) and sell at the top (B). Such perfect performance is an excellent standard to follow, but rarely is achieved. Indeed, all experienced students know the truth of the old axiom that "The last eighth is always the most costly." If a movement is indicated, and it develops in line with expectations, there is usually ample opportunity (for the informed and patient technical student) to take a position early in the movement after a bottom. Likewise, there are almost always various indicators of approaching culmination which appear in time to permit the cautious trader to close his commitments with substantial profit soon after a top. The efficient trader, like any conservative business man, wants a fair profit whenever conditions permit, but he is unwilling to gamble for profits and aims at no spectacular "clean-ups". He is satisfied to buy moderately above a bottom and sell out before a drastic break following a top. Trading experience over a period of years indicates that if a trader or investor enters the market following a low and leaves the market following a successive high, with a net gain equivalent to sixty per cent of the actual advance from such a low to the high, he is approaching maximum performance. Referring to Figure 18, we may express our thoughts thus:

B minus A = Total movement of a given intermediate phase.⁹

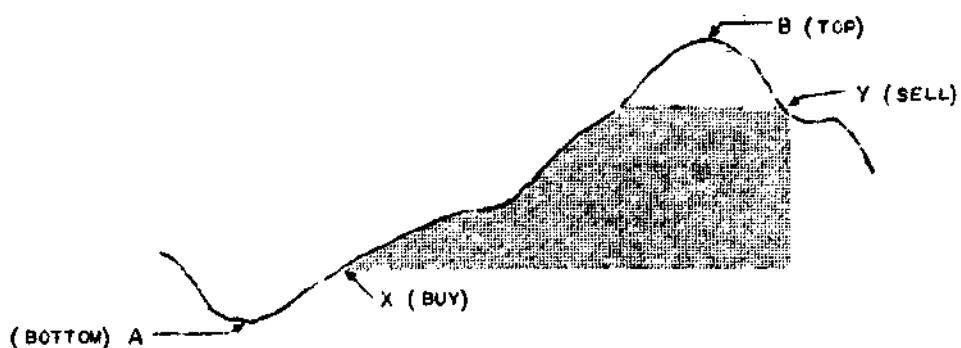
Y minus X = Actual price change participated in by virtue of *When* study say, 60% of B minus A.

How Much Better Than the Market Should Scientifically Selected Stocks Perform?

Scientific study of *What* to buy is based on the fact that when a market index advances a given amount, say 110%, various individual stocks may advance as little as 25 % or as much as 80 %. The slow movers are undesirable because they tie up capital unproductively. The sensational movers are difficult to "catch" because they occur infrequently and generally start from a low price indicative of a poor fundamental outlook. But comprehensive comparative studies show definitely those stocks which possess intrinsic merits because they consistently move reasonably faster than the market. From this category may be selected stocks which fluctuate at least between 125 and 175% of the

⁸ AS EXPRESSED BY AN INDEX
REFLECTING THE MARKET.

Figure 18



market.

As mentioned previously, when an intermediate major phase occurs, the efficient trader should be in the proper market position during 60 % of the movement (as measured by a general index such as the Standard 90 Stocks) and should repeat this performance consistently. Such results are by no means the last word in efficiency, however, because in addition to profiting from 60% of a movement as measured by a general index, the informed trader should consistently operate in a group of stocks which averaged together move 150% more than the market. Thus, if the market rises from 20 to 40 (100%) the trader's profit should approximate

This may be expressed by a formula, as follows: $Y-X \times 150/100$ becomes $B-A \times 90/100$ or 90% of $B-A$, although $Y-X$ is only 60% of $B-A$.

As measured by an index, the trader catches only Y minus X (Figure 18) but by selecting stocks which move better than the market, his profit is really Y minus X times 1.50. An understanding of this formula, coupled with good judgment of the trend is one of the secrets of real stock market profits.

At this point, we have reviewed a substantial part of the present knowledge concerning technical studies of stock price movements. Naturally, although our study is voluminous, it merely sketches the highlights, emphasizing the points of greatest importance. To detail the subject as a whole would require several volumes, and would include hundreds of illustrations of refinements in interpretation of various technical phenomena.

APPENDIX

COMPARATIVE VELOCITY DATA SHEET

STOCK CHRYSLER CORP.

