

# TRANSACTIONS

## OF THE

# FACULTY OF ACTUARIES

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*The Statistical Groundwork of Investment Policy.* By C. M. DOUGLAS, F.F.A., Assistant Actuary, Scottish Life Assurance Company Limited.

[Read before the Faculty, 4th March 1929. A Synopsis of the Paper will be found on page 212.]

### RETROSPECT.

IF we examine any statistical table or chart which has reference to the interest rates of past years, we shall find that the general trend of such rates from about 1797 to 1897, a complete century, was very distinctly downward. For example, in the Trades Cycles Chart prepared by Joseph Kitchin<sup>1</sup> which gives us data from 1783, we find that the yield on Consols commenced in 1797 at just over 5½% and finished up in 1897 at just under 2½% with Bank rate at 2% and Market rate of discount at ⅔ths of 1%. For a continuous period of forty years within that time the yield on Consols, following on the Railway crisis of 1847, fluctuated within the narrow margin of ½%. Such conditions approached the ideal in which to form a static investment policy. One could have purchased fixed interest gilt-edged securities at any time with the reasonable expectation that the market values would appreciate from year to year. After 1897, however, the trend of interest rates changed to an upward direction and conditions were reversed. It is probable that from this time depreciation in security values was experienced. The proportion of assets then held by Life Companies in Stock Exchange Securities was nearly 40%, and from the published accounts it is apparent that writing off for depreciation soon became necessary.

<sup>1</sup> Last published in *The Times (Annual Financial and Commercial Review)*, 10th February 1925.

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By 1913 actuaries were fully alive to the dangers of continued depreciation, but there came in 1914 the war which brought other questions of more immediate urgency into prominence. Interest rates, however, continued to soar upwards until 1920, in which year they reached their highest point. The following is the history of depreciation in these years as given by S. G. Warner in an essay on *The Effect on British Life Assurance of the European War*,<sup>1</sup> the figures having reference to Ordinary and Industrial Companies combined, established within the United Kingdom.

	£
1899 to 1903	1,396,406
1904 to 1908	3,291,058
1909 to 1913	5,641,067
1914	1,753,744
1915	4,796,716
1916	2,896,417
1917	3,355,416
1918	2,695,333
1919	3,431,304
1920	8,494,594
Total	<u>£37,752,055</u>

This total of depreciation actually revealed has reference almost entirely to Stock Exchange securities, as any amounts written off Mortgages have, when separately stated, been excluded. In addition to this total written off, Investment Reserve and War Contingency Funds were created to the extent of £17,414,076 by the end of 1920. These two totals may be related to the total Assets which in 1898 were £288,790,871, and in 1920 £728,826,102. The benefits of high interest rates were, of course, denied to British Life Companies on account of the high income tax rates. Among the Ordinary Life Companies the net rate of interest earned in 1919 as shown by Warner was actually less than that earned in 1913.

There is no doubt that the disturbing experience of the period ending in 1920 has caused much greater attention to be directed on the question of investment policy. While both security and stability could be claimed throughout the last century, the facts of depreciation which I have referred to make it open to question

<sup>1</sup> *War and Insurance* (p. 147), one of the series of publications of the Carnegie Endowment for International Peace, London, 1927.

if such a claim could be maintained during the first twenty years of the present century. I think it certain that if the funds of a Company suffer such depreciation as that of these past years, any claim to security is challenged, and if we are to avoid a recurrence in the future, an enquiry into the foundations of our investment policy will prove to be of value.

#### PRESENT CONDITIONS.

In preparing the present paper I have had no particular policy in view. It contains the results of elementary enquiry, and for the most part is confined to what may be called the actual groundwork of study. In all that I have to say I refer only to the Funds of a Life Company operating within this country, without foreign funds, and only to that portion of the Funds which is covered by Stock Exchange Securities.

The traditional investment policy of a Life Company has always been one of prudence and safety, offering to its policyholders a complete security against its capital liabilities. There is no reason to suppose and nothing to suggest that British Companies will ever depart from this age-long tradition, but changes in financial structure and conditions call for necessary changes in the application of any investment policy.

It is impossible for me to state in respect of any one Company that its investment policy is this or that, but for convenience I would classify present tendencies, as they appear to me, into three groups. The first of these might be called the static investment policy, under which an investment once made would in the ordinary way remain on the books until maturity or in perpetuity unless the actual security came into question. Fluctuations are ignored except in so far as they involve a writing down. This,<sup>1</sup> to some extent, would seem to have been the practice which met with so much success in the nineteenth century, and, as I have pointed out, a practice admirably suited to the conditions of that period. The problems of such a policy are largely confined to those of initial selection and of diversification. It is to this policy that we can apply the well-known Canons of Investment as outlined by Bailey and extended by Sir George May, but while the latter suggested the spreading of investments over as large an area as

<sup>1</sup> See also, however, W. P. Elderton, *Investments a Hundred Years Ago*. *J.I.A.*, li., 32.

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possible, the question has now arisen of attaining further diversification by an extension of the classes of investment to cover a certain proportion of the Funds with Ordinary Industrial stocks. This static policy would, of course, imply an approximately fixed proportion of each class and area.

For the second group I have in mind a more active policy which, while assuming much that is involved in the first policy, would have greater freedom in dealing with recurring periods of strain and would be in a better position to take advantage of recurring periods of prosperity. The proportion of investments in any one area or class would not be static, but would fluctuate with changing conditions in order to minimise capital loss. Security of capital as before would be the first consideration, and the greater portion of the investments at any one time would be found in that area and class which for the time being afforded the greatest security of capital. I think that this policy may represent the practical ideal of most Companies, though as yet we are far from being able to make efficient application of it. Our knowledge of the underlying forces at work on security prices is still very limited, and in the application of such a policy the possible margin of error would be an important consideration. In exercising judgment we are to some extent dependent on the work of economists and statisticians, but it is in translating their work to our own needs that greater efficiency can I think be attained. We require to estimate, not only the present value of a security, but the factors which operate from time to time in causing the market valuation to fluctuate. Our knowledge of these matters will undoubtedly increase as time goes on, and in gaining familiarity with the continual changes it is probable that the purely static policy with its attendant losses in times of strain will be entirely discarded. It is always necessary to move in the direction of that policy which will bring to us the greatest security of capital.

The third form of policy is one which has in view the predominant influence of Endowment Assurances and the maintenance of the substantial rates of bonus now associated with that class, both involving a substantial margin in the rate of interest to be earned. Although the security of capital is still all important, yet the question of a high interest yield is, I think, regarded as being of at least equal importance. If the high rate of interest is to be maintained, it may sometimes be necessary to ignore the mere stability of capital values, that is to say temporary fluctuations in capital values will be incurred, but these will be covered by the

maintenance of adequate reserve funds. To describe this policy in a short way one might say that if carried to its final limit it would coincide with that of an Investment Trust Company. The principles of Investment Trust organisation are, of course, very different from those of a Life Company, and when it is a question of seeking the protection of Life Assurance I feel certain that in this country the public will continue to require a more stable security than that afforded by purely Trust Company considerations. There are two main differences, one on the point of security, the other on the point of equity. For example, let us consider the following three broad criteria in investment trust buying: <sup>1</sup>

- (1) Securities purchased must conform to the canons of diversification which the trust has set for itself.
- (2) Securities should meet the trust's standard of intrinsic soundness.
- (3) They should if possible be obtained at figures giving good current yield and promise of capital appreciation, the range of maximum prices set for various eligible securities being based upon an expectation of ultimate profitable turnover.

Indications are given in the last of these of operations commonly carried out by the old Financial Trusts of this country as against the purely Investment Company, and it would require drastic alteration before it could be made acceptable to the ordinary canons of Life Assurance finance. Then again on the point of equity it must be remembered that a Life Company is not dealing with a body of shareholders whose identity may change with daily frequency, but it makes definite contracts with individuals, contracts which last in the maximum during the lifetime of these individuals. If the contract is surrendered it does not pass to another individual but is immediately terminated. With all that in view one can appreciate the different treatment required in the handling of reserves. In addition we have the important fact that market values cannot be ignored by the Life Companies, but may be by Investment Companies.

<sup>1</sup> Leland R. Robinson. *Investment Trust Organisation and Management*. New York, 1926. p. 81.

## PROBLEMS OF PURCHASE.

In every investment policy we have the problems of purchase quite apart from the consideration of individual investments. In the past and perhaps even now the majority of purchases are made in new flotations. This is partly due to the many opportunities of getting in on the most favourable terms, assisted in some cases by partial underwriting. I recently examined the distribution of securities of ten Scottish Life Offices from the accounts of the past fifteen years. I do not reproduce the results here, as they are of little importance, but in comparing the figures with the details of new issues published by the Midland Bank the fact of new purchases being associated with new flotations was made very clear. For example, in addition to the increase in government securities during the years 1915 to 1920 there was a very large increase in Home Municipal and County securities during the years 1920 and 1921, which coincided with the great number of Corporation Stocks issued in these years. Similarly the falling off in purchases of Debentures coincided with these years in which few Debenture issues were made. The purchase of existing securities, however, is probably now more common. The more important problems in relation to purchase about which more information is desirable are those of price differences as between the different stock markets of the world and as between the different classes of security. As regards the former, for example, an article in the *Economist*<sup>1</sup> pointed out that Foreign loans were then being quoted in New York at much lower prices than in London, the difference in yield actually varying from 6/- to 23/- per cent. Closely associated with the problems of purchase are the problems of dispersion and selection of class—Debenture, Preference or Ordinary, long term or short, government, municipal or industrial, etc., and the various subgroups in each. For example, in entering the Industrial field one naturally looks for those industries which are in a progressive state. Practical guidance on this point is obtainable from the monthly bulletins of the Ministry of Labour.<sup>2</sup> Then again we have the corresponding problems of sale, but all these problems must remain until we learn something of the

<sup>1</sup> The *Economist*, 20th June 1925.

<sup>2</sup> See, for example, *The Ministry of Labour Gazette*, November 1928, which gives a tabular statement of the changes between July 1923 and July 1928 in the estimated numbers of insured work-people in 100 different industries, divided into two schedules, those in which increases have occurred and those in which decreases have occurred, all arranged in descending order of degree of increase in the five years.

movements of the market, and I must now pursue the main purpose of this paper, which is to approach the problems of fluctuations in price.

#### PRICE FLUCTUATIONS.

To begin with I would refer to the general fluctuations in the market price and yield of securities due to causes apart from general assessment of the real value and real earning power of any individual security. I am not here concerning myself with economic problems of cause and effect, but merely with the facts as they present themselves in the effect. It may be said in a general way that in the long run interest rates are determined by the supply of and demand for capital, but the factors of supply and demand will vary at any point of time in the different markets of the world and as between different classes of security. It is these variations which I think are worthy of study, for to achieve stability one must react to movement, and to do this efficiently the movements must be understood.

The principal four movements in security prices are (1) seasonal variations, (2) long period trends, (3) short cycle variations, and (4) the irregular variations due to accidental phenomena such as wars, political events or very often a local stock exchange crisis. This last I shall not discuss, and as the first is so overshadowed by the other movements it is of little practical importance; in fact it is doubtful if it has any real existence in our own country. Even in America since the introduction of the Federal Reserve System seasonal fluctuations of interest rates have been practically eliminated,<sup>1</sup> while Owens and Hardy have demonstrated that stock prices show no seasonal variation;<sup>2</sup> the Harvard Committee of Economic Research also found that there is no seasonal variation in stock prices. The short period cycle may cover a period of from 2 to 10 years with an average duration in Great Britain of about 7 years,<sup>3</sup> while the long period trend may continue in the same direction for an indefinite period during which the short period cycles have their recurrence. Both accompany the general economic movement of all prices and can be studied in their general relationship to the economic cycle.

<sup>1</sup> W. Randolph Burgess. *The Reserve Banks and the Money Market*. New York and London, 1927. p. 290.

<sup>2</sup> Owens and Hardy. *Interest Rates and Stock Speculation*. London, n.d.

<sup>3</sup> Willard L. Thorp. *Business Annals*. New York, 1926. p. 45.

## LONG PERIOD TREND.

The long period trend, which ignores fluctuations of a minor character in point of time, has an important influence on any investment policy, as it is important to know whether we are in a period where rates are moving downward or upward. This problem, however, in past experience has not been formidable because although it is difficult to tell at what time a change in the general direction is taking place, some years of delay in adjusting the investment policy to meet such a change would not generally involve any great penalty, and in addition, as I have pointed out, the conditions during the whole lifetime of most Companies were unchanging in this respect until the beginning of the present century. The movement being a long period one the change in policy would itself be somewhat gradual until the period of adjustment had elapsed. To measure a definite turn in the long period trend is somewhat difficult, and it would be necessary to form some conclusions on the existing trend of general financial conditions. The long period trend has not received any great attention by economists, as their object has generally been merely to eliminate the trend from existing data, but there are several ways in which we can form some opinion as to the turning point, and for this purpose I have collected an index of the average annual gross yield on Consols from 1783 to 1928 which will be found in Appendix A Table I. By charting the annual figures we can follow separately the local maximum and the local minimum points in the curve, and if we find that both of these series are moving downward, then we can generally assume that we are in a period of decreasing rates. As an alternative method we can trace out a moving average of so many years, sufficient in number to remove the majority of short cycle effects, and find when that curve changes direction. In the second column of Table I. I have recorded the figures of a nine years' average which would I think cover most of the short period cycles, but is, of course, influenced by the comparative intensity of these cycles. To assist in the reading of this series the several maxima and minima are shown in italic type. An inspection of this table reveals the very definite turning point which took place in 1897. As regards the present time, we are still under the influence of the exceptional figure of 1920, and it would appear too soon yet to decide by the methods indicated above whether we actually had or had not reverted to a downward trend, although it can be observed that the average for the last



eight years is 4.56 against the nine years' average of 4.64; this may be indicative of the rate to be anticipated next in the nine years' series. For many reasons, however, it would be unwise to draw any final conclusions from this curve in respect of the present time. For one thing Consols are not now suitable as an indicator of gilt-edged securities or of interest rates generally, both because they form a much smaller part of British Government securities than before and have a nominal income much below the average of Government securities and because they are now used freely in the Money Market as a form of floating funds. I have reproduced the index, however, in the absence of better material to show an example of long trend movement.

#### SHORT PERIOD CYCLE.

We now come to the short period cycle, of more importance in relation to an active investment policy which will meet the changing conditions of the short period movement. Here again it is necessary to know the point of the cycle which we have reached at any time, and if we are to take full advantage of the movements we cannot delay in ascertaining our position. While the study of the short period cycle has now been carried to some length, especially in America, I restrict myself here to the resulting facts and shall give a few illustrations which have direct interest to the investor. As regards the position taken by interest rates in the short period cycle Aftalion<sup>1</sup> states that there is certainly a rhythmical movement of interest corresponding to the economic cycles. Rates of interest rise in a period of prosperity and decline during the period of depression. He goes on to state, however, that the fluctuations in the long term rates of interest most often show a smaller degree of movement than do commodity prices. Especially in England the difference in degree of movement in the rate of interest and movement in commodity prices appears to be very considerable. It is also to be noted, he says, that the first movement in the cycle is that of security prices. Pigou<sup>2</sup> has also pointed out that the Harvard Bureau of Economic Research have established the fact that an early reaction of improved business expectations is on the values of speculative stocks. He also pointed out that in the United Kingdom a study of the period 1903-14 suggested that the prices of variable interest securities tend to move upward at the

<sup>1</sup> A. Aftalion. *Les Crises périodiques de Surproduction*. Paris, 1913. vol. i, p. 171.

<sup>2</sup> A. C. Pigou. *Industrial Fluctuations*. London, 1927. p. 260.

turn of the tide some nine months in advance of commodity prices. Again Bouniatian<sup>1</sup> has shown that periods of speculation are regularly preceded by low rates of interest. Not only do security prices move first in the cycle, but Hardy and Cox<sup>2</sup> among others have found that major stock market movements start with the high grade securities and work through gradually to the more speculative. While they found that advances in interest rates and declines in bond prices do go together, and *vice versa*, they are disinclined to find any direct causal relationship. They believe that the relationship depends on other factors than the mere revaluation of securities in accordance with changing ideas as to the value of money. It seems to them more probable that the declining interest rate for short term money and the advancing prices of bonds and high grade preferred stocks are both effects of a common cause, namely, the release of funds from employment as working capital during periods of slackening business activity and their reabsorption during upswings of business.

