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BUSINESS ANNALS

INTRODUCTION

BUSINESS CYCLES AS REVEALED BY BUSINESS ANNALS.

BY WESLEY C. MITCHELL.[1]

I. The Uses of Business Annals.

For our work upon business cycles in the National Bureau of Economic Research we have made two collections of materials, which we think others will find useful.

One is a collection of statistics. We are assembling in a single source-book the widely scattered records of economic and social activities in Great Britain, France, Germany, the United States, and, to a limited extent, in other countries. We are going back to the earliest compilations of continuous series and coming down to the current year, making critical notes upon the character of the data, piecing together fragments, and presenting the figures by months or quarters whenever possible. When this collection is ready for use, we hope that we shall be enabled to publish it in two or more volumes.

The second collection, consisting of what we call "business annals", is presented in this book. Though less bulky than the statistics, these annals cover a wider area and a longer period. For the statistical record shrinks rapidly as we go back 25, 50, and 100 years; few indeed are the series extending to the earliest decades covered by our British and American annals. Another difference is that the annals sketch a general situation of which the statistics show certain parts in

[1] The writer has received much help from his colleagues in the National Bureau of Economic Research, especially Frederick C. Mills and Willard L. Thorp.

detail. Thus the two collections supplement each other:—one presents the most precise records kept of specific economic or social processes, the other traces the fluctuations in economic and social fortunes at large. Together they sum up much of the experience which may be made to light the path into the future.

The value of statistics for practical and theoretical uses is now widely recognized, and so too are the difficulties, dangers and limitations attending their use. Business annals are a less familiar form of record, and require an introduction showing how they are made, how far they may be trusted, and what they add to our knowledge.

One merit of the annals, simplicity, is obvious at first glance. They tell a story, tell it in the most straightforward way, and tell it without the use of symbols or strange terms. Men who lack the time, patience, or technical training to wring the meaning from statistical tables can use this record with ease.

The story which the annals tell concerns the vicissitudes of economic fortune through which 17 countries have passed in periods which range from 36 to 136 years. In the fewest possible words they trace the fluctuations in manufacturing, construction work, employment, domestic and foreign trade, prices, speculation, financial operations, and agriculture, so far as the facts can be gathered from available sources. Thus the annals cover the grand divisions of economic activity. They also note the most important events of a non-economic sort which presumably influence economic activity—the making of war and peace, diplomatic strains, domestic disorders, changes of political administration and economic policy, droughts, floods, earthquakes, epidemics among men or cattle, and the like.

Everyone who reads this story year after year for nation after nation will see running through all the episodes one of the problems of modern civilization. In no country covered by the annals—not in the most rapidly growing communities developing rich new lands, and not in the most conservative of old communities—does a period of economic prosperity ever last more than five or six years at a stretch. Each country has its seasons of prosperity, but these seasons always end in seasons of depression. In their turn, the periods of depression yield to new periods of prosperity. Economic experience is made up of such alternations of good and ill fortune and the transitions from one to the other. The alternations are more marked or more frequent in some countries than in others; but they occur everywhere. No country has yet learned to control them.

Upon the vexed question how these fluctuations come about, the annals throw no direct light. That problem is reserved for another volume, in which the National Bureau hopes to make what contributions it can toward a solution. But the annals establish certain facts about business fluctuations over a wider area and for a longer time than any other records. They show not only when periods of depression have begun in numerous countries, but also how long they have lasted, whether they have been severe or slight, confined to one country or spread over many. They show when revivals of activity have occurred and how these revivals have fared; they help us to find out how far the different branches of a country's business—particularly industry and trade, finance, and farming—have had common or diverse fortunes; they bring out the relations between the vicissitudes of business and the vicissitudes of politics and of natural processes.

While these annals were compiled primarily to throw light upon business cycles, they will prove useful for many other ends. Historians, political scientists, sociologists, and publicists frequently need to know the condition of business in certain times and countries. Statisticians dealing with time series will find that the annals provide an illuminating background for their special problems. Journalists who have to comment upon current developments, business men whose plans stretch into the future, indeed everyone who would control his expectations by experience, may profit by this condensed record of what has happened in the recent past. Those who are concerned with the spread of factory production and business enterprise over the world can see how far the economic fluctuations in Russia, Brazil, Argentina, South Africa, British India, Japan and China are being assimilated to the economic fluctuations in Western Europe and North America. The annals show us also how the great commercial nations share in each other's prosperity and suffer from each other's reverses—a matter which merits far more attention than it commonly receives in discussions of national policy.