SYMBOL K

FROM 12/15/31 TO 3/14/55

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RALLIES				MOVES	DATE		DECLINES				VOLUME						
HIGH	PREVIOUS LOW	POINT ADVANCE	PERCENT ADVANCE		FROM	TO	LOW	PREVIOUS HIGH	POINT DECLINE	PERCENT DECLINE	2-COMP'TIVE VELOCITY	RALLIES	3.-TOTAL	4-RATIO	DECLINES	3.-TOTAL	4-RATIO
				1931	1932												
				1	12/25	1/14											
				2	1/14	2/10											
				3	2/10	3/7											
				4	3/7	6/2	5.										
7.8	5.	2.3	47.50	187.01	5	6/2	6/4										
				6	6/4	7/8	5.8	7.8	1.6	28.73	156.37						
21.8	5.8	16.1	285.67	241.90	7	7/8	8/8										
				8	8/8	9/15	14.4	21.6	7.2	33.33	156.48						
20.7	14.4	6.3	45.87	204.80	9	9/15	9/22										
				10	9/22	10/10	12.1	20.7	8.6	41.82	154.17						
15.8	12.1	3.5	29.90	167.04	11	10/10	10/20										
				12	10/20	11/8	12.5	15.8	3.1	19.84	156.15						
17.5	12.5	4.6	37.62	172.75	13	11/8	11/12										
				14	11/12	12/3	14.1	17.3	3.2	18.71	105.53						
12.2	14.1	3.1	22.18	115.21	15	12/3	12/15										
				16	12/15	12/23	15.2	17.8	2.	11.58	108.72						
17.1	15.2	1.7	12.80	79.86	17	12/23	1/11										
				18	1/11	2/27	8.2	17.1	8.7	51.82	191.57						
12.	8.2	3.6	45.45	148.77	19	2/27	3/10										
				20	3/10	3/31	8.8	12.	3.2	27.08	144.50						
25.7	8.8	17.1	105.71	818.57	21	3/31	4/13										
				22	4/13	5/10	24.6	25.7	1.1	4.35	29.86						
39.5	24.6	14.9	59.09	184.31	23	5/10	7/10										
				24	7/10	7/21	26.8	39.3	15.1	33.33	128.04						
42.5	26.8	21.3	81.42	308.99	25	7/21	8/29										
				26	8/29	10/21	36.2	47.6	11.3	23.88	91.38						
59.8	39.2	23.4	64.52	182.08	27	10/21	1/1										
				28	1/1	5/12	36.4	59.8	23.2	33.33	81.178.24						
44.1	36.4	7.5	20.89	147.95	29	5/12	6/10										
				30	6/10	7/20	32.	44.1	12.1	27.47	131.12						
36.2	32.	3.7	12.10	75.81	31	7/20	8/25										
				32	8/25	9/17	29.3	35.7	6.4	18.11	136.68						
42.4	29.3	13.1	44.68	273.27	33	9/17	1/7										
				34	1/7	3/14	31.	42.4	11.4	27.05	159.59						

(1) A PER CENT COMPARISON OF THE MOVES OF INDIVIDUAL STOCKS WITH A REVERSAL OF 10 PER CENT OR MORE OF MARKET AVERAGES.

(2) A COMPARISON OF PER CENT MOVE OF INDIVIDUAL STOCK WITH THAT OF THE MARKET AVERAGE FOR SAME PERIOD.

(3) TOTAL VOLUME TRADED IN INDIVIDUAL STOCK DURING TIME PERIOD COMPARED

(4) INDIVIDUAL STOCK VOLUME (3)
TOTAL VOLUME N.Y.S.E.

CHAPTER XVIII

PROFITS IN THE STOCK MARKET (SUMMARY)

REFERENCES

"Investment"
"Stock Market Profits"

L. L. B. Angas R.
W. Schabacker

In previous Chapters, the theory of stock market analysis, from the technical viewpoint, has been presented exhaustively, topic by topic. In this final Chapter, we will attempt to draw the threads of the subject matter together, and suggest some of the practical problems which will be met in the business of making stock market profits.

To get the most out of this discussion, the whole Course should be carefully reviewed. To gain the greatest benefits, two complete re-readings are suggested. Experience has indicated that such re-readings will enable the average person to find a wealth of material, part of which he has passed over, and part of which has been obscured by the great mass of detail. Now, with the entire Course in mind, the reader may hope to gain a great deal by this review of the whole Course.