As regards the widely accepted principle that stock market speculation is primarily governed by variations in interest rates, the view being that low interest rates caused increased borrowing for stock exchange speculation and a consequent rise in stock values, while high interest rates checked speculation and produced a fall in stock prices, after a most exhaustive enquiry Owens and Hardy<sup>3</sup> reach the conclusion that neither economic analysis nor historical research reveals any foundation for the accepted theory, and I think we may find confirmation of these conclusions in the recent financial conditions of America. Lescure<sup>4</sup> and others have, of course, pointed out that the short period cycle in England has for many years been reducing in intensity, but this does not mean that security prices show the same reduction in movement.

#### STATISTICAL DATA.

For the proper reading of the more detailed movements to be referred to later we must always relate them to the general economic or business cycle, and the most informative statistics on this subject are provided by the London and Cambridge Economic Service; indeed it is practically the only service of its

<sup>1</sup> M. Bouniatian. *Les Crises Economiques*, translated by J. Bernard. Paris, 1922. p. 91.

<sup>2</sup> Hardy and Cox. *Forecasting Business Conditions*. New York, 1927. p. 218.

<sup>3</sup> *loc. cit.*

<sup>4</sup> Jean Lescure. *Des Crises générales et périodiques de Surproduction*. Paris, 1923. p. 233.

kind in this country. It provides regular bulletins of general monthly statistics supporting a continuous chart which is a useful guide to forming some opinion on the progress of the general cycle. The service is modelled on similar lines to those of the Harvard Service in America.

The facts relating to the general short period cycle are, of course, not all that we require, for the behaviour of different classes of security is very different. We have to distinguish between government securities, colonial securities, corporation securities, the different sections of industrial securities, etc., and we have to distinguish between debentures, preference and ordinary. Research on these lines, while not very advanced as yet, has been progressing actively in recent years, but to a greater extent in France and America than in our own country. The major problem under analysis at the present time is the difference in movement of fixed interest securities from that of securities having a variable dividend, that is, debenture and preference stocks as against ordinary stocks and shares.

#### RESEARCH IN AMERICA—SHORT PERIOD.

It will be convenient, I think, to refer in the first place to some of the research in other countries. Ray Vance,<sup>1</sup> for example, divides securities into three kinds, (1) those securities which can meet the demand for a higher rate of return by increasing their dividends and can maintain that increase because rising commodity prices increase their gross earning power per unit as fast as, or possibly even faster than, their costs, (2) those securities which can meet some demand for a higher rate of return by increasing their dividend rates on account of the higher physical volumes which usually accompany rising prices (an increase in turnover producing an increase in total profits), but which in a prolonged rise of commodity prices will ultimately lose this characteristic because rising costs will overtake their relatively inflexible gross earning power per physical unit, and (3) those securities which can satisfy the demand for a higher return on capital only by a decline in their selling prices.

Group (1) includes all ordinary industrial stocks and any industrial debentures or preferred stocks whose equity is so small that interest payments may be threatened by the reduction in

<sup>1</sup> Ray Vance. *Business and Investment Forecasting*. New York and London, 1925. pp. 118 *et seq.*

profits which accompany the low points of the commodity price cycle. In group (2) we have many of the ordinary stocks of public utility companies, including railway and other transport services and certain of the electric supply companies. This group, however, is of much smaller importance in our own country where so many of the utility services are under the communal control of corporations. In group (3) we would find all government securities and first grade debentures and preference stocks having fixed interest where the equity is sufficiently strong to show steady payment of interest through periods of depression as well as prosperity. This is a useful classification to note, as it describes very clearly the fundamental differences between group (1) and group (3). I do not follow up his investigation, as the author is dealing almost entirely with the subject of forecasting, a subject which I am not in any way concerned with in the present paper.

Referring to the "Cycle" factor, Robinson<sup>1</sup> states that securities representing different types of issuers (governments, public utilities, industrials, etc.) react in varied ways to fundamental market undercurrents, and he cites the case of a Trust Company which was founded in London in 1924 with the avowed intention of taking full advantage of changes in market values due to the periodical swings of the business cycle.

Although many statistics are available in America they are practically restricted to the two broad groups of Bond prices and Share prices. There is very little in the way of further division apart from (1) the Dow-Jones index of 20 Industrials, (2) the Stock Clearing Corporation index for U.S. Government bonds, (3) Foreign government bonds, (4) U.S. railway bonds, and (5) U.S. non-railway bonds.<sup>2</sup> Such series as these, however, by themselves, are of no great value to us except as general guides to the New York Markets.

#### RESEARCH IN FRANCE—SHORT PERIOD.

In France we find that a good deal has been done in examining the problem of movement as between fixed interest and variable dividend securities. Aftalion<sup>3</sup> found that the course of security prices with fixed interest yield fell in times of general prosperity and rose

<sup>1</sup> *loc. cit.* p. 110.

<sup>2</sup> Illustrations of the monthly figures for the three years 1925-27 for these and other series may be found in the Report of the President of the New York Stock Exchange for year May 1927-May 1928.

<sup>3</sup> *loc. cit.* vol. 1, p. 175.

during depression, while on the contrary, on account of variation in profits, it is well known, he states, that the course of prices of securities with variable dividend, industrial securities, rise during prosperity and fall during depression. Some exceptions are found to break the regularity of movement, and he suggests that they probably arise from movements connected with the long period trend.

If such a contrary movement were rigid it would, of course, be a simple matter to deal with by simply transferring from variable dividend securities at one point to fixed interest securities and vice versa at a later point in the cycle. Rigid, such movements are not, nevertheless a greater understanding of these movements will in practice help us to reduce if not eliminate the factor of heavy depreciation as experienced during the years 1897 to 1920, and to deal more efficiently with such a period as the years 1919-21, which was essentially a cycle of price inflation.

The earliest analysis appears to have been made by A. Neymarck,<sup>1</sup> but I have been unable to refer to his Reports as the later ones are now out of print, and for my information have trusted to the references made by Delanney<sup>2</sup> in his review of the securities market over the years 1900 to 1927. Neymarck found the existence of a general law of movement in the appreciation of prices as between fixed interest securities and those with variable dividend, the former rising in periods of ease and the latter in times of considerable economic activity. In 1924 A. van Berchem investigated more fully certain French statistics over the period 1896-1913. He investigated separately, securities with fixed revenue and those with variable dividend, subdividing the latter into productive industries and distributive industries. His general conclusions are that the price movement of the "productive" securities accompanies the economic cycle from 0 to 18 months in advance, while the fixed interest securities (government rentes and railroads) follow the economic cycle with a more or less regular delay averaging 3 months, so that when the two curves are correlated it is found that at times the movements synchronise and are not inverse. G. P. Wascot,<sup>3</sup> who refers to this investigation, has continued it on corresponding lines for the years 1919-1926, the years of war being

<sup>1</sup> *La Statistique Internationale des Valeurs mobilières*. 4<sup>e</sup>, 5<sup>e</sup> et 9<sup>e</sup> rapports. 1903, 1905, 1911.

<sup>2</sup> Louis Delanney. *Le Marché des Valeurs mobilières en France*. Paris, 1928.

<sup>3</sup> G. P. Wascot. *La Prévision du Mouvement des Valeurs mobilières*. Paris, 1927.

omitted. He makes use of the statistics published in the *Bulletin de la Statistique Générale de la France* which provide him with 196 variable dividend securities and 25 fixed interest securities. As the material is more extensive than that used by van Berchem in the earlier period, Wascot also investigated these years, namely 1896-1913, making use of the larger data. The results are shown in a series of charts which confirm generally the conclusions of his predecessor.

Various analyses have also been made from time to time in the *Bulletin de la Statistique Générale de la France*, originally commenced by Lenoir in October 1919, who examined the period 1850-1913, and continued since in the quarterly bulletin, the monthly figures being available from 1921. Unfortunately the 1919 issue is now out of print and unobtainable, so that I have been unable to refer to any adequate statistics covering the years prior to 1897, which as I pointed out earlier was the turning point in the long period trend. Interesting as such statistics might be however, it is doubtful if they would be of much help in guiding us during any period of downward trend which may be anticipated in the future, the conditions of the stock exchange being so entirely changed in the past thirty years, and also the relationship between fixed interest securities and those with variable dividend is now, in many ways, very different in character. American statistics, even were they available, would be of very limited value for, although the general downward trend existed during the century ending 1897 as in this country, the effects of the Civil War on commodity prices was not entirely removed until well on in the 'eighties.<sup>1</sup>

#### BRITISH SOURCES—SHORT PERIOD.

When we come to study conditions in our own country we find that the material is very inadequate. For recent years, however, we have several good sources. The London and Cambridge Economic Service provide an excellent index of government securities, another of 20 representative ordinary industrials and a general index of money rates. This is not enough for our purpose, however. What we should like to have as an ideal would be reliable indices of security prices showing the different movement between those bearing fixed interest and those bearing a

<sup>1</sup> See, for example, the Chart of Prices for the years 1779-1926 in respect of United States and United Kingdom published in *Money, Bank Credit and Prices* by Lionel D. Edie, New York and London, 1928 (p. 215), or in *Business Cycles and Business Measurements* by Carl Snyder, New York, 1927. p. 59 (U.S. only).

variable dividend for each type of security in which we have an interest. Needless to say no such indices are available, and the only series in any way approaching such an ideal are those compiled by Alan Dane and published each month by the *Investors' Chronicle and Money Market Review*. The series run from December 1923, and for fixed interest securities we are given five individual groups ranging from British Funds to High Class Industrial Debentures, while for a general variable dividend index we might properly employ the index of General Business, which is subdivided into eleven class groups, many of which are individually of use to us.

#### NEW INVESTIGATION.

##### (a) *Data.*

For a more detailed study, however, we require the movements of fixed and variable in each class, and I have attempted something in this direction by compiling a small selective index of different securities. As the amount of work involved in such an investigation, especially when retrospective, is considerable, there was the choice between compiling a large representative index and restricting the amount of detail and compiling a small and selective index but making it as accurate as possible. I decided upon the latter method and selected only a small number of securities in each group. As a result of this, however, it was necessary to make allowance for accrued interest in the price. Allowance has also been made in respect of Bonus issues in order to show continuity of movement. The figures extracted are those at the end of each month for the five years 1924 to 1928, related to the base price of December 1923. In order to give equal weight to each security in each group I have worked out the percentage movement for each security, and the final index for each group is in all cases the mean of these percentages. I know of no other index which allows for accrued interest, but in a larger index it is, of course, less necessary provided the dividend dates are well spread over the year. This is a point to note when making use of an index relating solely to one class of security, as very often in such a case we find the interest dates have a tendency to coincide, so that unless accrued interest has been allowed for and net prices are employed there will be a seasonal wave in the resulting curve.

##### (b) *Debentures, Preference and Ordinary.*

Some of the results will be found tabulated in the series of tables collected in Appendix A, while details of the securities

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included will be found in Appendix B. In Table II. nine different Debenture series are given ranging from *British Funds* to *Iron, Coal and Steel*. The years covered have, of course, been a period of relative stability for such securities, but even here we find considerable difference in the degree of movement. Actually the most stable of them all is the *Industrial* group, ranging between 98·7% and 102·2% of the December 1923 figure. Similar stability is shown in the group of *Electric Light and Power*, while *Home Corporation Stocks* are seen to have fluctuated much more than *Dominion Corporation Stocks*. To show the different movements in graphic form I have reproduced four of the curves in Chart A.

In Table III. are the records of four groups of Preference stocks. I have thought it unnecessary to reproduce these in chart form as their movements correspond closely to those of the Debenture groups.

Five groups of Ordinary securities will be found in Table IV. These, while showing a considerable difference in degree of movement, reflect in the main a period of ascending prices with the exception of *Iron, Coal and Steel*. These series are reproduced in Chart B, where it will be observed that the *Investment Trust* group shows, not only the greatest increase, but also the most steady advance. The delay in movement of the *Electric Light and Power* will also be noticed together with the compensating rapid ascent in 1928.

From these three tables we may judge to some extent the comparative movement of Debentures, Preference and Ordinary in groups which are completely homogeneous, and for a general comparison between Debentures and Ordinary I have collected in Table V. the combined figures of 21 securities, the results of which appear in Chart C. In order to compare more properly the relative movement of each, the figures have been charted on a logarithmic scale.

It should be mentioned that the three charts are drawn on different scales. It must also be said that the tables I have produced are in no way intended to afford a solution to the various problems of movement which I have discussed; the results can only claim to illustrate the position at the present time. The period covered is not a complete cycle, but only the opening phase of the short period cycle which commenced after the years of recovery 1922-23 following the decline in the years 1920-21. Many of us may believe that we are now at the highest point of



the cycle, but I am not concerned here with any problem of forecasting.

(c) *Price and Yield.*

A further point of enquiry is the relationship between price and yield. For fixed interest securities the yield is in direct proportion to the price, and its movement can be followed by taking out the reciprocals of the price movements. This does not hold for Ordinary stocks, however, where the dividend is variable, and I have examined the point in respect of 20 Industrial Securities. The figures may be found in Table VI., and have been reproduced in Chart D. In calculating the net revenue of each security I have taken the actual dividends of the previous twelve months. It is found, as might be expected, in a period of rising prices, that the price index of the Ordinary stocks is generally higher than that of revenue. The net yield, on the other hand, shows marked fluctuation, which no doubt reflects the time lag between market anticipation and the actual declaration of a higher dividend. As the average yield in December 1923 of the securities was 5·10% it is seen that the actual yield has varied throughout between the limits of 5% and 4%. The results of this chart to some extent confirm the results of Dessirier,<sup>1</sup> who carried out a similar but larger investigation of French securities over the period 1919-26, although his index of revenue frequently intersects the curve of prices. In my own curve the series commenced with the point of highest yield, which has resulted in the Revenue curve being constantly below that of prices. It is interesting to note that notwithstanding the fact that the period included the years of high inflation, Dessirier found his curve of yield to oscillate between 2·66% and 4·46%, a margin of only 1·8%, as against the much greater oscillation of fixed interest securities, which varied from 5% to 10% approximately.

(d) *Investment Trust Companies.*

Through the kindness of Mr. Joseph Kitchin I am permitted to reproduce his chart of Investment Trusts showing the annual price movements of Deferred, Preferred and Debenture Stocks

<sup>1</sup> J. Dessirier. *Cours, Revenue et Taux de Capitalisation des valeurs mobilières françaises de 1919 à 1926.* *Journal de la Société de Statistique de Paris*, June 1927.

over the long period 1890 to 1928 inclusive. I show the chart on a logarithmic scale. The prices employed are the mean of highest and lowest of each year 1890 to 1913, and the price of December 31 for years 1914 to 1927. The price for 1928 was taken at October 31, that being the date on which I obtained the figures from Mr. Kitchin. The prices are related to the base year of 1897, and the contrary movement of prices can be seen between Debentures and Ordinary. The early years show the rapid fall of the latter during a period of long period downward movement, and reveal the danger of holding even the best of Ordinary stocks when associated with the more static form of investment policy. Since 1897, on the other hand, prices have increased continuously except for the years of inflation, and we find that by 1928 the value has increased to approximately 412% of the value of a holding purchased in 1897. As against this we have the continual fall of Debentures from 1897 to 1920, resumed in 1923. It must be remembered, however, that the Ordinary securities of Investment Trusts will show much less serious fluctuation, downward fluctuation in particular, than other classes of Ordinary on account of the substantial reserves which are continually set aside with the direct object of restricting downward fluctuations from the point of view of income, and for these reasons I think we may regard the Ordinary shares of Investment Trust Companies to be the gilt-edged representative of the Ordinary field.

I have appended a further chart derived from Mr. Kitchin's figures to show the relative movements in net yield between Deferred shares and Debentures. The remarkable fall in recent years of the yield on Deferred can only be accounted for by the fact that the market is now making allowance for a progressively increasing revenue in the future. It confirms the special character of these securities, and at the same time provides interesting material for the study of the general problem of yields as between the two classes of security, fixed interest and variable. I have had no time to investigate this problem, as my intention has been to restrict my investigation to the question of capital values. It would be interesting, however, to follow this up, and it may well be that our problem of capital values will become simplified if we approach it through the fresh problem of yield. The two are very closely associated, and it would be useful to analyse that association.