II. The Scope of the Annals.

A few earlier efforts have been made to provide a record of the sort here set forth; but most of them have been restricted in scope and buried in technical books, journals or official documents.[1] Fuller accounts of business conditions in various countries, for various periods, have been included in many of the books dealing with the history or the theory of crises and depressions. But the reader who wished a wide view has had to do much hunting and piece together such scraps as he could collect. There have been gaps he could not fill. Nor has he been safe in trusting all that he found. Errors committed in certain early investigations have been taken over by writers upon the theory of business cycles, and supplemented by fresh errors due to the forcing of a stereotyped pattern upon variable facts. Those who have taken the precaution to consult two authorities have frequently ended in doubt; for the chronologies of business crises and depressions are seldom precisely alike.[2] To settle such doubts by appeal to the sources has been a laborious undertaking, for which few have had the time.

How much labor is required to compile a record which merits confidence can be inferred from the lists of official documents, reports, periodicals, pamphlets and books cited by Dr. Thorp and his assistants

[1] The use of condensed annals has been much commoner in political history than in economics. Quasi-annals are often found paralleling statistical tables, as in the "Annual Review" in the December number of the *Investor's Monthly Manual,* 1865 to date, London, and in Pixley and Abell's *Silver Circular,* London.

Annals for England for the period 1816-1841 were compiled by Thomas Michael Sadler, and reported in his biography by Robert M. Seeley, published in 1842. Annals covering the period 1821-1830 are given by William Smart in his most helpful *Economic Annals of the Nineteenth Century,* London, 1917, vol. ii, p. 571. The most extensive British annals are found in the *Final Report of the Royal Commission on Poor Law and Relief of Distress, 1909-1910* (Great Britain, Parliamentary Papers, 1909, vol. xxxvii, part vi, section 144, footnote). These annals cover the years from 1815 to 1907. Unfortunately, no source or authority is given, and a cloud is cast upon their reliability by several glaring inaccuracies, such as the placing of "Baring's crash" in 1894 instead of 1890.

For the United States, the longest table of annals is the table covering 1781 to 1922 in Otto C. Lightner's *History of Business Depressions,* New York, 1922, p. 123. These annals are phrased in meteorological terms, such as "stormy," "fair," "tornado." A brief but early series of annals, covering the years 1821 to 1832, is presented by the fiery William M. Gouge in his *Short History of Paper Money and Banking in the United States,* 4th ed., New York, 1840. Annals covering 1856 to 1893 appear in a broadside published by the *Financial Graphic.* More detailed annals for 1860 to 1922 are included in *Business Barometers* by Roger Babson, 16th ed., Wellesley Hills (Mass.), 1923.

At least two attempts have been made to compile comparable annals for several countries. The business annals of the United States, England, Germany and France, 1889-1911, are included in Wesley C. Mitchell's *Business Cycles,* Berkeley (Calif.), 1913, p. 88. The annals for the same four countries for 1867-1880 are presented by Warren M. Persons, P. M. Tuttle, and Edwin Frickey in the *Review of Economic Statistics,* preliminary volume ii, supplement, July, 1920.—Note by Willard L. Thorp.

[2] For example, the years of American depression listed by Mr. George H. Hull (*Industrial Depressions,* New York, 1911, pp. 50, 51) do not tally with the periods discussed by Mr. Otto C. Lightner in his *History of Business Depressions,* New York, 1922.

as sources which they have used in dealing with the 17 countries covered.[1] Were all the publications which have been searched for information entered, the lists would be much longer. The work involves not merely much ransacking of sources likely and unlikely, but also careful weighing of the evidence. Pamphlets on questions of the day are valuable, particularly for our early years; but they often betray bias in the reporting of certain conditions. When the compiler finds differences in the views of contemporary observers, he may not be able to accept either view, or he may accept both; for sometimes the observers have different industries or different parts of a country in mind.