Organization of Studies

In Chapter I, great emphasis was laid upon the necessity for a plan of operation. In reviewing the Course, the following outline, classified according to the two primary problems, namely "When" and "What" to buy or sell, may prove a useful guide.

- I. The Background**
- 1. Major Trend
- 2. Intermediate Trend
- 3. Minor Trend
- 4. The Dow Theory
- II. The Working Tools**
- 5. Supply and Demand Areas
- 6. Triangles
- 7. Trend Lines
- 8. Moving Averages
- 9. Gaps
- 10. Net Change Oscillators
- 11. Volume
- 12. Breadth-of-the-Market
- III. Comparative Studies**
- 13. Groups
- 14. Individual Stocks
- IV. Figure Charts**
- 15. Theory
- 16. Practice

The "When" Question
The "What" Question
The "When" & "What" Questions

- V. Mechanical Details
17. Charts
18. Averages
19. Chart Portfolios

If the reader will consider the entire course from the viewpoint of this outline, he will be preparing himself for a systematic approach to technical studies. Let us examine the general aspects of the outline.

In section I, we find listed, under the heading "The Background", the three trends and the Dow Theory. Together they are the foundation of the "When" study. Once a technical student is conscious of the trends and the current implications of the Dow Theory, he has made the first step in making a market commitment.

Next, we find section II, under the heading "The Working Tools". These are market phenomena which develop as the trends unfold. They form the remaining part of the "When" question study.

Once decisions have been made concerning the outlook for the future course of the market, the technical student is then ready to give serious consideration to the "What" question. This we find in section III, under the heading "Comparative Studies".

As the market is so complex, and includes such a vast number of individual units, the process of filtration is essential. This consists of studying groups of several stocks each, which are properly classed in a single category. First, it is necessary to decide which groups are outstanding in the direction of the market, indicated by the "When" studies. This having been accomplished, the next step, of course, is to make individual selections. By this process, the "When" question is logically answered.

Under the fourth general heading, termed "Figure Charts", we have an entirely different mechanical approach, in that a series of charts, constructed in a different manner, are employed. For the most part, the "When" question can be studied in similar fashion on figure charts, as on line or bar charts. The first problem is to select minimum figures, which will reflect the trends, and emphasize the appearance of the working tools. The study of the "What" question by means of figure charts is a very different proposition. In this, the methods available are not nearly so comprehensive as in the "What" question studies employing line or bar charts. The figure charts may be

used as a separate approach, or in conjunction with the study of the other types of charts.

Last of all, listed as the fifth category in the outline, under the heading "Mechanical Details" are the accessory divisions of the study. These can have an important effect upon the technical study interpretation, because the type and number of charts used can broaden or limit the point of view, and thus materially effect a trading program.

The Most Important Decision

When the average reader decides to begin technical studies, he must decide one big question. At the outset, he must determine in which trend he is going to be most interested. Either he is to be a major trend trader, an intermediate trend trader or a minor trend trader. Whichever it is to be, his studies must be selected and designed, and his market analysis laid out, for the particular trend in which he chooses to be interested.

The average man engaged in another business, is smart if he confines his interest to either the major or intermediate trend. In the end, attempts to catch the short swings, while engaged in another business, are fatal to the capital account.

From the viewpoint of technical studies, regardless of which trend the trader may be interested in, there are certain practical steps which must be made, none of which can be avoided.

The Five Steps to Stock Market Profits

These are five in number and must be accomplished in an efficient manner, before the average man can reasonably expect to enjoy any worthwhile and consistent stock market profits.

1. *Learn the theory of stock price movements.* As noted in the outline above, this is divided into three parts:
 - a. The Background (Chapters I, IV, V, VI and VII).
 - b. The Working Tools (Chapters VIII-XV inclusive).
 - c. Comparative Studies (Chapters XVI, XVII).
2. *Construct a chart portfolio.* The mechanical problems connected with this step are outlined in Chapters II and III.
3. *Perform the routine of operating a chart portfolio.* Helpful suggestions for carrying out this exacting task will also be found in Chapters II and III.
4. *Apply the theory as outlined in Chapters IV-XVII, inclusive,* by observing market situations as revealed on the charts. It is probable that even the student who is quick to learn, or who already has a modest understanding of technical studies, will have to carry on such observations for a period of months before proficiency is developed, and what is habitually called "The feel of the market" is obtained. Eighteen months' apprenticeship is little enough, consid-

ering that only spare time is available in most cases. The man who thinks he can master all he needs to know in the course of a month or two is fooling only himself.