CONCLUSIONS.

The main conclusion of this paper is that the prices of securities, like all prices, are related to the general economic cycle. While the evidence cited is contradictory, I suggest that the movement of ordinary securities follows directly that of the economic curve, while the movement of debentures follows that curve inversely but with a different tempo and interval. At the same time the intermediate fluctuations of the ordinary are of much greater extent than those of debentures. As regards the more fixed type of policy, in which sales of any magnitude are not contemplated, if the long period trend is downward it would appear inadvisable to enter the ordinary field at all unless and until it can be shown that there are some cases where the individual reserve policy is sufficiently extensive to prevent each minimum point in the price curve being lower than those preceding it; at present it is doubtful if this can be said even of Investment Trust Companies. On the other hand, the investments in debentures will give complete security with steady appreciation of capital. When the long period trend is upwards, however, debentures will suffer depreciation, and to balance this a proportion of funds must be held in ordinary securities, which in such conditions will show, even on a permanent holding, considerable appreciation in capital value, quite apart from an increasing yield. With a more mobile policy the ordinary field deserves to receive the same considerations as the debenture field, the profits of the ordinary more than balancing the losses of the debentures in a period of long period upward trend, while in a downward trend the short period cycle gives opportunity for profitable investment in both areas, always provided that proper attention is given to the different conditions of the upward phase and of the downward phase.

If I may close with an expression of personal opinion I would submit that the problem of investment policy is a much larger question than the mere extension into ordinary industrials. I have approached the problem in the direction of capital security alone, and believe that with increasing knowledge we shall avoid all dangers of depreciation. The question of interest-earning power must always remain a matter of second importance, as no company can permanently be dependent on the casual distribution of bonuses.

It has been suggested at times that a small percentage of the funds may reasonably be allocated to the industrial field in

ordinary securities. I find difficulty in understanding this view. If it is suggested that these funds be allocated in this manner because greater security is to be found in that area, then I see no reason for the very small limitation generally made. If it is thought that there is danger in that direction, then there is no excuse for passing even the smallest portion of the funds into that area. If, on the other hand, it is thought that such a policy is likely to prove good security, but that too little is known of the subject, then I submit that investigation on the lines dealt with in this paper will fully confirm that there are times when better security is to be obtained in the proposed field and times when it would be wrong to have any extensive holding in that area. It may be that the suggestion is put forward as an initial step to the development of an Investment Trust policy, expanding the process gradually as the requisite reserves are formed; such a policy, as I have indicated earlier, is in my opinion outside the province of life assurance finance.

I also take general exception to a reliance on methods of historical analysis as a basis for future policy, especially if such analysis is not continuous, for in a fluctuating curve two points can easily be found where the second is at a higher level than the first, just as easily in fact as two points showing the contrary result; we cannot ignore the intermediate points. Granted that in a series of short cycle fluctuations where the long period trend is upward there will be a greater chance of any two points selected at random showing the second to be higher than the first, in a downward trend the chances would be to the contrary. As, however, we are equally concerned with intermediate points the question is of limited importance. Historical analysis is of great value in giving us material from which we can study cause and effect and causal relationships, but for the immediate application of an investment policy it is better wisdom, I think, to concentrate on an examination of the facts and conditions of the time at which we are placed and consider these in relation to the immediate outlook. We must always, of course, have regard to the immediate past if we are working in the short period cycle and to the longer past if we are tracing the long period trend; what I would discourage is the too rigid application of the past to conditions of the present on the assumption that experience must necessarily be the same. If, for example, we believe that we have now entered a period in which the long period trend is downward, then any general considerations of a period lying between 1897

and 1920 (a period of strong upward trend) are by themselves inapplicable, as the fundamental conditions would be entirely different. As J. M. Keynes stated when reviewing Smith's investigation of Common Stocks and Bonds,<sup>1</sup> "it is dangerous, " however, to apply to the future inductive arguments based on " past experience, unless one can distinguish the broad reasons " why past experience was what it was."

It should be remembered that the London Stock Exchange was founded only in 1759; our recent gold standard coinage was legalised only in 1816; the limited liability system became general only after the Acts of 1855 and 1862; the first Investment Trust Companies were formed in the years 1884 to 1890 primarily to reduce the enormous risks then attaching to investment; in 1888-89 the large increase was made in the list of Trustee Securities, and after the panic of 1893 the great financial pools in America were first organised. It is only by remembering facts like these that we realise how short is the financial history of the world, and when we realise the fundamental changes which have occurred in this short period we can more readily appreciate the possibility of changes in the future. The more fully we can understand the totality of conditions of the moment the more prepared we shall be to meet these changes. The understanding of present conditions demands a very wide knowledge of the innumerable forces at work; it is in gaining this knowledge that historical analysis is of value.

No one, I think, will accuse me of proposing rash or revolutionary measures in adjusting our investment policy to meet the needs of the present. The manner in which I have approached the problem will, I hope, be evidence of my own appreciation of the magnitude of the problem. No Company will wisely initiate a drastic revision of practice; that is not our way. Holding as we do the trust of a large public, it is inevitable that much enquiry must be made and full conviction won before changes occur, and the process of any change with us is one of well-ordered evolution. As I have said, my object has been to draw attention to some of the initial problems we are faced with and to refer to some investigations which have already been made. I have made little or no reference to cause and effect and to the factors involved in the movement of security prices because the ground is too vast to touch upon in a short paper, nor are these subjects which we ourselves have either time or equipment to investigate. Such

<sup>1</sup> E. L. Smith. *Common Stocks as Long Term Investments*, New York, 1924, reviewed by J. M. Keynes in the *Nation and Athenaeum*, 2nd May 1925.

work is adequately performed by economists, and the results of their research are available to us; with a knowledge of these results we are well equipped to approach our own problems of investment. Similarly I have made no reference to the problems of forecasting; that, again, would have led me too far.

It is understood, of course, that one cannot extend an investment field without an increase in personal equipment. We propose, for example, to extend the field of ordinary industrials because this field can now offer us adequate security which it could not more than fifty years ago. Similarly the field of debenture industrials probably affords somewhat less security than it did in these early years. Then we were concerned with comparatively small and individual businesses; failure occurred, bankruptcy followed, and foreclosure returned our capital. Now, however, things have greatly changed; we have seen the growth of pools and combines, and are now concerned with "big business" where bankruptcy is unknown. Time and again when the security of debenture holders has been put to the test the right of foreclosure has been found meaningless. We find that a new procedure has entered which goes by many names, such as reconstruction, reorganisation or rationalisation, always to the advantage of ordinary shareholders. The audacious attempts which have sometimes been made by directors to ignore the rights of preference shareholders are well known. The field is one requiring the greatest watchfulness at all times both from the point of view of individual investments and of group industries, and the extension of investment in such a field of necessity requires an extension of the investigating staff. In other words, the capacity of the available analytic staff must at all times be the limiting measure to the field of investment covered.

APPENDIX A.

TABLE I.—Average Gross Yield on Consols.

YEAR	Yield	Centred 9 Yrs. Avge.	YEAR	Yield	Centred 9 Yrs. Avge.	YEAR	Yield	Centred 9 Yrs. Avge.
1783	4·67		1832	3·59	3·46	1881	3·00	3·04
4	5·41		3	3·41	3·44	2	2·99	3·02
5	4·90		4	3·32	3·42	3	2·96	3·00
6	4·05		5	3·30	3·40	4	2·97	3·00
7	4·05	4·30	6	3·35	3·35	5	3·02	2·97
8	4·00	4·17	7	3·31	3·32	6	2·99	2·95
9	3·94	4·01	8	3·23	3·31	7	2·95	2·94
1790	4·05	3·96	9	3·28	3·29	8	3·06	2·93
1	3·62	4·02	1840	3·35	3·27	9	2·81	2·91
2	3·54	4·12	1	3·37	3·24	1890	2·84	2·87
3	3·96	4·32	2	3·28	3·22	1	2·87	2·83
4	4·45	4·51	3	3·18	3·25	2	2·84	2·76
5	4·58	4·61	4	3·05	3·28	3	2·79	2·71
6	4·92	4·73	5	3·11	3·27	4	2·72	2·68
7	5·77	4·88	6	3·14	3·24	5	2·61	2·65
8	5·72	4·90	7	3·49	3·22	6	2·49	2·64
9	4·92	4·95	8	3·53	3·20	7	2·45	2·65
1800	4·75	5·02	9	3·25	3·21	8	2·48	2·66
1	4·84	5·04	1850	3·11	3·23	9	2·63	2·67
2	4·15	4·94	1	3·07	3·25	1900	2·76	2·69
3	4·88	4·85	2	3·04	3·23	1	2·92	2·73
4	5·26	4·81	3	3·14	3·21	2	2·90	2·77
5	5·04	4·78	4	3·31	3·19	3	2·78	2·83
6	4·88	4·74	5	3·33	3·20	4	2·85	2·86
7	4·92	4·80	6	3·31	3·21	5	2·80	2·89
8	4·57	4·82	7	3·31	3·24	6	2·85	2·91
9	4·48	4·79	8	3·12	3·25	7	2·97	2·94
1810	4·48	4·72	9	3·18	3·24	8	2·93	2·99
1	4·69	4·74	1860	3·18	3·24	9	2·98	3·06
2	5·09	4·73	1	3·27	3·24	1910	3·10	3·13
3	4·92	4·68	2	3·23	3·25	1	3·17	3·35
4	4·48	4·61	3	3·24	3·27	2	3·30	3·39
5	5·00	4·58	4	3·31	3·27	3	3·40	3·57
6	4·84	4·55	5	3·35	3·28	4	3·48	3·73
7	4·11	4·43	6	3·41	3·28	5	3·78	3·90
8	3·87	4·31	7	3·24	3·28	6	4·33	4·13
9	4·20	4·23	8	3·21	3·28	7	4·60	4·34
1820	4·41	4·04	9	3·24	3·27	8	4·40	4·46
1	4·05	3·90	1870	3·25	3·27	9	4·62	4·56
2	3·79	3·86	1	3·24	3·24	1920	5·28	4·63
3	3·81	3·83	2	3·25	3·23	1	5·21	4·64
4	3·31	3·76	3	3·25	3·22	2	4·48	4·63
5	3·53	3·64	4	3·24	3·21	3	4·33	4·65
6	3·79	3·59	5	3·21	3·19	4	4·40	4·64
7	3·62	3·58	6	3·16	3·17	5	4·44	
8	3·54	3·56	7	3·14	3·14	6	4·55	
9	3·35	3·57	8	3·16	3·11	7	4·56	
1830	3·53	3·55	9	3·07	3·08	1928	4·47	
1	3·77	3·48	1880	3·05	3·06			

TABLE II.—DEBENTURES—December 1923=100

	5 British Funds	5 Dominion Govern <sup>t</sup> .	10 Corporat <sup>n</sup> . Stocks	5 Dominion Corp <sup>n</sup> .	5 Investm <sup>t</sup> . Trusts	5 Elec. Light and Power	8 Industrial	5 Iron, Coal and Steel	3 Shipping
1924									
Jan.	101.1	100.3	99.2	99.3	98.5	100.9	99.1	99.4	100.2
Feb.	99.5	99.8	98.9	99.1	98.1	99.7	99.7	99.2	99.9
Mar.	99.9	100.2	98.7	99.8	97.3	99.8	98.7	98.1	99.2
Apl.	102.3	102.5	100.5	99.9	98.7	99.6	99.6	98.4	100.2
May	102.5	103.1	101.1	100.8	99.2	99.0	100.7	98.1	101.0
Jun.	101.9	102.7	100.8	100.0	98.7	99.0	100.9	98.7	100.9
Jly.	101.2	101.7	100.6	100.9	99.5	99.8	101.2	100.3	100.6
Aug.	102.5	102.2	100.7	101.1	99.9	100.5	101.1	100.0	101.3
Sep.	102.9	102.2	101.1	100.4	99.9	100.5	100.6	99.6	100.9
Oct.	104.6	103.9	101.4	100.5	99.7	100.6	101.1	98.1	101.0
Nov.	103.8	104.1	101.5	100.3	99.7	100.4	100.7	99.1	101.0
Dec.	102.8	102.7	100.9	100.4	100.4	100.4	101.0	99.3	101.3
1925									
Jan.	102.7	102.8	100.7	100.5	100.1	100.6	102.1	99.7	101.2
Feb.	102.3	102.4	100.4	99.9	101.0	101.3	102.2	99.9	100.6
Mar.	101.9	101.0	99.9	99.9	101.1	101.5	101.8	99.5	100.1
Apl.	101.6	101.4	100.0	99.8	100.5	100.7	101.2	97.4	99.9
May	101.0	101.0	99.4	99.6	99.9	100.5	101.5	96.0	99.8
Jun.	99.3	98.1	97.2	99.2	99.6	99.9	101.0	94.8	99.1
Jly.	100.7	100.2	98.1	100.1	99.2	100.3	100.5	93.1	97.5
Aug.	101.1	102.1	98.8	100.0	99.8	100.2	100.6	93.4	98.6
Sep.	100.4	102.1	98.6	100.0	99.3	100.4	99.7	93.5	98.6
Oct.	100.1	101.8	98.4	100.3	99.5	100.2	100.5	94.1	98.0
Nov.	99.7	101.8	97.8	99.9	98.9	99.5	100.4	94.7	97.9
Dec.	98.9	101.2	97.6	100.0	98.3	98.9	99.7	93.3	97.5
1926									
Jan.	100.2	100.9	97.1	99.8	98.2	99.1	100.1	94.0	96.4
Feb.	99.4	100.5	96.6	99.7	97.4	98.9	100.2	93.0	96.7
Mar.	98.8	100.0	96.6	99.9	97.5	99.0	99.5	92.1	97.2
Apl.	99.0	100.5	96.4	100.5	96.8	98.8	99.0	90.9	96.6
May	100.3	101.1	96.7	100.9	97.1	98.9	100.3	89.0	97.0
Jun.	99.7	101.0	96.5	101.0	97.0	99.3	100.5	87.1	96.2
Jly.	99.4	100.8	96.9	101.1	97.4	98.5	100.6	88.0	97.3
Aug.	98.4	100.5	96.7	101.4	97.6	99.0	99.9	89.9	96.9
Sep.	97.7	99.7	96.2	101.1	97.2	99.1	100.1	90.0	96.4
Oct.	97.9	99.8	95.9	101.0	96.4	99.1	100.0	89.7	95.4
Nov.	97.8	99.8	95.9	100.9	96.4	98.7	99.6	87.6	95.6
Dec.	98.5	100.1	95.8	101.3	96.4	98.7	99.3	86.4	95.2
1927									
Jan.	100.0	100.2	96.7	101.6	96.9	99.6	99.5	87.9	96.5
Feb.	99.1	100.9	96.4	101.4	96.9	99.5	98.8	88.2	95.9
Mar.	98.9	99.9	96.4	101.3	96.5	99.5	99.0	88.0	95.6
Apl.	100.1	100.6	96.5	101.4	96.6	98.9	99.5	89.9	96.3
May	99.7	100.8	96.3	101.6	96.8	98.8	99.5	89.7	97.3
Jun.	99.0	100.6	95.9	101.0	96.6	98.5	99.7	89.0	96.9
Jly.	99.5	101.5	96.8	101.8	98.1	98.5	100.4	88.1	96.9
Aug.	99.2	101.3	96.9	101.0	97.5	98.3	100.3	89.3	96.5
Sep.	99.0	101.4	97.0	101.6	97.2	99.0	100.4	89.7	96.7
Oct.	99.4	102.4	97.1	101.6	97.1	98.2	99.0	91.0	97.2
Nov.	98.8	102.5	97.0	101.9	97.2	98.5	99.2	93.5	96.3
Dec.	100.8	102.8	97.0	101.5	96.6	97.9	99.5	93.0	96.5