The American annals have been carried back to 1790, the first year after the adoption of the Constitution. To make possible international comparisons from the beginning of the American record, British annals have been compiled for the same period of 136 years. The lack of reliable sources, and, in Germany, lack of economic unity make it difficult to go back of 1840 in France, 1853 in Germany, and 1867 in Austria. The annals for these three countries are based upon drafts revised by foreign scholars, for whose generous coöperation the National Bureau expresses its hearty thanks—Professor Albert Aftalion of Paris, Dr. Robert R. Kuczynski of Berlin, and Dr. F. A. von Hayek of Vienna. To show the geographical spread of business fluctuations in recent times, it seemed desirable to add several other countries to the five included in the long-range studies. With 1890 as the starting point, Italy, the Netherlands, Sweden and Russia were chosen to represent diversified conditions in Europe. Dr. Robert F. Foerster has inspected the Italian annals, while the Russian annals were submitted to Professor N. D. Kondratieff, Director of the Conjuncture Institute of Moscow, and his colleagues Messrs. A. L. Vainstein and M. B. Ignatieff. Next, three large English-speaking colonies on three continents were included—Canada, Australia and South Africa. For expert help upon the records of the last mentioned country we are indebted to Dr. E. H. D. Arndt of Transvaal University College. To represent South America, Argentina and Brazil seemed fittest. Finally, the greatest of the Oriental civilizations were included—British India, Japan, and China.

[1] See the bibliography, Chapter xix, below.

III. The Trustworthiness of the Annals.

Despite the care exercised by the National Bureau's staff and the generous coöperation of foreign scholars, the compilers dare not believe the annals to be free from error. Indeed one who is fresh from the puzzling task of weighing many pieces of testimony, each tinted by its sponsor's personal equation, is likely to feel more uncertainty about his conclusions than does the reader. The compiler develops a standard of judgment more exacting than one who has not spent months upon such work. Results of the sort here put down in crisp phrases are as much subject to a margin of error as are statistical summaries. The analogy goes further. While no one acquainted with census enumerations (to take a familiar example) believes that we have a strictly accurate record of the growth of population in the United States since 1790, no competent critic doubts that the official figures give most valuable approximations to the unknown truth. These approximations are believed to be closer in some census years than others—the enumeration of 1870 for example seems to have been seriously defective in the Southern States. Further, the later results are certainly fuller than the earlier ones, and probably contain a lower percentage of error. So here. There are doubtless some errors in our results; these errors are doubtless more serious in some years than in others; the reliability of the results is less for the early periods than for the later periods in the same countries, and less for countries like China, Russia, or Italy than for countries like Germany, England and the United States. It is more difficult to detect the general drift of affairs in a country like British India with a wide diversity of conditions than in countries like Brazil or South Africa, where business seems to be dominated by a few well recorded factors. But, though keenly conscious of the fallibility of our sources and of our judgments concerning them, we believe that the annals form a valuable approximation to the truth.

Fortunately, there is a way of testing two samples of our results objectively. For varying periods of American and British experience, statisticians have compiled what are called "indexes of general business activity," or "indexes of the volume of trade." If these series deserve their names, the fluctuations which they show in economic activity and the business changes which our annals describe may be expected to run similar courses.

While Dr. Thorp and his assistants have made some use of statistical tables in compiling their annals, and while the writers whose observations constitute their sources have done likewise, it is by no means a foregone conclusion that the annals and the indexes of business activity will agree closely. For the data used in making the indexes cover a much narrower range of economic activities than are represented in the annual business reviews of such sources as consular reports, the London *Economist,* Raffalovich's *Marché Financier,* or the *Financial Review.* Moreover, in so far as consuls, or editors, or our own compilers have used statistics in drawing their conclusions, they have used the data in unadjusted, or but slightly altered form. The statisticians who make business indexes, on the other hand, subject their data to an elaborate series of transformations. They compute and eliminate secular trends; often they eliminate also seasonal variations; in some cases they seek to eliminate the effects of price fluctuations. When they are combining several series, they may reduce the fluctuations of each to units of its standard deviation, and "weight" their average by the use of somewhat dubious data. As a final step they often "smooth" their curves. All these operations are quite different from those which a financial editor performs when he passes through his mind reports from many cities and many industries, and sets down his broad conclusion concerning the course of business as a whole. The statistical operations are more objective and more precise; but they deal with more limited data, and deal with them in a more circumscribed and mechanical fashion.