5. *Develop analytical skill by paper trading.* (Think how badly your capital account feels when it is abused.) Having studied the theory of technical analysis, the prudent, long-headed and foresighted student will then conduct a series of paper trades, to prove to himself his ability to follow the market systematically, and make consistent profits. When profit-making efficiency has been tested on paper, on both the long and short sides of the market, and success has been attained, real confidence will be built up. It will be possible to master emotion more easily; and the average man will be more nearly ready to begin his speculative operations with real money. Fewer losses will be caused by "taking a chance."

Should Be Required to Pass an Examination

If every person who attempts speculation were required to go through the educational program outlined in the five steps which have been briefly summarized above, and then required to pass an examination and demonstrate his ability by successful paper trading before he were permitted to open an account with a broker, it is safe to say that fewer people would lose their capital in Wall Street, and probably there would be fewer brokerage offices.

No Dependable Way to Get Something For Nothing

It is only human for the average person to try to get something for nothing. And it is just this natural urge that has caused widespread gambling ever since history has been written.

This laziness, greed and unwillingness on the part of the majority, to perform the labor of learning presents a rare opportunity for the few who are willing to labor to the point of understanding.

When the task of accumulating capital is carefully considered, the willingness of the majority of persons to gamble their assets in the stock market in the hope of enhancing their capital or making a fortune, is an amazing and sad commentary which belittles the intelligence of the mass. The writer finds it hard to understand why so many people will work a lifetime and then fritter away their savings in a business about which they know practically nothing. It is cause for even greater wonder if the few who have learned something about the intricacies of stock price movements, continue their stock market speculations without proceeding with a systematic study. In the humble opinion of the author, the intelligent readers of this course should quit speculation entirely unless they are willing to devote the time and attention necessary to progress patiently through the five steps outlined above. To have understanding and not apply it is nothing less than a stupid and unnecessary blunder.

Bewilderment Will Disappear With Experience

As in any human activity, the stock market student will find that, as he progresses in a systematic study of the market, the usual cloud of bewilderment will disappear.

It is to be clearly understood as a primary premise in making this study, that *neither the author nor any other writer is able to hand the reader a foolproof, automatic and perfect system of beating the stock market*. In the opinion of this writer, it is unlikely that there will ever come a time when an individual or group of individuals, even by elaborate and careful studies, will be able to call every turn in the market in advance. The reader should not expect this.

The primary object of this course is to teach the average man to know enough about stock price movements so that he may consistently make a substantial profit each year. A reasonable objective of the average man would be to make 18-24 per cent or more on the capital employed without the use of borrowed money.

Practice Boils Down to Two Operations

Practical technical studies may be reduced to two easily defined but difficult to accomplish operations, which in brief are:

1. A program of study; and
2. A program of trading

Together, these may be called *Systematic Speculation*.

A Program of Study

The outline of the previous Chapters, which appears above, is in itself the skeleton of a program for technical study. In such a program the enlightened technical student habitually attempts a calm and reasonable survey. To accomplish this he is constantly subjecting the current market to a systematic series of questions among which the most important are:

Outline For Technical Analysis I.

A Study of the Background

A. Major Trend

1. Has the business cycle reached a major turning point?
2. Which of the three economic stages of the major trend is in progress?
3. How many intermediate cycles have occurred?
4. How long has the major trend been under way?
5. What has been the percentage advance or decline?
6. Has volume of trading reached the proportions of a major reversal?
7. Have the characteristics of the final half-cycle in a major trend developed?

B. Intermediate Trend

1. Is the intermediate trend in a major phase, parallel to the primary movement, or is a corrective phase, or secondary reaction

- counter to the major trend, under way?
2. How long has it proceeded?
3. What has been its amplitude?
4. How much of the previous movement has been cancelled?
5. If a corrective phase is in progress, is it likely to be of the long or short type?
6. Has the volume of trading shifted to speculative stocks, indicating a top, or to investment stocks, indicating a bottom?
7. What is the seasonal influence of the business trend?
8. Has a sequence of working tool phenomena developed to indicate the probability of a reversal?
9. What are the Dow Theory implications?
10. Are the important groups leading the advance or decline?
11. What are the intermediate trend indications apparent on the figure charts?