TABLE II. (*contd.*).—DEBENTURES—December 1923=100

	5 British Funds	5 Dominion Govern <sup>t</sup> .	10 Corporat <sup>n</sup> . Stocks	5 Dominion Corp <sup>n</sup> .	5 Investm <sup>t</sup> . Trusts	5 Elec. Light and Power	8 Industrial	5 Iron, Coal and Steel	3 Shipping
1928									
Jan.	100·8	102·5	97·5	102·0	97·0	98·2	99·7	93·6	96·9
Feb.	100·6	101·9	97·5	102·2	97·4	98·0	98·9	93·7	96·9
Mar.	101·2	101·7	97·9	102·9	97·6	98·0	98·7	92·5	96·9
Apl.	102·4	102·5	98·4	102·6	97·2	98·2	99·0	94·0	97·4
May	102·3	102·8	98·5	102·3	97·4	98·0	99·4	93·4	98·1
Jun.	102·3	102·9	98·4	102·4	97·4	98·1	100·1	93·2	98·5
Jly.	101·7	103·0	98·8	102·7	97·3	98·2	100·6	91·2	97·8
Aug.	101·9	103·0	99·0	102·6	97·6	99·1	100·0	90·3	98·4
Sep.	101·6	103·1	98·9	102·5	97·6	99·3	100·4	90·0	98·5
Oct.	101·6	102·7	99·0	102·8	97·2	99·6	100·1	91·2	98·3
Nov.	102·7	102·6	99·1	102·9	97·4	100·2	99·6	89·9	98·6
Dec.	102·7	102·8	98·9	102·9	97·4	100·5	99·4	90·0	98·8

TABLE III.—PREFERENCE STOCKS—December 1923=100

	5 Investm <sup>t</sup> . Trusts	5 Elec. Light and Power	8 Industrial	5 Iron, Coal and Steel
1924				
Jan.	99·3	97·7	97·1	100·3
Feb.	99·7	99·1	98·2	99·3
Mar.	99·8	99·8	98·7	97·3
Apl.	100·4	100·8	100·3	95·9
May	101·0	100·8	100·9	93·9
Jun.	100·2	99·4	102·0	93·7
Jly.	102·1	101·8	99·3	91·8
Aug.	101·8	103·0	99·3	92·8
Sep.	99·6	101·8	98·0	90·9
Oct.	101·5	103·1	98·9	94·1
Nov.	100·8	102·4	100·2	98·4
Dec.	101·1	103·1	99·3	95·9
1925				
Jan.	103·6	105·0	102·2	94·0
Feb.	102·3	104·5	101·7	92·3
Mar.	103·0	102·7	100·3	90·6
Apl.	102·0	104·6	100·9	85·1
May	101·8	104·1	100·3	83·4
Jun.	101·1	101·5	100·9	83·4
Jly.	101·3	101·0	94·9	80·6
Aug.	101·1	101·3	98·9	81·2
Sep.	100·5	102·0	100·5	77·8
Oct.	101·8	102·3	100·9	84·6
Nov.	101·8	102·5	99·6	85·7
Dec.	101·2	101·0	102·6	88·7
1926				
Jan.	101·9	99·5	99·8	84·8
Feb.	102·0	97·5	100·0	85·0
Mar.	100·9	98·7	99·4	82·1
Apl.	100·0	99·4	98·0	80·7
May	100·6	99·3	97·7	78·8
Jun.	99·5	100·8	99·5	74·1
Jly.	99·3	102·0	99·3	74·3
Aug.	100·2	100·1	100·5	77·6
Sep.	100·0	100·7	99·7	79·4
Oct.	99·8	100·6	98·4	81·2
Nov.	99·5	99·3	98·6	83·1
Dec.	99·0	100·1	98·5	76·2

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TABLE III. (*contd.*).—PREFERENCE STOCKS—December 1923=100

	5 Investmt. Trusts	5 Elec. Light and Power	8 Industrial	5 Iron, Coal and Steel
<i>1927</i>				
Jan.	100·8	100·0	98·1	79·5
Feb.	101·2	101·4	98·1	78·5
Mar.	101·4	99·6	99·4	76·3
Apl.	101·7	101·2	99·5	79·5
May	101·1	101·2	99·1	78·2
Jun.	100·6	100·6	101·9	79·1
Jly.	100·5	101·5	100·3	77·5
Aug.	101·0	101·5	99·4	77·8
Sep.	101·4	102·4	100·1	77·6
Oct.	102·2	103·4	99·5	79·9
Nov.	102·3	102·7	99·8	78·2
Dec.	102·0	102·0	98·2	79·5
<i>1928</i>				
Jan.	102·0	102·5	100·5	82·0
Feb.	102·1	102·2	100·2	81·3
Mar.	102·3	103·8	100·8	78·4
Apl.	102·0	103·4	100·1	78·9
May	101·9	103·9	102·0	77·8
Jun.	102·1	104·0	103·1	77·7
Jly.	102·3	104·9	102·9	73·4
Aug.	102·5	105·0	103·4	72·7
Sep.	104·8	105·2	103·2	72·1
Oct.	105·3	104·8	104·3	74·9
Nov.	103·3	104·4	103·8	72·9
Dec.	103·1	104·4	101·1	73·4

TABLE IV.—ORDINARY SHARES—December 1923=100

	5 Investmt. Trusts	5 Elec. Light and Power	8 Industrial	5 Iron, Coal and Steel	3 Shipping
<i>1924</i>					
Jan.	101·5	101·1	101·8	97·1	104·3
Feb.	104·3	101·4	103·8	95·2	107·2
Mar.	105·9	105·8	103·6	85·4	100·7
Apl.	107·4	103·2	103·6	87·5	103·3
May	114·0	103·5	102·1	80·0	103·2
Jun.	114·5	105·4	102·9	80·6	103·6
Jly.	115·2	103·8	104·2	76·3	101·7
Aug.	116·7	101·8	107·7	72·1	104·1
Sep.	117·1	104·4	108·0	74·3	107·9
Oct.	121·2	105·7	114·3	86·6	107·6
Nov.	125·4	109·7	118·7	87·4	111·5
Dec.	125·8	108·9	121·5	85·9	109·2
<i>1925</i>					
Jan.	133·0	116·1	123·0	82·4	109·2
Feb.	139·0	115·4	123·7	74·7	107·4
Mar.	138·6	117·2	123·9	69·7	104·3
Apl.	139·7	118·0	124·4	67·3	103·6
May	139·5	118·2	126·8	68·8	101·3
Jun.	139·6	117·4	122·9	63·3	97·3
Jly.	138·3	112·0	121·1	66·8	94·0
Aug.	138·4	117·7	129·2	66·0	94·8
Sep.	138·0	115·3	126·1	57·6	93·7
Oct.	139·8	114·7	135·4	68·7	96·0
Nov.	140·0	116·4	134·8	64·7	93·3
Dec.	140·5	121·4	135·5	70·3	92·0

TABLE IV. (*contd.*).—ORDINARY SHARES—December 1923=100

	5 Investm <sup>t</sup> Trusts	5 Elec. Light and Power	8 Industrial	5 Iron, Coal and Steel	3 Shipping
<i>1926</i>					
Jan.	147·4	117·7	133·4	67·3	92·8
Feb.	152·2	115·3	134·4	63·1	90·7
Mar.	156·2	110·2	134·8	58·4	87·1
Apl.	155·7	108·6	132·3	59·3	86·0
May	155·7	111·6	134·3	58·4	93·8
Jun.	158·5	112·7	137·3	53·6	93·0
Jly.	157·8	112·1	132·1	53·7	93·3
Aug.	157·9	107·4	139·5	61·8	93·1
Sep.	157·5	112·2	135·6	62·6	99·0
Oct.	162·3	116·2	133·6	60·9	96·9
Nov.	164·8	117·8	136·3	63·8	95·3
Dec.	166·5	110·6	136·2	63·4	93·2
<i>1927</i>					
Jan.	170·8	118·5	136·5	62·1	98·3
Feb.	171·0	120·4	135·0	59·8	97·1
Mar.	178·8	125·8	134·6	58·1	102·5
Apl.	176·6	126·8	137·3	65·0	109·3
May	176·6	125·4	135·9	61·1	116·1
Jun.	174·1	125·8	139·5	57·4	109·3
Jly.	172·7	125·9	142·5	56·7	109·9
Aug.	172·7	126·8	146·4	62·2	112·2
Sep.	173·5	129·0	141·4	61·0	106·6
Oct.	174·9	130·0	141·4	62·8	102·9
Nov.	174·8	129·8	141·7	62·3	107·3
Dec.	176·6	130·8	143·8	63·4	106·0
<i>1928</i>					
Jan.	177·0	127·2	150·4	66·6	106·4
Feb.	181·1	148·7	151·5	66·0	110·6
Mar.	179·7	151·3	151·1	70·4	112·3
Apl.	179·7	167·1	154·8	73·9	119·7
May	180·8	161·8	151·7	69·8	119·2
Jun.	184·8	159·5	156·8	63·8	117·1
Jly.	186·4	162·3	147·6	60·9	114·2
Aug.	189·7	169·7	151·8	62·9	120·9
Sep.	193·2	170·3	153·9	63·0	118·8
Oct.	196·7	168·2	153·2	66·1	120·6
Nov.	200·2	164·1	148·2	60·9	117·3
Dec.	202·2	167·6	152·5	66·6	123·4

TABLE V.—DEBENTURES AND ORDINARY—*December 1923=100*

	21 Debentures	21 Ordinary		21 Debentures	21 Ordinary
<i>1924</i>			<i>1927</i>		
Jan.	99·5	101·9	Jan.	98·5	134·9
Feb.	99·3	103·8	Feb.	98·1	134·6
Mar.	99·7	104·3	Mar.	98·0	133·5
Apl.	99·8	104·4	Apl.	98·2	140·2
May	100·0	105·4	May	98·4	140·3
Jun.	99·9	106·4	Jun.	98·3	140·1
Jly.	100·4	106·4	Jly.	98·9	141·1
Aug.	100·7	107·9	Aug.	98·6	143·1
Sep.	100·5	109·3	Sep.	98·8	141·1
Oct.	100·6	112·9	Oct.	98·5	141·1
Nov.	100·4	117·1	Nov.	98·1	141·8
Dec.	100·8	117·7	Dec.	98·0	143·1
<i>1925</i>			<i>1928</i>		
Jan.	101·2	121·8	Jan.	98·3	144·9
Feb.	101·5	123·0	Feb.	98·0	152·0
Mar.	101·3	123·0	Mar.	98·0	152·4
Apl.	100·7	123·5	Apl.	98·2	158·6
May	100·6	124·1	May	98·4	156·4
Jun.	100·1	125·2	Jun.	98·8	158·4
Jly.	99·7	119·2	Jly.	98·8	155·6
Aug.	100·0	123·7	Aug.	99·0	160·7
Sep.	99·6	121·7	Sep.	99·2	162·1
Oct.	99·8	126·3	Oct.	99·0	162·5
Nov.	99·5	125·7	Nov.	99·1	160·0
Dec.	98·4	125·4	Dec.	99·1	163·8
<i>1926</i>					
Jan.	98·4	127·2			
Feb.	98·7	127·8			
Mar.	98·6	127·3			
Apl.	98·1	125·6			
May	98·7	128·2			
Jun.	98·8	130·2			
Jly.	98·9	127·9			
Aug.	98·7	129·6			
Sep.	98·6	130·0			
Oct.	98·3	131·0			
Nov.	98·1	132·8			
Dec.	97·9	131·2			

TABLE VI.—20 ORDINARY SHARES—December 1923=100

	Price	Net Revenue	Net Yield		Price	Net Revenue	Net Yield
<i>1924</i>				<i>1927</i>			
Jan.	101·7	100·0	98·5	Jan.	141·0	127·5	93·4
Feb.	103·1	99·0	96·2	Feb.	141·1	126·3	92·0
Mar.	104·4	104·2	94·6	Mar.	143·9	124·4	89·5
Apl.	104·3	99·2	94·0	Apl.	144·5	122·3	86·5
May	105·5	99·3	92·8	May	144·7	122·3	86·4
Jun.	106·1	100·2	93·1	Jun.	144·5	120·9	85·5
Jly.	106·7	100·2	93·3	Jly.	144·9	120·9	85·3
Aug.	107·6	100·5	92·8	Aug.	148·0	120·9	83·4
Sep.	107·9	99·8	91·4	Sep.	147·0	122·0	84·4
Oct.	112·8	99·8	87·3	Oct.	149·2	122·0	83·4
Nov.	116·5	100·1	85·0	Nov.	149·1	122·0	83·6
Dec.	117·9	100·9	84·6	Dec.	151·3	124·4	84·3
<i>1925</i>				<i>1928</i>			
Jan.	127·9	100·9	81·5	Jan.	151·6	124·4	84·3
Feb.	129·9	103·5	82·9	Feb.	158·5	126·2	82·1
Mar.	130·2	107·0	84·9	Mar.	159·9	126·9	81·2
Apl.	131·0	110·2	86·8	Apl.	167·3	131·0	81·1
May	131·6	110·5	86·6	May	166·1	131·0	82·0
Jun.	129·5	111·7	89·0	Jun.	168·0	132·8	82·5
Jly.	122·6	114·3	92·4	Jly.	165·5	135·4	85·0
Aug.	133·0	114·5	89·4	Aug.	171·7	135·4	82·0
Sep.	130·1	116·6	92·5	Sep.	173·2	135·4	81·3
Oct.	135·3	116·6	89·6	Oct.	173·1	135·4	81·2
Nov.	136·0	116·6	89·2	Nov.	170·4	137·0	84·8
Dec.	136·0	116·2	87·5	Dec.	174·9	137·0	82·5
<i>1926</i>							
Jan.	137·3	116·2	87·8				
Feb.	137·4	118·6	90·2				
Mar.	137·6	120·9	92·7				
Apl.	135·9	126·5	100·1				
May	138·5	126·4	97·5				
Jun.	141·5	125·3	95·4				
Jly.	139·0	126·3	97·4				
Aug.	141·8	126·7	96·5				
Sep.	140·9	127·1	96·9				
Oct.	144·9	127·1	95·4				
Nov.	146·6	127·1	94·0				
Dec.	140·8	126·1	94·8				

## APPENDIX B.

*Detailed List of Securities reviewed in Appendix A.*

The Debentures selected were irredeemable or of long maturity date with a view to obtaining the maximum free movement of price. The Industrial Securities were selected with a view to obtaining as wide and representative a list as possible of the different types of individual industries.

TABLE II.—DEBENTURES.

5 *British Funds :*

- 2½ % Consols.
- 4 % Funding Loan.
- 3½ % Conversion Loan.
- 4½ % Conversion Loan (from May 1924).
- 3 % Local Loans Stock.

5 *Dominion Government :*

- India 3 % stock, after 1948.
- Australia (Commonwealth) 5 % stock, 1935-45.
- Canada 4 % stock, 1940-60.
- New Zealand 4 % stock, 1943-63.
- South Africa 4 % stock, 1943-63.

10 *Corporation Stocks :*

- London County Council 3 % stock, after 1920.
- London Corporation 5 % stock, 1945-65.
- Birmingham 3½ % stock, after 1946.
- Glasgow 3½ % stock, irred.
- Leeds 3 % stock, after 1927.
- Liverpool 3½ % stock, irred.
- Newcastle 3½ % stock, irred.
- Nottingham 3 % stock, irred.
- Sheffield 3½ % stock, after 1968.
- Swansea 3½ % irred.

5 *Dominion Corporation :*

- Auckland 6 % Debentures, 1943.
- Calcutta (Port) 6 % Debentures, 1952.
- Cape Town 4 % Inscribed Stock, 1953.
- Montreal 4½ % Sterling Regd. Stock, 1951-3.
- Vancouver 4 % Consolidated Stock, 1950-1-2.

**5 Investment Trusts :**

Debenture Corporation 4 % 1st Mort. Perp. Deb. Stock.  
 Foreign, American and General Investment 4 % Perp. Deb. Stock.  
 Investment Trust Corporation 4 % Deb. Stock (1987).  
 Mercantile Investment and General Trust 4 % Perp. Deb. Stock.  
 United States Debenture Corporation 4½ % Irrad. Deb. Stock (4 %  
 from May 1925).