To all acquainted with the making of the two types of summaries, indeed, it will be clear that a comparison between the annals of business and the statistical indexes of general business activity is quite as much a test of the latter as of the former. The makers of the statistical indexes are usually careful to point out the limitations of their results, and eager to compare them with the results of other investigations. They recognize (1) that the original data are subject to varying margins of error; (2) that the technical methods of eliminating secular trends, seasonal fluctuations, and the effects of price variations are far from perfect; (3) that the residuals left in time series by these eliminations contain not merely the cyclical fluctuations, but also the effects of random factors peculiar to the series used. Even if a statistician had relatively abundant raw materials to work up, he would not claim that his results formed a strictly accurate record of changes in business conditions. In his eyes the best results he can get remain approximations, limited by the errors of the underlying data and the uncertainties of his technical methods.

But the most serious limitation is that the statistician who seeks to cover a considerable period can find but few time series fit for his purpose. The indexes of general business or volume of trade which run back of the great war must be made on one of two plans. Either they must be records of a single type of activity—like Mr. Carl Snyder's "clearings index of business"—or they must be made by averaging the fluctuations of groups of series which themselves change from time to time—like the American Telephone and Telegraph Company's "index of general business conditions," or Professor Warren M. Persons' "index of trade."

Now, no single type of transactions—not even such an inclusive type as the volume of checks cleared in all reporting towns outside of New York—can be taken to represent all the important phases of business activity. The payments made by check in the towns which have no clearing houses, and the payments made in coin and paper money may undergo fluctuations which differ in amplitude and timing from the fluctuations of clearings. That is merely a doubt concerning the faithfulness with which clearings represent changes in total payments. Far more important is the certainty that the volume of payments made by check within a given period undergoes fluctuations materially different from the fluctuations which are taking place in the volume of goods produced, shipped, or consumed, and different from the fluctuations in employment, the disbursing of income, and the purchasing of consumers' goods. Yet the latter processes are quite as much a part of the fluctuations of business as is the former.

The indexes made by averaging the fluctuations of several series represent a wider range of activities. But the activities which can be included are those for which a statistical record happens to have been made for a relatively long period—not the activities which a statistician would choose were he planning an index. Moreover, the changes in the lists of series which are available for successive decades raise grave questions about the comparability of the results for the earlier and the later years covered. Finally, there are puzzling questions about the interpretation of a composite made by averaging the fluctuations of series so different as (say) price indexes, values of goods imported, and tons of pig iron produced.

What we have in our business annals and our indexes of general business conditions, then, are different approaches to the problem of recording the fluctuations of economic activities—approaches each of which has its uncertainties as well as its merits. We cannot expect them to agree perfectly. When they disagree we cannot say that the discrepancy necessarily means error in one or all; it may mean merely that the different activities reflected by the various approaches really did not change in quite the same way. But if we find a general consilience among the results we shall feel increased confidence in the reliability of both approaches, and may regard the occasional discrepancies as presenting genuine problems from the study of which fresh knowledge may be gained.

The charts which follow offer as graphic a comparison as can well be made between our annals and the leading American and British indexes of general trade which cover considerable periods. In the column for each year is entered a brief characterization of business conditions drawn from the annals, and above are plotted the index curves.[1] The curves show cyclical fluctuations above and below the moving base traced by the monthly ordinates of the secular trends of the time series used (corrected when necessary for seasonal variations). Since these ordinates are assigned the value of zero or 100 in the computations, they fall in the chart upon a horizontal line, which may be called the base.

In studying the charts, we must bear in mind that they do not do full justice either to the statistical method of presenting changes in business or to the annals. It is a commonplace that no statistical average represents adequately the array of data from which it is computed. Just so, the catchwords used to summarize the annals do not represent adequately Dr. Thorp's records. Much more than the charts show can be learned by examining the series combined to make the indexes of business conditions, and by reading the fuller form of the annals. In confining our comparison to the most abstract and symbolic summaries of the two sets of materials, we are imposing a severe test of conformity.