C. Minor Trend

1. Is the minor trend up or down?
2. Is a sidewise movement under way?
3. How many minor cycles have developed since the last intermediate reversal?
4. What are the current volume characteristics? Is activity increasing during minor price advances? Is activity dropping off in minor declines, or vice versa?
5. How does the current minor rally or decline compare in amplitude and duration to the previous one?
6. What is the seasonal influence?
7. Is the minor trend sensitive to news?
8. What kind of stocks are most active in the smaller swings?

D. Dow Theory

1. What are the major trend indications? When was the last primary signal? In what direction? Under what conditions will this signal be countermanded? What conditions will have to develop to reconfirm the current major trend?
2. What is the intermediate trend outlook? Is a primary movement (major phase) in progress? Or is a secondary reaction (corrective phase) under way?
3. What are the minor trend indications?
4. Is a Dow Theory "line" forming?
5. Is an upward or downward zigzag in progress?
6. Are both averages (Rails and Industrials) "in gear"? Or is a divergence occurring?
7. What are the volume indications? Is activity going dull on declines and increasing on rallies, or vice versa?

II. A Study of the Development or Appearance of Working Tools

E. Supply and Demand Areas

1. Is a major, intermediate or minor supply or demand area developing? If so, is it more

likely to be a consolidation or trading area, or a reversal pattern? Also, is it developing at or near a supply or demand area in the previous trend?

F. Tops and Bottoms

1. Are any of the cardinal reversal patterns apparent on the charts of the averages, or in any substantial number of individual stocks? Are the cases clearly defined or very irregular examples?
2. Does the pattern of the market indicate the possibility that a rounding or V-type reversal is developing?
3. Is it possible that a selling climax is nearby?
4. Is a likely buying or selling spot apparent in the form of a test of a previous high or low (see page 222, Chapter VIII)?
5. Has previous top or bottom been exceeded recently?
6. If a head-and-shoulders reversal has developed, has the succeeding movement proceeded to the estimate (see page 213, Chapter VIII)?

G. Triangles

1. Are triangles of several months' duration apparent in the averages? What individual stocks have developed similar triangles?
2. What type of triangles are developing? Are they well-defined cases, and has volume declined?
3. Has volume declined to confirm the pattern?
4. Has a decisive breakaway from the apex of a triangle occurred? With what other technical factors confirming?
5. Are there any groups which have formed well-defined triangles of long duration? Any individual stocks?
6. Have dynamite triangles formed in the averages, or in a large number of stocks?
7. Does the seasonal influence suggest that a series of triangles will be followed by a movement in one or the other direction?

H. Trend Lines

1. Are the averages approaching a major trend line, or has a major trend line been recently penetrated?
2. Is an intermediate trend line being approached, or has one been penetrated recently?
3. Has the penetration of either type been accompanied by significantly increased volume?
4. Is the price trend moving in a parallel channel? If so, has the extreme side been approached?
5. Are there any convergences of trend lines visible?
6. Has the second or third adjustment of an intermediate trend line occurred, indicating the possibility that the penetration of the adjusted trend line will be an important signal?

I. Moving Averages

1. Has a major or intermediate trend moving average been penetrated? If so, have the penetrations been accompanied by an increase in volume? And have they succeeded other technical signals in the same direction?
2. Has the price trend approached the major or intermediate trend moving average and rallied or declined away from it?
3. Has a minor trend moving average been penetrated?

J. Gaps

1. If what appears to be an intermediate reversal has occurred, has a breakaway gap confirmed the new trend?
2. If an intermediate trend has been underway for some time, has what appears to be a midway gap developed? Is this gap in the general location of a previous intermediate top or bottom?
3. Has what appears to be an exhaustion gap developed? If so, has it been accompanied by substantial volume?
4. Has a gap occurred in connection with other technical phenomena of importance?

K. Net Change Oscillators

1. Has the major trend oscillator reached extreme proportions? If so, has a reversal been indicated?
2. Have any of the intermediate trend oscillators (weekly) shown indications of a reversal?
3. Has the 21-hour moving average oscillator reached an extreme zone?

L. Volume

1. Has the total volume of trading reached the proportions of a major trend reversal?
2. Are volume indications confirming the possibility of an intermediate top or bottom?
3. Are the minor trend volume indications bullish or bearish?
4. Has volume shown a significant increase with the development of other technical factors?

M. Breadth-of-the-Market

1. Is a selling climax indicated?
2. Are the daily studies showing evidence of a minor reversal?
3. What character of stocks are appearing among the most active each day—the Heavy Industry leaders or the low priced "dogs"?