**5 Electric Light and Power :**

City of London Electric Light 5 % Deb. Stock.  
 County of London Electric Supply 4½ % Deb. Stock (7 % from  
 January 1927).  
 Metropolitan Electric Supply 4½ % 1st Mort. Deb. Stock.  
 Midland Counties Electric Supply 5 % Deb. Stock.  
 Yorkshire Electric Power 5½ % Deb. Stock.

**8 Industrial :**

Associated Portland Cement 4½ % 1st Mort. Deb. Stock.  
 John Barker & Co. 4½ % 1st Mort. Deb. Stock.  
 Bleachers Association 4½ % 1st Mort. Deb. Stock.  
 British Aluminium 5 % Prior Lien Debentures.  
 British Oil and Cake Mills 4½ % 1st Mort. Deb. Stock.  
 Fine Cotton Spinners 4 % 1st Mort. Deb. Stock.  
 General Electric Co. 7 % Mort. Deb. Stock.  
 Gordon Hotels 4½ % Perp. Deb. Stock.

**5 Iron, Coal and Steel :**

Armstrong, Whitworth 4 % Mort. Deb. Stock.  
 Cammell, Laird & Co. 5 % 1st Mort. Deb. Stock.  
 Dorman, Long & Co. 5½ % 1st Mort. Deb. Stock (to December 1924).  
 4 % 1st Mort. Perp. Deb. Stock (from January  
 1925).  
 Guest, Keen & Nettlefolds 4 % Irrad. Mort. Deb. Stock.  
 Vickers 4 % 1st Mort. Deb. Stock (5½ % from March 1924).

**3 Shipping :**

Cunard Steamship 7 % Mort. Deb. Stock (5 % from June 1926).  
 P. and O. Steam Navigation 3½ % Perp. Deb. Stock.  
 Royal Mail Steam Packet 4½ % 1st Deb. Stock.

TABLE III.—PREFERENCE STOCKS.

5 <i>Investment Trusts</i>	} The first preference stocks of those companies which are detailed in Table II. under the corresponding titles.
5 <i>Electric Light and Power</i>	
8 <i>Industrial</i>	
5 <i>Iron, Coal and Steel</i>	

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TABLE IV.—ORDINARY SHARES.

5 <i>Investment Trusts</i>	} The ordinary or deferred shares of those companies which are detailed in Table II. under the corresponding titles.
5 <i>Electric Light and Power</i>	
8 <i>Industrial</i>	
5 <i>Iron, Coal and Steel</i>	
3 <i>Shipping</i>	

TABLE V.—DEBENTURES AND ORDINARY.

### 21 *Debentures :*

These are composed of the following Debentures as detailed under Table II :—

- 5 *Investment Trusts.*
- 5 *Electric Light and Power.*
- 8 *Industrial.*
- 3 *Shipping.*

### 21 *Ordinary :*

These are the corresponding ordinary or deferred shares of the same companies.

TABLE VI.—20 ORDINARY SHARES.

These are the ordinary or deferred shares of the following companies :—

Associated Portland Cement.	Metropolitan Electric Supply.
John Barker and Co.	Midland Counties Electric Supply.
Bleachers Association.	Yorkshire Electric Power.
British Aluminium.	Debenture Corporation.
British Oil and Cake Mills.	Foreign, American and General Investment.
Fine Cotton Spinners.	Investment Trust Corporation.
General Electric Company.	Mercantile Investment and General Trust.
Imperial Tobacco (of G. B. & I.).	United States Debenture Corporation.
*Imperial Chemical Industries.	
P. and O. Steam Navigation.	
City of London Electric Light.	
County of London Electric Supply.	

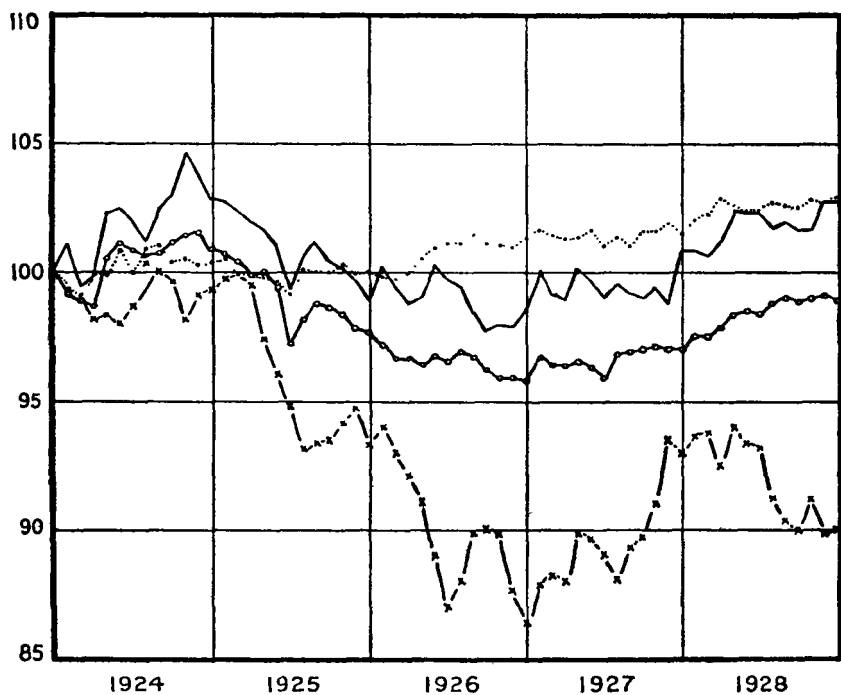
\* This was used from January 1927. For earlier years the factor used was the mean between the shares of Brunner, Mond & Co. and Nobel Industries.



## CHARTS

- A. PRICES OF DEBENTURES.
- B. PRICES OF ORDINARY SHARES.
- C. PRICES OF DEBENTURES AND ORDINARY.
- D. PRICE, REVENUE AND YIELD OF ORDINARY.
- E. KITCHIN'S CHART OF INVESTMENT TRUST COMPANIES  
(PRICES).
- F. KITCHIN'S CHART OF INVESTMENT TRUST COMPANIES  
(NET YIELDS).

CHART A.—DEBENTURES.



*December 1923 = 100*

5 British Funds

10 Corporation Stocks

5 Dominion Corporation

5 Iron, Coal and Steel

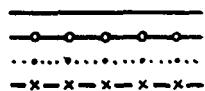
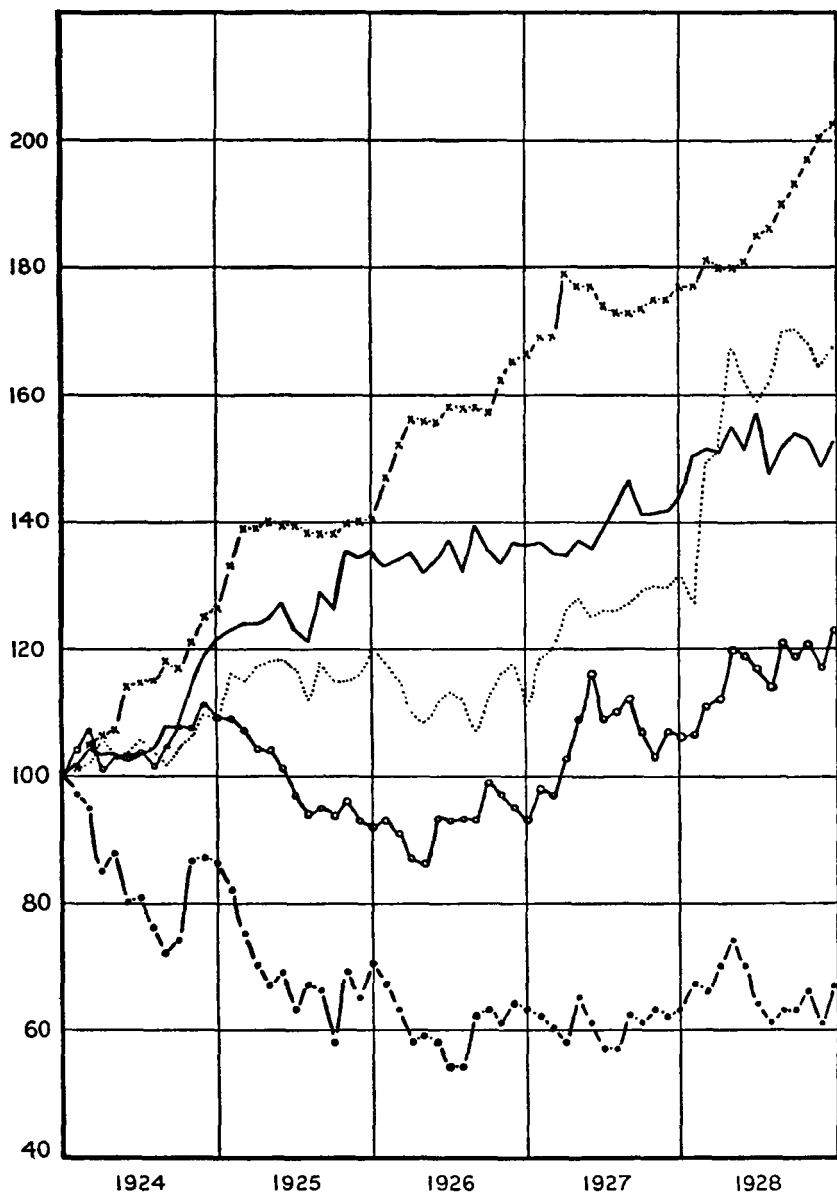


CHART B.—ORDINARY.



*December 1923 = 100*

8 Industrials

5 Electric Light and Power

5 Investment Trusts

5 Iron, Coal and Steel

3 Shipping

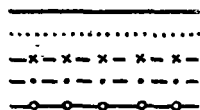


CHART C.—DEBENTURES AND ORDINARY.

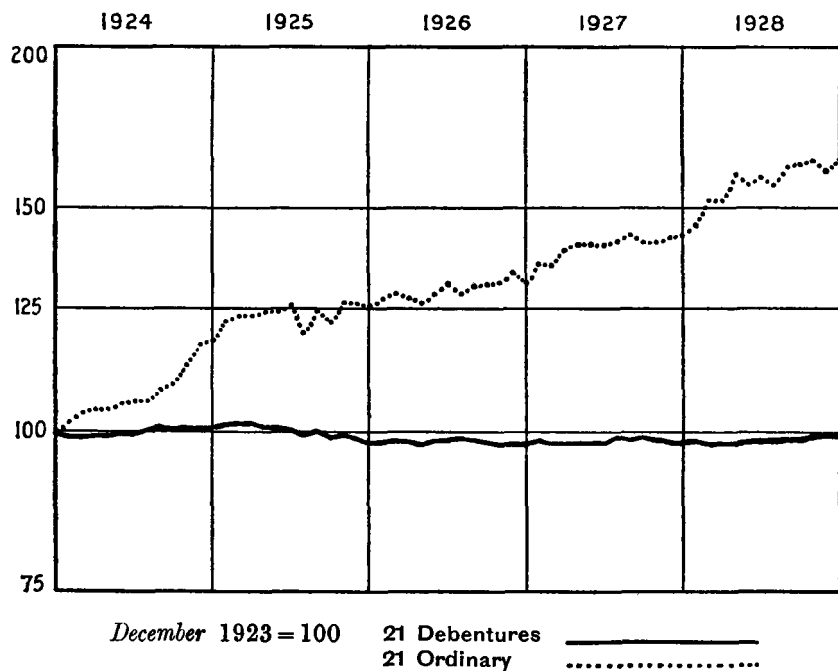


CHART D.—20 ORDINARY.

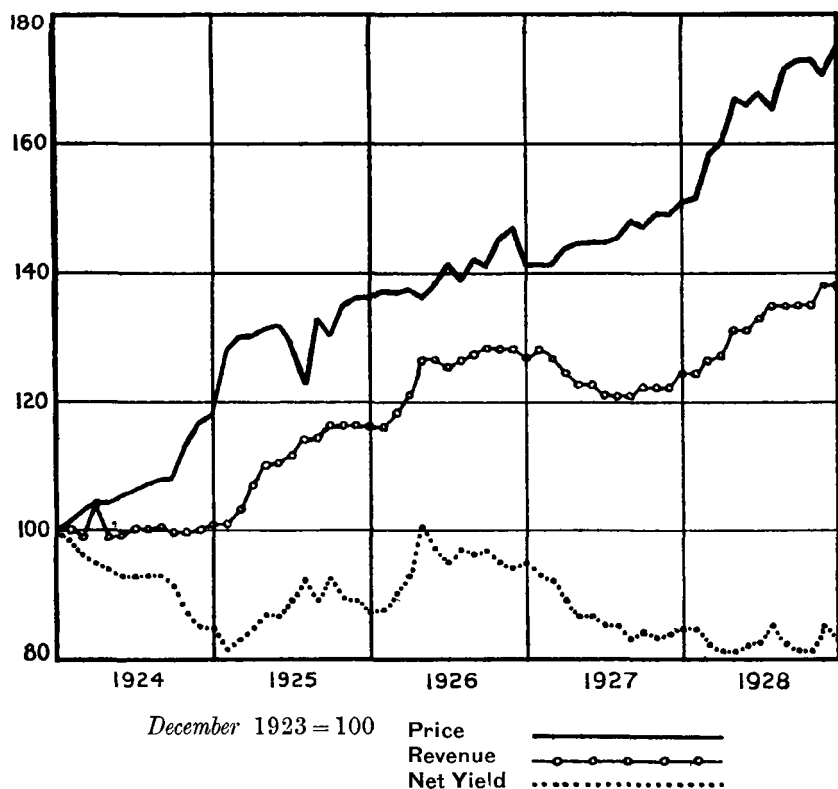
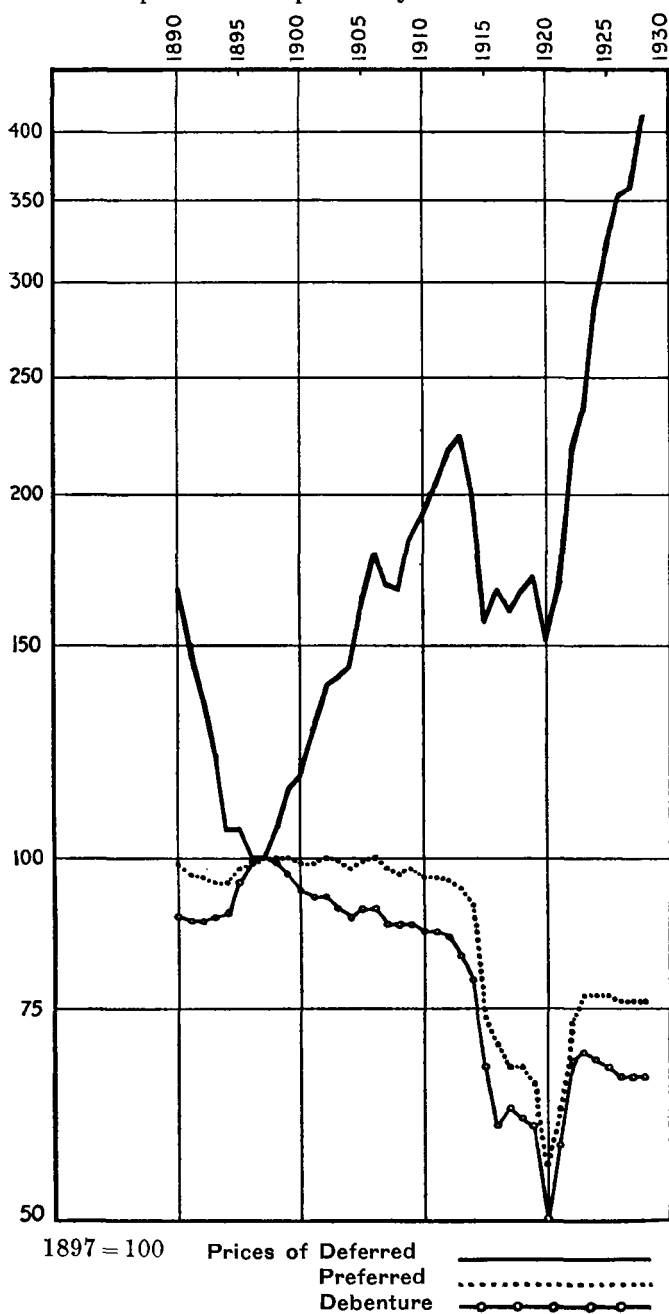
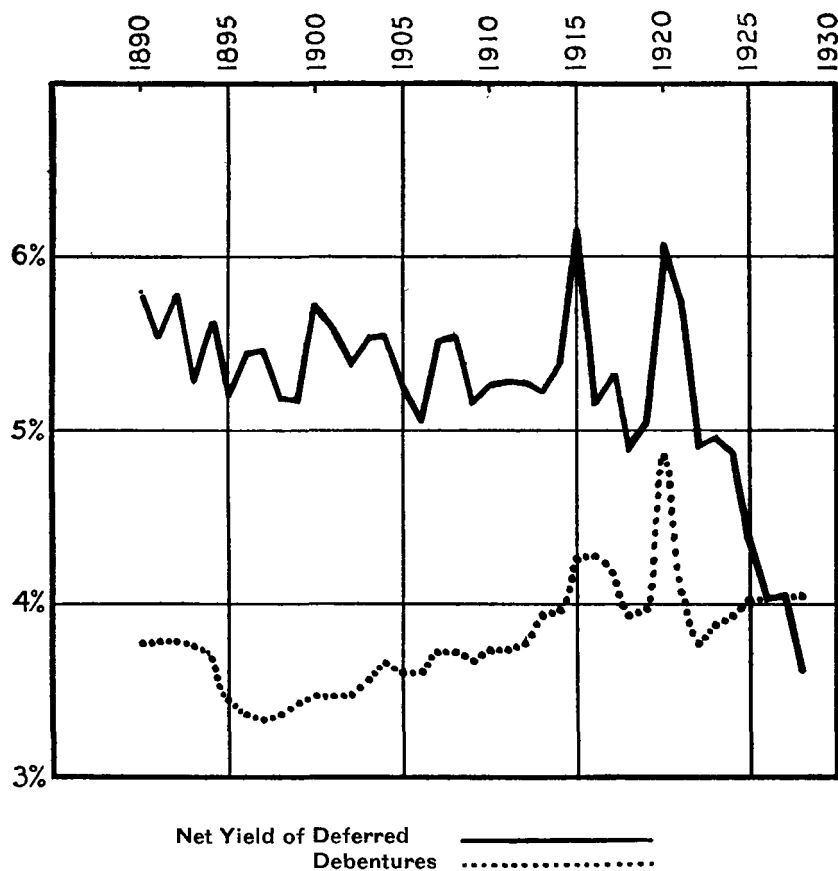