III. A Study of Groups

N. Major Groups

1. Which of the three major groups (Industrials, Rails, Utilities) is showing the most pronounced trend?
2. Has there been any significant change in the performance of the three major groups?
3. Is one of the three showing a much poorer

trend than the other two?

O. Minor Groups

1. Which minor groups are showing a better-than-market performance? A poorer-than-market performance?
2. Have any of the minor groups recently shown a change in trend?
3. Are the important heavy industry groups leading the market?
4. Which sections of the three major groups are showing the most pronounced trends?

IV A Study of Stocks

P. Better-Than-Market

1. Which stocks are leading the market?
2. Which stocks in the outstanding minor groups are most prominent?
3. Which stocks are showing a decidedly poorer-than-market trend?
4. Have the velocity characteristics of important stocks shown any significant changes?

V. A Study of Figure Charts

1. Are the figure charts of the averages showing the development of substantial accumulation or distribution zones?
2. Are similar patterns visible in a large number of important stocks?
3. Has the trend penetrated the limits of an important sidewise movement, indicating a substantial further move?
4. Are minor supply and demand zones appearing on the figure charts?
5. Has the trend exceeded either side of a minor accumulation or distribution zone, indicating a small movement to come?
6. Are the figure charts confirming the indications of other technical studies?

VI .Summarizing

1. Is the major trend upward or downward?
2. Is the intermediate trend up or down?
3. Is the minor trend up or down?
4. Has a buying or selling spot developed?
5. Which major groups look the best for an operation?
6. Which minor groups look the best?
7. Which stocks look the best?

By this systematic investigation, the technical student develops a specific point of view as to the "When" and "What" questions. Such constant research results in enlightenment, replacing vague general ideas, wild guesses and wishful thinking. Although the "When" question conclusions may be wrong, constant study of the chart pictures will soon show that a mistake has been made. The informed technical student is always alert to the possibility that he has made a mistake. On the other hand, he does not let one or two days' market action give him the jitters.

Methods for answering all of the above questions have been discussed in detail in previous Chapters.

These questions not only form the framework for a practical investigation, but they are also an excellent test of one's knowledge of technical studies.

Assuming that certain conclusions have been reached as to the three trends, Dow Theory implications, and the development of various working tools, and that certain selections of groups in a preferred position, and outstanding individual stocks, have been made, the trader is then ready for the second operation.

A Program of Trading

Naturally, any plan of technical study must finally reach the practical stage, where commitments must be made before profits (or losses) will ensue. The experienced trader knows that a systematic plan of trading operations is essential.

Among others, the most important factors in such a program may be summarized as follows:

1. The total capital in the trading account should certainly never exceed half of one's total assets.
2. The object of speculation should be the persistent accumulation, over a period of years, of a larger profit than the normal interest rate on money. As a greater risk is being taken, it is only fair to demand from speculative operations let us say, from 18-24% a year. In good years, when the market movements are large, a greater profit should accrue. But when this is balanced against the lean years of smaller movements, a good maximum objective ranges approximately between 18 and 24 %. The experienced trader knows that he has to average good and lean periods, and that "taking a flier" spasmodically never leads to any consistent profits.
3. If the trader is engaged in another business, his market interest should be confined to the intermediate trend, with the idea of conducting two or three operations a year, calculated to participate in a substantial part of the major phases of intermediate cycles. A specific trading plan, based on one of the premises of the Dow Theory, appears on page 141 of Chapter V. This might be reviewed now.
4. Because the trader knows that he is bound to be wrong on many occasions, no matter how carefully his market studies are conducted, he systematically guards his capital account by diversifying his commitment depending upon its size. For a small account, from 3 to 5 stocks should be the minimum. On the other hand, even a large account should confine its interest to not more than 20 issues. The ideal situation includes from 5 to 10 issues.
5. The trader further guards his capital account by limiting his losses. Allowing losses to grow is a sure sign of an amateur. The trader assumes that the one best way to know a mistake is to have a commitment run to a loss, because to be right means a profit. In the stock market, if a

mistake is not caught, the habit of allowing losses to grow is quickly attained. Several small losses have a distinct advantage over one large loss, in that the trader has at least had several opportunities to make a profit. Large losses do more than make a hole in the capital account. What is more important is that they limit future operations. The trader starts with \$10,000 which enables him to buy or sell short, let us say, 500 shares of stock. If he takes three large losses, aggregating \$5,000, his future market interest is thereby reduced to 2-300 shares. Thus, it is more difficult to spread the risk by diversifying the interest, and the smaller market interest means a long period of stagnation in the capital account, before it grows back to the original sum. Several substantial losses in the early part of a year can ruin the record of that year and possibly the next, and thus mean months of work and worry before the capital account is even reinstated to its former position. Large losses are the first enemy of persistent accumulation.