CHART E.—INVESTMENT TRUST COMPANIES.  
 Compiled from data provided by JOSEPH KITCHIN.



(Reproduced by courtesy of JOSEPH KITCHIN.)

CHART F.—INVESTMENT TRUST COMPANIES.  
Compiled from data provided by JOSEPH KITCHIN.



## SYNOPSIS

During the lifetime of most Life Assurance Companies until 1897 the general trend of interest rates was downward. Such conditions proved favourable for the traditional investment policy of these years. From 1897, however, until 1920 the trend of interest rates changed to an upward direction and heavy depreciation in security values was experienced. In recent years much thought has been given to the problems of investment, and modifications in policy have been made with a view to avoiding or at least diminishing future depreciation in capital values.

The principal movements in security prices are the long period trends and the short cycle variations, both of which accompany the general economic movement of all prices and can be studied in their general relationship to the economic cycle. The statistical data needful to such study, especially in this country, is very limited. Although statistics are available in America they are for the most part restricted to the two broad groups of Bond prices and Share prices, while in France the problem most dealt with is the relative movement between fixed interest securities and those having a variable dividend.

A new investigation has been made in respect of the last five years and the results are given in the present Paper. The monthly movement in prices has been taken out for a variety of classes ranging from British Government securities to Industrials, and where such exist a separate index is shown for Debentures, Preference and Ordinary. The prices employed are net prices after allowing for accrued interest.

As the results only show the movements of the last five years, the period covered is not a complete cycle but only the opening phase of the short period cycle. They are in no way intended to afford a solution to the various problems of movement but merely illustrate the position at the present time.

The main conclusion of the Paper is that the prices of securities, like all prices, are related to the general economic cycle. While the evidence cited is in some ways contradictory, it is suggested that the movement of Ordinary securities follows directly that of the economic curve, while the movement of Debentures follows that curve inversely but with a different tempo and interval. At the same time the intermediate fluctuations of the Ordinary are of much greater extent than those of Debentures.

As regards the more fixed type of investment policy in which sales of any magnitude are not contemplated, if the long period trend is downward it would appear inadvisable to enter the Ordinary field at all. On the other hand, the investments in Debentures will give complete security with steady appreciation of capital. When the long period trend is upward, however, Debentures will suffer depreciation, and to balance this a proportion of funds must be held in Ordinary Securities which in such conditions will show considerable appreciation in capital value, quite apart from an increasing yield. With a more mobile investment policy the Ordinary field deserves to receive the same considerations as the Debenture field, the profits of the Ordinary more than balancing the losses of the Debentures in a period of long period upward trend, while in a downward trend the short period cycle gives opportunity for profitable investment in both areas.



## DISCUSSION.

**Mr. A. E. King.**—I am very sorry indeed that business abroad prevents me from attending to hear the reading of Mr. Douglas's Paper. I should like, however, to offer some remarks on it.

Few people who are interested in the investment of large funds can help being interested in the Paper, and furthermore the literature on the subject of trends and cycles—largely American, including the works cited by the author—is also of a very interesting character, although, being of varying merit, one's critical faculty needs to be well exercised. Mr. Douglas has performed a most valuable service in bringing the subject forward for discussion.

It seems to me that the two most important matters dealt with in the Paper are (1) Trends and cycles and (2) Ordinary stocks as compared with other securities as Insurance investments.

The author has referred to the appalling depreciation in investment values which has so disturbed the finances of Insurance Companies in the past; there is perhaps no need for me to dwell on that subject, but if there were further need to realise the importance of the subject of trends and cycles or of long and short investment policy it would be interesting for any one in charge of Insurance funds to calculate how much his Company would have been better off to-day if it had followed a counsel of perfection and pursued an entirely correct long and short policy in the post-war years. Of course it is usually difficult to determine when one's investment policy should be made long or short—there is often no convenient straw to tell which way the wind is set, and, more important still, no instrument to inform how long the wind is likely to remain in one direction. It is true that the author has given one practical instrument for determining long trend, and as regards the short cycle, there have been various statistical instruments put forward in America. The problem, however, remains difficult, and it is all the more necessary that the person seeking to solve it should have a good acquaintance not only with the economic facts of the day but also with the economic happenings of the past to bring them into relation when considering the future. Given such knowledge, the various instruments which are put forward may be of definite value.

The author has discouraged discussion of the causes of business cycles or of the methods of forecasting the future, such as have been propounded in America—I will except his own measure of long trend. It is, however, instructive for any one who has not done so to read up the various theories that have been advanced as to the causes of cycles—an excellent summary appears in Professor Mitchell's work—for such a study at least teaches the danger of ascribing any single cause to an economic event or of founding future policy on any one particular happening. With regard to forecasting, I think that many of our members may be dissuaded from considering this part of the subject simply because the word is so much associated with uncertain things, such as the weather. The French equivalent is *prévision*, and if we translate this by foresight we have a word which most of us take a pride in applying to our everyday affairs. Mr. W. T. Layton of the *Economist* has pointed out that a Railway Company may easily fritter away the results of months of effort to economise in administration by a few ill-timed contracts for coal; it is essential to look ahead. Again, referring to the shipping industry, in 1920 those who took the long

view and sold their ships in time made their fortunes : those who thought the boom would go on for years ended in bankruptcy. Yet the portents were clearly visible from 1918 onward for any one to see who was capable of taking a general all-round view. Months before the end of the war the Ministry of Shipping had collected together facts which pointed irresistibly to the conclusion that after 12 months or so the world would be in possession of a shipping tonnage greatly in excess of the reduced amount of sea transport that would have to be done when once the troops had been demobilised and taken home. Only one conclusion was possible, says Mr. Layton, to any one accustomed to take a wide view, yet many believed the demand for ships would expand indefinitely. The difference between the two views meant fortune or failure. This is a digression, especially as I have dealt with subjects expressly avoided by the author, but I find excuse in giving these one or two examples from commerce merely to illustrate that business men are always forecasting or using foresight in business, or, if they are not, they should be.

The author, then, avoids going into causes or dealing with forecasting methods. He takes the recurrence of cycles and trends as a fact and then considers certain general rules as affecting fixed interest and variable interest securities. There can be no gainsaying that in the past there have been such things as cycles and trends in security prices ; the difficulty in making use of past knowledge has been and is that cycles do not have a regular length or an equal intensity and that new factors constantly have to be allowed for. Thus, one has noted that for some time past the Harvard and the London & Cambridge curves of Stock Exchange prices have refused to follow their traditional relations with the curves of wholesale prices and of interest. This is probably due to the enormous gold acquisitions by the United States coupled with the rapid development of instalment buying. However, taking trends and cycles as facts, the general conclusion of the author on this matter, after giving us the benefit of most valuable references and comments, is that the movement of Ordinary securities follows the economic curve, while the movement of Debentures follows that curve inversely but with a different tempo and interval. I think many may conclude from this that when Stocks are high Debentures will be low, and this general statement is wide enough to warrant qualification and perhaps some discussion, especially as the question of transferring from Debentures to Ordinary and *vice versa* has been dealt with by the author. The author's statement is fortified from French sources, but I think I am right in saying that Monsieur Wascot himself found post-war experience in this matter a good deal different from pre-war experience. Further, Colonel Ayres, as quoted in Mr. Vance's book cited by the author, gives a graph showing some American Bond and Stock prices moving up and down together over a long series of years, and again, so far as the 5 years dealt with by the author in his tables and graphs are concerned, I find on plotting out the graphs (where necessary taking out long trend) that the movements of the Debentures and Ordinary Stocks have been synchronous. The author agrees on page 191 of his paper that the evidence is somewhat contradictory, and possibly this is because short statements—such as when trade is bad Bonds are high—sometimes only tell a half-truth. The actual stage reached in the short cycle is important, and the general scheme surely is that in times of revival of trade (the early days of prosperity) Stocks tend to rise, followed, as trade develops, by rising prices and costs and in due course by a rising interest rate and a falling Bond market ; when business costs, however, overtake profits and prosperity begins to wane, Stocks tend to fall, prices fall away, money goes out of trade, causing interest rates in the money market to decline, and Bonds tend to

rise. This is a process or sequence, although at times there is considerable irregularity in the course of events.

As regards the fundamental question of investment policy, it would seem clear that if Stocks are set for a rise Bond prices are likely to decline, and Offices wishing to hedge their policy have the choice of a short money policy (such as mortgages, short bonds, etc.) or of Common Stocks. On a falling Stock market long-dated securities are, of course, preferable, although the recent two American studies of Smith and Van Strum claim the palm even here for Common Stocks. As regards the two studies just mentioned, however, I agree with the author that it is not wise to base one's policy blindly on past history, especially if the history refers to a country which was in quite a different stage of financial development from that of this country. In practice, the problem of determining whether Stocks are set for a rise or the reverse is a difficult one. We cannot afford to neglect any aid which may be forthcoming, and a study of forecasting methods is at least worthy of consideration.

In conclusion, I may say that the whole subject of trends and cycles is of such importance and so little has been written on it in this country that I venture to think it would be a great advantage to many members of the Faculty and others if a short course of lectures were delivered. In the meantime we are under a deep obligation to Mr. Douglas, who has such an exceptional grasp of his subject. His tables must have involved an enormous amount of work, and they will be increasingly useful when extended to future years. It is to be hoped that, carrying to fruition a remark at the foot of page 190, we shall have a further contribution from his pen in continuation of his paper.

**Mr. A. C. Murray.**—In making use of any index numbers as an aid to the solution of investment or other problems, the characteristics of the index number employed must be constantly kept in mind. Security index numbers are based on a group of securities selected because of their representative character or because of their sensitiveness to changes in market conditions or for some other reason depending on the use to which they are to be put. Representative index numbers, such as those submitted by the author, may show quite different results from index numbers based on securities selected with different considerations in view. If we make trade cycle movements and the relation between these and security prices a feature of Insurance investment policy, the ideal index number would be based on securities selected on their intrinsic merits, so that the index would approximate in its variations to the changes in market value of the securities held. The compilation, however, of such an index presents the difficulty that investigators would disagree on the question of merit, and consequently each investment operator would require his own index numbers; also there would be obvious difficulties in constructing indices on these lines relating to the past. In any event, Insurance Companies' investments should show considerably better results than those indicated by an index number of representative securities. It follows that in addition to variations in degree of movement in one direction we may have times when the index is moving downward while prices of selected securities are moving in the opposite direction. Further, it is probable that the factor of selection may upset considerably other features of the relationship between the general movements of security prices and the trade cycle. It must also be kept in mind, assuming that a rigidly static policy is a thing of the past, that opportunities are taken to make advantageous exchanges of individual securities in an Insurance Company's list, whereas any change made in the securities used for the purpose of the usual index are based on quite different considerations.

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The tendency to appreciable variation between what we may call an average group of securities and a selected group would probably be most noticeable in the case of Ordinary shares, and particularly in a class where the difference in the nature of the operations carried out by individual companies is considerable. Thus the variations would not be so marked in the case of Investment Trusts as in the case of such classes as Commercial, Industrial, and Iron, Coal and Steel.

In making the foregoing remarks, I do not for a moment lose sight of the great value of reliable representative index numbers, but merely wish to draw attention to features which I think of considerable importance, to be kept in view in using them.

Leaving selection out of account, I come now to the differences between the movements of index numbers in various classes of fixed interest and variable dividend securities. In 1921 Mr. S. J. Perry, in a paper read to the Institute of Actuaries, submitted diagrams showing price movements based on index numbers of various classes of securities covering the period 1887 to 1920. The depreciation after 1897 in fixed interest securities to which Mr. Douglas refers and which continued till 1920 is very marked in most classes, although Foreign Government Security prices actually continued rather upward from 1897 till 1911. Amongst the Ordinaries the index of Home Railway Stocks, instead of rising after 1897, shows a steady decline over the whole period to 1920. Iron, Coal and Steel Ordinary shares moved upwards, but only for two years, and thereafter, with considerable fluctuations, the trend was decidedly in the other direction, while Commercial Industrial shares showed a general upward movement lasting till 1910 with intermediate fluctuations conforming to trade cycle variations.

These results confirm the author's view that trade cycle movements should be studied in relation to various classes of Debentures and Ordinaries, rather than in relation to the two broad groups. As an aid to such study, the author's index numbers should be of considerable value—particularly if arrangements can be made for their continuation.

In studying the subject of Business and Investment forecasting, one must remember that there are many varying factors constantly influencing security prices, business conditions and monetary rates, and it is often extremely difficult, even examining the problem while some particular movement is taking place, to say which of these factors produces certain results. Consequently, in examining past statistics it is usually a simple matter when a theory breaks down to ascribe special reasons. Whether such special reasons were in fact the cause, and whether they could have been foreseen, usually remains controversial.

Another consideration is the possibility of a change in the main features of the trade cycle itself, which might be brought about by an altered credit policy on the part of the banks. In recent years, as Mr. King points out, existing forecasting theories have to some extent been upset. In addition to the reasons for this mentioned by Mr. King, it has also been suggested that in the United States changed credit policy is an important factor.

The author is to be congratulated on providing us with his tables, which are of considerable value as an aid to the study of the problem under discussion and also for other purposes. Table VI., which indicates the extent to which the rise in Ordinary shares during the past five years has been due to increased dividends, is, I think, particularly interesting at the present time. In view of the very considerable amount of labour involved, Mr. Douglas would probably welcome some assistance in the continuation of this work. If he is agreeable, I think that the Faculty might consider

whether arrangements could be made for the appointment of a small committee of those interested to continue the calculations. If the results could be published from time to time this would enable us to study them concurrently with changing economic, political and monetary conditions. Such a committee might also find it possible to carry out further valuable research work in the investment field, which work, I suggest, would prove a very useful addition to the activities of the Faculty.

**Professor F. W. Ogilvie** (a visitor).—Might I say first how grateful I am, an outsider, for this opportunity of being allowed to attend this meeting of the Faculty of Actuaries, and also with what great pleasure and profit I read Mr. Douglas's Paper? A good deal of work has been done by economists and others on the question of the various relationships of different kinds of capital, but this particular problem to which Mr. Douglas has addressed himself has been comparatively neglected. Mr. Douglas approaches the problem from one point of view; might I approach it from a rather different point of view, coming to meet him a little later on?

My first question is this:—Why is it that Ordinaries have been so much undervalued until quite recently? Much, I fancy, of the excitement in the Insurance world, so far as it percolates through to outsiders, is due to the fact that various papers—and some of them have been referred to by previous speakers this afternoon—have shown that if individuals or Companies had invested in Ordinary shares, they would have done very much better than in fact they have done by investment in Debentures and Preference. This undervaluation of Ordinaries is a thing that has not been fully explained. You would, of course, expect from economic theory that Ordinaries would have rather better yields, but not so much better yields as they have recently been shown to have. You can account for that in various ways; partly by legislation—Trustee Acts and so on—that compels charitable institutions and certain companies to put their investments into senior stocks; and partly by the action of the small individual investor, who would not be justified in investing in anything but safe securities. A small investor with only £1000 to invest would hardly be justified in investing in Ordinary industrials. There is also, apart from those two things—legislation and the private investor—there is also human nature. Most of us are quite willing to invest in very safe things and at the same time quite willing to invest in wild-cat schemes, but we are apt to neglect what may be called humdrum risks. At the time of the South Sea Bubble a large number of people were willing to subscribe, in a few short hours, money for a scheme the nature of which, in the words of the prospectus, was “to be hereafter divulged.” You have practically the same thing now—people willing to subscribe to very safe things, and perfectly willing to subscribe to companies, or possibly “parent” or “holding” companies of some other companies, interested in a patent that may still be in the inventor's brain; but not very willing to subscribe to concerns with medium, unromantic risks.

Now if that is so, if Ordinaries have been undervalued—and I think that that can be proved quite clearly—then obviously sound investment policy is to pay greater attention to Ordinaries. And in fact greater attention has recently been paid, especially by Investment Trusts which exist largely for that purpose; though perhaps the extent to which these Trusts deal in Ordinaries is not so great as is sometimes supposed. For example, the Mercantile and General—and I quote it partly because it is safely south of the Border and partly because it is one of the Companies that publish a full list of securities—has 80 per cent. of its investments in prior stocks

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and only 20 per cent. in Ordinaries, and of these Ordinaries a considerable proportion are the Ordinaries of other Trusts. At present, as a result of the greater attention which is being paid to Ordinaries, the position is being reversed, and we are now finding that many Ordinaries are over-valued. Many Ordinaries have been pushed up to a figure that makes the yield on them absurd—absurd in that the companies will have to give extraordinarily high dividends if they are to justify the value at which their shares stand. Within the last few days the *Economist* newspaper has published a new index giving the yield on British and American Ordinary Stocks, showing how much the future is being allowed for—in America especially—in the present price.

Now, what is the policy to be? This is where I find difficulty in following Mr. Douglas. He gives us a most valuable series of figures, but he says we must not explore the past nor must we look into the future. He states several times throughout his Paper that forecasting is no part of his subject. I quite understand that the word forecasting rather stinks in people's nostrils, but what are we to do? Policy inevitably involves foresight, as Mr. King suggested. In outline, the investment policy of any Company, as of any individual, must be to keep a certain amount of capital intact, not necessarily in the same holdings, and to add to it. You can only add to it in two ways, by revenue or by capital appreciation, and I think that this second way, appreciation, has perhaps had a disproportionately large share of attention paid to it. For example, in the nineteenth century, to which Mr. Douglas refers at the beginning of his paper, and then again at the end, you had appreciation, which helped you to add to your capital, but of course all the time you were getting less and less income; which shows, I think, that the income needs of Insurance Companies until recently must have been comparatively slack—that there must have been a certain ease in their position or they would have turned sooner to the other method of increasing their capital.

The two ways of increasing capital—more income or capital appreciation—are badly obscured when you translate the things into yields, and I wonder whether it is not a mistake to speak, for example, of Consols, as Mr. Douglas does (Table L.) in terms simply of yields. You have what Mr. Douglas calls (page 173) the "narrow margin" of fluctuation of  $\frac{1}{2}$  per cent. throughout the latter part of the nineteenth century. Well,  $\frac{1}{2}$  per cent. on 2 is a rise of 25 per cent., exactly the same as a rise from 4 to 5, which, however, Mr. Douglas calls a "marked fluctuation" (page 189) when applied to the net yield of Ordinary Stocks during the last five years. I think it is markedly false retrospect when we look back to the nineteenth century and say it was a narrow margin and that conditions were stable. I very much doubt if our grandfathers thought so, and we certainly would object if economic historians five or ten years hence pointed to the fairly gentle curve of net yields of Ordinaries in Mr. Douglas's Chart D and said that we must have been quite happy with that comparatively narrow margin.

Might I just conclude by agreeing most heartily with Mr. Douglas when he says that the future depends on knowledge? None of us is going to prophesy what the rate of interest is going to be two months hence, but it is clear that economists and practical men will have to stand together more and more in the future. Policy will depend partly on knowledge and partly on activity: what Mr. Douglas calls static policy will not help Companies, any more than it will help individuals, in a world of movement and change.

**Mr. J. A. Thomson.**—I am glad to have the opportunity of saying with what pleasure I have read Mr. Douglas's Paper, and of expressing my

admiration for the amount of trouble he has taken in preparing it; the range of his reading has been very wide indeed. I was particularly glad to be reminded in the early pages of the Paper of two facts that one had perhaps been apt to forget. One was the remarkable period of comparative stability that existed in the later half of last century. It was no doubt the slightness of the movement during that period that begot a frame of mind that was responsible for a statement I came upon in an address delivered some twenty years ago, when the author said that a certain well-known Debenture Stock was unsuitable for investment, as in the year in which he was speaking it had shown a movement of four and a half points, fluctuating between 112 and 116½. Since those days, however, we have had to witness much wilder fluctuations.

The other striking point to me was the enormous depreciation that took place between 1897 and 1920, the figures for which are given us on the second page of the Paper. These, of course, show in a very marked way the difficulty of the task that is laid upon those who are responsible for the investment of Life Office funds, and the need for all possible help that can be got from studies of this kind.

Passing from these larger aspects of the Paper, I noted one or two points that I thought might be worth mentioning. With regard to the turning-point in 1897, the cause of that change in the curve of interest rates would be a very interesting subject for investigation. I have seen it attributed to the development of the mines of the Transvaal, dating from about that time. Certainly the suggestion seems a possible one, and one which might be followed up. In another passage, Mr. Douglas doubts whether seasonal movements have any real existence in this country. I think there are such movements in our country. One has noticed, for example, that in say the last two weeks of a year there is a marked tendency for the prices of gilt-edged securities to rise. Possibly that has something to do with "window-dressing" efforts on the part of the market; perhaps also it has something to do with the fact that a new year is coming and people are optimistic of the future. But it not infrequently happens, some six weeks later, when the light of common day has flooded the new year, that optimism abates and prices begin to fall away. Then, of course, one very frequently notices that in anticipation of the periodical large dividend distributions, such as that on the 5 per cent. War Stock, prices tend to go up. On page 181 of the Paper reference is made to the fact that 2½ per cent. Consols are no longer suitable as an indicator of gilt-edged securities. For a very long period they were; but that no longer holds. For one thing, they have become a comparatively small item in the list of securities; and again they have certain special features—*e.g.* the way in which certain Trusts are tied up to investments in that particular stock—that render them unsuitable for the purpose. In their place I would suggest that one might use 3½ per cent. Conversion Loan, or the newer 4 per cent. Consols, as the "bell-wether." Might I suggest that Mr. Douglas in his footnotes should give us a reference to the chapter of the works referred to: it would make it easier for those who want to get at a particular point.

Just to conclude with a remark on the general question of investment policy, the events of the last fifty years have taught us that the static policy cannot be adhered to in its entirety. We have learned that we can no longer count on the steady rate of interest and the stability of capital values which was, I think, at the back of the minds of those who founded Life Assurance business. We have to recognise the possibility of depreciation and to provide against it; and while Mr. Douglas rightly discourages a too rigid application of the past to the conditions of the present on the

assumption that history will repeat itself, I think we can learn something from the past and judge more correctly when to invest "short" and when to "go long," when to sell and when to buy.

**Mr. G. H. Becknell** wrote as follows :—It is with great pleasure that I respond to the invitation to contribute to the discussion of Mr. Douglas's thoughtful and stimulating essay. The Faculty is fortunate in having this opportunity of reflection upon an aspect of investment policy to which, as Mr. Douglas shows, quite insufficient attention has been given hitherto in this country.

Before considering the main subject of the Paper, I would like to join issue with Mr. Douglas in his attempt to differentiate the investment functions of an Investment Trust Company from those of a Life Office. Why should it be so generally taken for granted that "the principles of" Investment Trust organisations are very different from those of a Life "Company"? Fundamentally, it seems to me, there is not or should not be any distinction; for a Life Company is nothing more than a particular kind of Investment Trust Company. The operation of collecting premiums, of their investment and of the ultimate repayment of the resulting accumulations is surely analogous to the investment of savings contributed by shareholders in a Trust Company; and the Directors in the one case stand in the same fiduciary position *vis-à-vis* their policy-holders as do the Directors in the other case to their shareholders. The legislature itself recognises no distinction, and treats both kinds of institutions alike in basing the income tax assessments on the same principles. Lastly, in this connection, Mr. Douglas in making the categorical statement that "market values cannot be ignored by Life Companies," has overlooked the amortisation method of valuing securities in practical use by many Companies. Moreover, the reference to the possibility that Investment Companies *may* ignore market values is not very clear, for no Company can so blandly ignore the facts whatever the accounts may seem to do. It happens that the City Editor of *The Times* made some pertinent observations on this subject the other day in reviewing the accounts of the largest Trust Company, the Mercantile and General. He said: "In the early days of trust companies, it was thought that as a trust company did not require to distribute its capital, the right policy was to ignore capital values, and to aim at obtaining a high income. But experience showed that that was a wrong principle, for it involved the running of high risks. It was found that by looking first to capital values, income could safely be left to look after itself. The history of the Mercantile is a strong testimony to the soundness of that policy."

But the main interest of the Paper is in the discussion of the "short period cycle" in its effect on security values, and in the emphasis laid in this connection on the importance of index numbers. It has been said that "of the making of statistical indices there is no end, and many graphs are weariness to the flesh," but nevertheless the pursuit of anything like an active investment policy is impossible without their aid. Unfortunately it is true, as Mr. Douglas says, that the three principal existing published indices are defective in one way or another. The monthly index published by the London & Cambridge Economic Service is the most inadequate of all, for it comprises only 20 securities. The *Investor's Chronicle* index, although much more comprehensive, is open to the objection (a) that it is unweighted, and (b) that it relates to prices at one point of time only, namely the end of each month. An unweighted index implies that movements in the price, for instance, of Courtaulds are given only the same amount of importance as those of the shares of the newest



and smallest artificial silk concern. The other available index, published by the *Banker's Magazine*, although it is weighted, again takes prices only on one day in each month, the middle in this case, and the selection of securities has not been revised for many years.

These are some of the criteria which I personally apply in considering an index number, and, although I gather that Mr. Douglas puts forward the results of his own very careful researches more as an example of what is required than as the finished article, his index falls a great deal short of the ideal to which he himself refers. The deliberate restriction of the number of securities included makes it insufficiently comprehensive, and it offends against both the principles I have ventured to lay down in that it is (a) unweighted, and (b) the result not of average prices but of prices taken on one day only.

It seems to me that the ideal index should—

- (a) be analysed into different industries ;
- (b) include a sufficient number of securities, the selection to be by a mechanical formula, in each industry to be really comprehensive of that industry ;
- (c) be weighted according to market capitalisation of each security ;
- (d) be published not less frequently than weekly, and should be based on the *average* prices of the preceding week ;
- (e) make proper allowance for bonus issues.

With the main conclusion of the Paper that "the prices of securities, like "all prices, are related to the general economic cycle" all will agree ; and the statement prompts me to say that real progress in the study of the economic cycle must wait upon the invention of more efficient instruments wherewith to measure its trend. It is true that post-war research has yielded a great number of statistical pointers more or less unrelated and published at irregular intervals. Commodity prices, security values, production of industry, exports and imports, all these and many others are ingredients. If and when all these are scientifically mixed so as to form a measure of our economic progress, then we shall have a true index number of the ordinary shares of United Kingdom Ltd.

In conclusion, I should like to associate myself whole-heartedly with Mr. Douglas in his conclusion that "investment policy is a much larger "question than the mere extension into ordinary industrials."

Ordinary shares have been indisputably proved to have been more profitable investments than fixed interest securities in the past. But it by no means follows that such will always be the case. The very fact that Life Offices and other corporate investors have in late years so largely extended their interests in this field has operated to push up prices, with the result that the disparity of yield in favour of ordinary shares is now very much lessened. It is not without significance, for instance, that the yield as shown in Chart F on Trust Company Deferred Stocks is now for the first time less than that of the corresponding Debentures.

**Dr. Mary Rankin** (a visitor).—It is with some hesitation that I venture to take part in this Discussion, as I have very little knowledge of investment as a practical policy, but perhaps I may be permitted to say something with regard to the more general assumptions on which Mr. Douglas's Paper is based.

Mr. Douglas's proposal is, I take it, an extension of the theory of stabilisation into the sphere of insurance investment policy. Now with all these efforts at stabilisation, monetary and otherwise, what, I wonder, is

going to happen to the trade cycle. Obviously if every one is going to attempt to stabilise in their own particular sphere, the trade cycle is not going to remain as it has hitherto been or is assumed to be in this Paper. It may well be, as has been somewhere suggested, that the result will be, not the removal of the cycle, but its inversion. Be that as it may, my point is that if widespread stabilisation is going to be attempted, the past or present trend of the trade cycle is an insufficient guide for future investment policy.

The second assumption which it may be useful to explore is that on page 175, namely, that this more mobile policy is called for on account of changes in financial structure and conditions. What in particular are these changes, and do they necessarily call for greater mobility? Do they refer to the increasing tendency for industries to provide their own future capital, through the placing of profits to capital reserves and also to the much advocated policy of rationalisation? If so, and if we may regard these as more or less permanent factors in industry and in the capital market of the future, it may be useful to consider the effect on the different types of shares for investment purposes. Considered generally, the probable effect may be, may it not, to eliminate such differences as at present exist between the ordinary share and the debenture and preference, and this in two ways. First, the placing of profits to reserves eliminates both the risk element and the payment for risk from the ordinary share, thus making its security more or less the same as the other two types. Secondly, the reserves method together with rationalisation will steady not only the supply of new capital but the demand for it, giving therefore greater stability to interest rates and to the capital value of the fixed interest bearing security. So far as this analysis is sound, the scope for a mobile policy is rather between particular industries than between types of shares.

The further assumption which may be questioned is that of the long period trend and the short period trend. It is admittedly true that, other things remaining the same, certain influences may be regarded as more general and therefore more permanent in nature than others, but the period of permanency of any influence is very questionable indeed. It depends very much on no change taking place among "the other things" or changes which do take place cancelling each other. Should the trend be conceived in terms of the nature of the influence or the period over which the trend takes a given direction? For example, it is assumed that the rise in interest rates which took place after 1897 represents a long period trend, but it may equally well be regarded as due to a succession of short period influences—credit expansion and mismanagement in Germany and America which had a preponderating effect on monetary rates generally from 1897 to 1914. Similarly, what has happened during and since the war can hardly be explained in terms of period trend. It is to be explained in terms of disturbed or abnormal conditions. At any rate, the length of the trend depends on the nature of the factors at work, and no factor can be concerned as having any assured degree of permanence.

**Mr. F. J. Cameron.**—The whole question of investment policy is a large and difficult one. It is very desirable that one should examine the statistical groundwork and consider every available source of accurate information, although at the same time it is essential to consider every individual investment on its own merits.