6. To offset the inevitable small losses and as a reserve against future losses which are bound to occur as the result of mistakes and errors in judgment, the trader knows that when his judgment has been right, he must let his profits grow, thus at the same time allowing persistent accumulation of his capital account. To enter commitments with the idea of making one or two points or losing one or two points is a poor business proposition. It is mere gambling, if the ratio of the risk is only 1 to 1. Although there is no set rule, it is good practice to adopt the attitude that unless a 30% profit seems probable, there is no use in taking a risk, even though it is limited to 10%. However, the shrewd trader does not allow a profit to accumulate without insuring a substantial part of it at some point. Here again, there is no set rule. But a safe procedure is to insure from one-half to two-thirds of any profit which has reached or exceeded 20 % on the total sum of the commitment.
7. The foresighted trader does not use borrowed money (margin), unless he feels certain that a substantial movement is in the making. When he runs his commitments beyond 100%, he believes that the major phase of an intermediate cycle has just begun. Also, he does not attempt pyramiding on his profits unless few or none of the signs of an intermediate reversal appear present.
8. The shrewd trader avoids two kinds of stocks. He doesn't trade in the "dogs", and he stays away from the investment issues, which tend to move less than the market. Experience has taught him that moderate priced issues (\$20-50, depending upon the general market level) of sound companies, are the ideal speculative

mediums. Although the low-priced issues have their place in a speculative program, they should not be predominant in a moderate-sized speculative account; their movements are likely to be so erratic that one has to be watching the tape. 10-20% of the total account in issues under \$10 is a good limit. On the other hand, the very high-priced issues are likely to have small percentage movements compared with those of moderate price. In selecting stocks, those with a velocity of between 125 and 175 % are usually the best for the average speculative program.

9. The smart trader confines his market interest to stocks in a few groups which show decidedly better-than-market trends in a bull market, or poorer-than-market trends in a bear market. He never tries to catch the swings in the one or two stocks which appear to be enjoying temporary popularity, for two reasons — he cannot hope to have a portfolio of charts which enables him to give the proper study to every stock which enjoys a speculative whirl, and secondly, he knows that only a few such stocks come up from obscurity and permanently join the market leaders as sound speculative mediums.
10. The wise speculator lays aside from one-fifth to one-third of every substantial profit, with the idea of building up an investment backlog; and he doesn't make the mistake of drawing from this accumulation every time a series of losses reduces his speculative capital.
11. Lastly, but not by any means the least important, the successful speculator keeps his own counsel. Although always willing to learn fact, he neither gives nor takes advice. He knows by long experience that he must rely upon himself, because in every emergency where keen judgment is required, his friend or neighbor is likely to be equally confused. Experience has taught him that he must make his own decisions, and have the courage of his convictions.

The premium of patience, he knows, pays large dividends. He knows that there will be new and worthwhile opportunities in the future. Thus, he has the patience to look forward, and does not waste time on lost opportunities. To be right 60 % of the time is his goal.

He attempts to make every trade an act of reason. He never forgets that a commitment made hastily is likely to be based upon emotion. Thus he never tries to make up a loss by taking a long chance to make a quick profit. He knows that it is a poor business proposition to carry a large paper loss with the idea of "getting out even".

He guards against placing the greatest importance upon the newest technical phenomena he has learned. He tests every working tool, to see that it suits his temperament, and that he has

the ability to use it successfully.

Experience has taught him that an overextended margin position turns reason to hope.

Practice on Paper

To gain the greatest benefits from this comprehensive presentation of technical studies, the average reader must go through the patient steps of learning and testing. No man can expect to guide a complicated machine without a knowledge of it, and practice in its operation. A reasonable man should not jeopardize the capital of a trading account until he has proved to his own satisfaction, by paper-trading, that he has mastered the art. Then he is ready to start in a small way, to take the risk of actual trading. If he then proves that he can hurdle the psychological barrier or trading with real money, he is on the road to profits in the stock market.

FINIS

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