Within comparatively recent years a few Offices have seriously tackled the question of ordinary stocks with, I believe, very happy results. This indeed is confirmed by the author's figures relating to his group of 20

representative ordinary shares. As the author has pointed out, the conditions of many industrial companies have changed very considerably in the past few years, owing to combination and more scientific methods of working, with the result that they are much safer concerns than those of some 20 or 30 years ago. It does not follow, however, that industrial ordinaries will continue to rise in the same steady way that they have risen during the last ten years or so. There is a danger that some of them are now overvalued from an intrinsic point of view. It is, of course, one of the objects of the author's researches to find out at what point of time a group of stocks is likely to be overvalued, and in that connection I agree with the author as to the necessity of having a well-qualified staff in the Office to examine the various tendencies. The scrutiny should take place not only at the outset of each investment, but all through its career. We know that in the old days an investment once purchased remained untouched in the ledger of the Office. Scrutiny is essential throughout. If those concerned with the investments of an Office consider that any particular stock or share is overvalued, they should have no hesitation in disposing of it—to be acquired by others who possess either less knowledge or greater optimism!

I quite agree with the author that the whole problem of investment policy is much more than the mere question as to whether or not it is advisable to invest in ordinary shares. There is, for instance, the question of building up an adequate reserve, especially when one enters a new field of investment where there are greater risks as well as greater profits.

**Mr. J. Dunlop.**—Mr. President, what interested me most in reading Mr. Douglas's Paper was the fact that in analysing the various investment policies he never mentions a policy specifically aiming at capital appreciation. He informs us that capital appreciation will occur when certain events happen, but he makes no mention of a policy aiming principally at capital appreciation. Now, in the case of Insurance Companies it is generally accepted that capital security is the most important factor to consider. Surely a policy aiming at steady capital appreciation should *prima facie* be that which is most likely to give capital security.

I should like to draw a distinction when I talk of capital appreciation: it may occur in either of two ways, firstly, by a dropping of interest rates, or, secondly, by reason of efficiency, progress or normal economical growth, and I think this second aspect has been overlooked to-night. While the former suggests lower income, there is no such suggestion in the latter case: on the contrary, the income is increased, and that fact, I think, requires to be pointed out. An investigation of the type that Mr. Douglas has made seems to me to afford an admirable chance of illustrating the appreciation which follows from economic growth.

Looking at the figures tabulated by Mr. Douglas, it seems to me clear that the only justification for a Life Office holding only fixed interest bearing stocks is the static investment policy. Both Mr. Thomson and Mr. Murray have said that the static policy is a thing of the past, and if that is so I cannot see why any one who is investing in Stock Exchange securities, primarily looking for capital security, should confine his attention either to the fixed interest group alone or to the ordinary stock group alone. This mixing of the two groups, the fixed interest and the variable interest group, and thereby overriding the risks due to changes in interest rates, seems to me an admirable justification of Trust Companies. Professor Ogilvie mentioned the fact that the Mercantile and General Investment Company published a list of their securities showing that they had 20 per cent. of their funds in ordinaries and 80 per cent. in prior

stocks. I might say that it is not entirely representative of Trust Companies. Only a small proportion of Companies publish the ratio of their funds in equity stocks, but I know that this low percentage is not universal, and I have no doubt there are some Companies with 80 per cent. ordinary and 20 per cent. prior stocks.

I would not go so far as Mr. Recknell, who said there was fundamentally no difference between Trust Company investment policy and Insurance Company investment policy. There is this one great difference, that policy-holders have a terminable contract, and at its termination they get a definite sum in cash which is arrived at without taking into account unrealised profits, but in a Trust Company the shareholder sells his holding at the market valuation, which may be assumed to take into account, at least to a certain extent, unrealised profits and future possibilities. Now, when you are investing in ordinary stocks future possibilities are a very material factor, and the policy-holder on the expiry of his policy will get no value for this. I think that is a distinction that must be borne in mind, but subject to that remark I do think Trust Company methods, applied even more cautiously, are most suitable for Insurance Companies. By mixing your fixed interest securities with the variable interest securities, you should get rid, to a certain extent, of capital fluctuations due to variations in interest rates, subject to the qualification which Mr. King made.

There are two small points I would like to refer to. Like Mr. Recknell, I wish to take exception to Mr. Douglas's statement at the bottom of page 177 where he says, "In addition we have the important fact that market values cannot be ignored by the Life Companies but may be by 'Investment Companies.'" Mr. Recknell queried the first part of that statement and I should like to query the second part. I do not see myself any real distinction between a Trust Company in which the market value of investments falls below cost and a Life Company in a similar predicament. In the Trust Company the depreciation must also be pointed out in the balance-sheet in the ordinary way; if not, it is recognised in law that it is the auditor's duty to do so.

The second point I should like to refer to is this: Mr. Douglas refers in several places to Robinson's *Investment Trust Organisation and Management*. That book was written in regard to American Trust Companies, and I should like to point out that the objective in American Trust Companies is generally very different from that of British Trust Companies, and what is true of the one is not necessarily true of the other. In particular we must remember that in America, unlike here, Trust Companies pay income tax on capital profits. For instance, on page 177 Mr. Douglas quotes three criteria governing the purchasing policy of an Investment Trust Company, and included in the third criterion are the words, "giving good current yield." It is considered by many British Trust Companies that that is not always one of the essential criteria: it is recognised that so long as capital appreciation is secured—that is, the appreciation brought about by progress or efficiency—revenue will look after itself.

**The President.**—I shall not attempt to sum up the Discussion, nor indeed to add anything to it at this time of the evening, but we have had a most valuable and interesting Paper from Mr. Douglas and a very useful Discussion, and I think most of the important points arising out of the subject have been dealt with. I think possibly a little too much time has been spent in dealing with what is the popular question just now, namely whether investments should be made in ordinary or in fixed

interest stocks, because Mr. Douglas has taken pains in his Paper to show that his main object is—at least as I understand it—the question of how to set about creating a satisfactory groundwork for dealing with investment policies. Now, groundwork is almost entirely a matter of statistics, of facts historical and present-time facts, and he does not differentiate and is not directly concerned in this subject in coming to any decision as to the respective merits of varying or fixed interest investments. No doubt his groundwork is intended to be the basis upon which he and others will come to a decision as to whether at certain times and under certain circumstances one or other of these are more desirable as investments, but although Mr. Douglas has done a great deal, particularly in pointing to the importance of groundwork, in drawing our attention to this very important part of the matter, I am sure he will be the first to recognise that there is a great deal more to be done. I am sure we all hope that Mr. Douglas will be able to do a good deal more work in the same direction. I also think—though I would be very careful to avoid committing the Faculty to any kind of undertaking—that Mr. Murray's suggestion that something might be done in the way of carrying on the work in a fuller and more thorough manner than can possibly be done by any one man, and the suggestion that a committee of the Faculty might take it up is certainly worthy of consideration, as it is work which seems to me to come quite definitely within the scope of the Faculty. I therefore hope that this will only be the beginning not only of a good deal of work to be done by the Faculty on these lines, but that it may also lead to systematic research in investment matters which will be of great value.

**Mr. Douglas** replied as follows :—I thank you very much for the many kind references made to the Paper itself, and would say that I feel privileged in having provided the initial impetus to such an interesting Discussion. I was very sorry that Mr. King was not present in person to lead off the Discussion, but very pleased that he had left his notes with the Secretary. Mr. Murray has also contributed much to think about, and I welcome his suggestion that a little corporate work might be done by the Faculty on this subject. I think we are very fortunate indeed in having Professor Ogilvie as one of our guests, but so many points have been raised that I should like to claim the usual privilege of replying in detail later. There are just one or two points I might refer to now. Mr. Thomson spoke about the long trend, and invited an opinion as to why it changed in 1897. I think it is generally understood to be a gold factor, as Mr. Thomson himself suggests, and Joseph Kitchin makes a point of this in his *Trades Cycles Chart*. The foundation of this chart is a curve showing the monetary supply of gold, and all other curves are related in different ways to this base. That, of course, only applies up to 1914—the gold factor has a changing significance since then. Dr. Rankin raised a point on the question of short cycles. She was very much afraid, I think, that if everybody went after stability the short cycle might disappear or even be inverted, but from our point of view we are not out for stability of the economic cycle : what we are aiming at is stability of our capital, and to achieve that we propose to move in some respects with the economic cycle. I think the effect of carrying out investment policy on considerations of the short cycle would be rather to intensify that cycle than to remove it. I appreciate very much Mr. Cameron's remarks. I don't know if he thought I was in danger of neglecting the importance of selecting individual investments. I have placed the subject of my own Paper, which I call the groundwork, in the front place, but front in order only and by no means front in importance. I well realise that the question of purchase

is paramount, that the success of any investment policy will depend above all things on the sagacity and judgment of the selector in choosing his investments. That such work can only be done by men of large experience, as well as long experience, is admitted by every one, and that has all been assumed by myself. Just to emphasise my own general attitude to the subject of my Paper, I might draw a simile in Overseas trading. For that we require two things, a cargo of first quality and a sound ship to carry it. In fair weather we can steer a straight course and the success of our venture will depend entirely on the selection of our cargo, but if we meet foul weather it would be terrible indeed if we lacked knowledge of the laws of navigation. Certain conditions would demand a change in course, and if we then attempted to keep a straight course we would run the risk of our cargo being unshipped, and the point is that a mid-Atlantic storm does not distinguish between the quality of cargo—good or bad, both go overboard. That is why a knowledge of navigation laws comes before the selection of cargo, and that is why I refer to the subject of my paper as the groundwork of investment policy, because I think it comes first.

The following communication was received later from **Mr. G. G. Blackwood**:—I read Mr. Douglas's Paper and listened to the Discussion with great interest, and it was only pressure of time that prevented me from joining in the Discussion. There is one point which I would like to bring under notice, because I think that it has been overlooked, and that is the change that has taken place in the policy of directors of Investment Trusts generally. I refer to the present strong tendency to switch interest profit whenever possible into capital appreciation. The object of this is, of course, to avoid income tax, and to safeguard their position the majority of such Companies now have a clause in their articles of association to the effect that profits arising from the sale of investments shall not be available for dividend purposes. When the rate of income tax rose, the benefits of such a clause were not at first quite appreciated, but when they were realised they were taken full advantage of, with the result that the possibility of capital appreciation of a prospective purchase has during comparatively recent years weighed more heavily than formerly in the minds of directors. If we take, for instance, the case of cumulative preference shares in arrear with several dividends, we can at once see that when income tax became a very serious question any such shares which had a prospect of paying off arrears at a not too distant date would be more attractive to a Trust Company than they would have been some years previously when current interest yield seemed almost of paramount importance. Such shares have been largely purchased by Trust Companies having sufficient reserves to enable them, up to a point, to ignore interest yield. When it becomes apparent to the stock market that one of these shares has got on to its feet again the value is bound to rise, and a Trust Company may find it to its interest to sell its holdings before any arrears of dividend have been paid off. It will probably show a very substantial profit, a large portion of which is really interest yield, but which on account of the exigencies of income tax law is treated as capital appreciation, does not go through the revenue account and is not available for dividends.

When reserves have accumulated it is, as everybody knows, the common practice of Trust Companies to make new issues of stock or shares to deferred stockholders on favourable terms, and the "Rights" find a ready sale on the market. One well-known Edinburgh Company has made a bonus issue annually for the past seven years, and an investor who holds stock in a number of Trust Companies can, under present conditions, be

tolerably sure of substantially increasing his income (tax free) from the sale of such "Rights." I see from Mr. Douglas's remark on page 187 that allowance has been made in his Chart B for such Bonus issues, but I am not clear whether they have been similarly taken into account in Charts E and F, compiled from Mr. Kitchin's data. Even if they have been given weight there, I do not think that it is likely that these two charts form a sound foundation for theories regarding the price and yield movements of the deferred stocks in relation to other securities. The whole position is too artificial. It is quite impossible for anybody not having access to a Trust Company's books to say how much of the apparent capital appreciation is really referable to interest, but still it would seem that the investing public are very quick at weighing up the merits of a Trust Company. A friend of my own who is intimately connected with the management of some four or five well-known Trust Companies recently remarked that he was sometimes astonished to see how soon and how closely the market value of stocks approximates to the break-up value of a Company's holdings. Whether this result is arrived at by means of discounting future increased revenue or through the real position becoming known to a few, I cannot say, but I am quite satisfied that very few buyers of deferred stock in Trust Companies consider only the yield from dividends, but look to a further and possibly larger yield from bonus issues and capital appreciation which may or may not be converted into hard cash.

After having considered the Discussion, **Mr. Douglas** wrote as follows in amplification of his reply :—I have considered the criticisms directed against my remarks on the functions of an Investment Trust Company as against those of a Life Assurance Company. On the whole I may have exaggerated the difference in my short note, and if I were rewriting page 177 I would modify my statements. At the same time I would not agree that their functions are the same, and for that reason I consider that a similar investment policy is impracticable without interfering with the respective equities. On the question of taxation basis I would agree that the principles applied to the two classes of Company are similar, but even the principles are not identical. I certainly cannot endorse Mr. Dunlop's statement that a policy of capital appreciation gives the greatest capital security, although this statement is modified to some extent by his later remarks.

Another point for which I am grateful for correction is my ignoring the "relativity" of  $\frac{1}{2}$  per cent. when speaking of the narrow fluctuation in the yield on Consols.

A good deal has been said on the question of the "ideal" index number. To introduce weighting we at once have the difficulty of finding weights. Normally the weighting of any price index should be the quantity or volume of turnover. In this country such data is unfortunately non-existent as regards Stock Exchange securities, and the only alternative factor available would seem to be the amount of capital in each case. This seems to me of very doubtful applicability. The volume of business at any one time is much more a question of industries and class than the amount of stock, and it is well known, for example, that the stocks of Investment Trust Companies form a very small market in comparison to the amount of capital represented by such stocks. The result of employing the amount of capital as a weighting factor may at the best be taken to represent the price in relation to the total value of all stocks included in the numeration. This would, of course, have no relation to the amounts held by an Insurance Company, which might well be equal amounts of each

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stock. The amount of a security held by an Insurance Company would rarely have any direct relation to the amount issued. I think, on the whole, for our purposes the ideal index would be one for each homogeneous group of securities, but unweighted; in the industrial groups, where great differences are to be found, greater homogeneity might be obtained by selecting only those stocks with a capitalisation in excess of a defined minimum. These individual indices could then be applied to a Model Office and weighted in accordance with the amount held in each group. If a consolidated index should be required for any purpose, then the question of weighting will, of course, arise, and probably capitalisation would be the most practicable basis at the present time in the absence of a more valid function. As regards the simple index, such as I have used myself, a possible weakness exists in my having taken the arithmetic mean rather than the geometric mean, the result being that everything is related to the fixed point of December 1923, and the relationship between that point and any later point does not hold in the reverse. Similarly we cannot relate two intermediate points in order to find the movement experienced on a purchase made, say, in 1925. All this would have been possible had the geometric mean been employed, although of course the arithmetic mean has its own function of utility.

Mention has been made with regard to the improved position of ordinary shares; with this I am in complete agreement. I certainly think that the very substantial increase in the recent movement of these shares is only partly a reflection of the economic cycle, and that we shall find in due course that the *normal* level of such shares, or the *normal* ascent, has been subject to a substantial lift from that formerly in vogue.

With regard to the conflicting evidence of American and French investigations, the reason I have given equal consideration to the work of French statisticians is that in the past our business cycle has been more nearly related to the French cycle than to the American cycle. On the other hand, the conditions of our Stock Exchange correspond more nearly to Wall Street than to the Paris Bourse, and in France there have been greater restrictions on the free movement of interest rates, although since the 1918 Act complete freedom has probably been achieved. In any event, until we can obtain some results of our own, it will be as well to consider the work of both these countries, always of course in relation to the respective business cycles.

I have, as suggested by Mr. Thomson, inserted more detailed references in the footnotes, but would point out that these references are in no way to be regarded as a bibliography. Many are of minor importance, while on the other hand much more important works have not been referred to, such as Mitchell's *Business Cycles*, of which the first volume was published in 1927.