[1] For the methods followed in making the two American indexes used in Chart 1, see M. C. Rorty, "The Statistical Control of Business Activities," *Harvard Business Review*, January, 1923, vol. 1, pp. 154-166, and Carl Snyder, "A New Clearings Index of Business for Fifty Years," *Journal of the American Statistical Association*, September, 1924, vol. xix, pp. 329-335.

For the recent items in the two series, we are indebted respectively to Mr. Seymour L. Andrew, Chief Statistician of the American Telephone and Telegraph Company, and to Mr. Snyder of the Federal Reserve Bank of New York.

CHART I. Business Fluctuations in the United States, as shown by the Annals and by Two Statistical Indexes, 1875-1925.

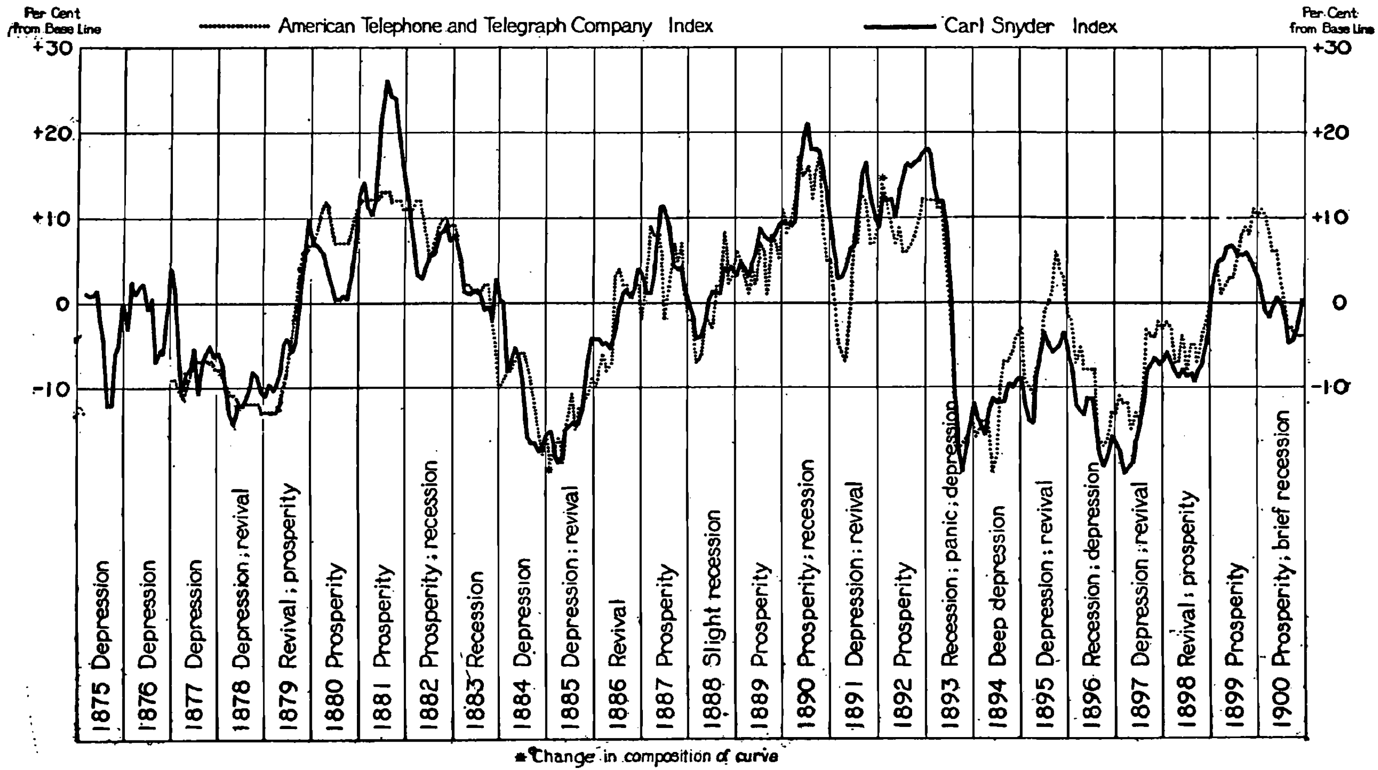
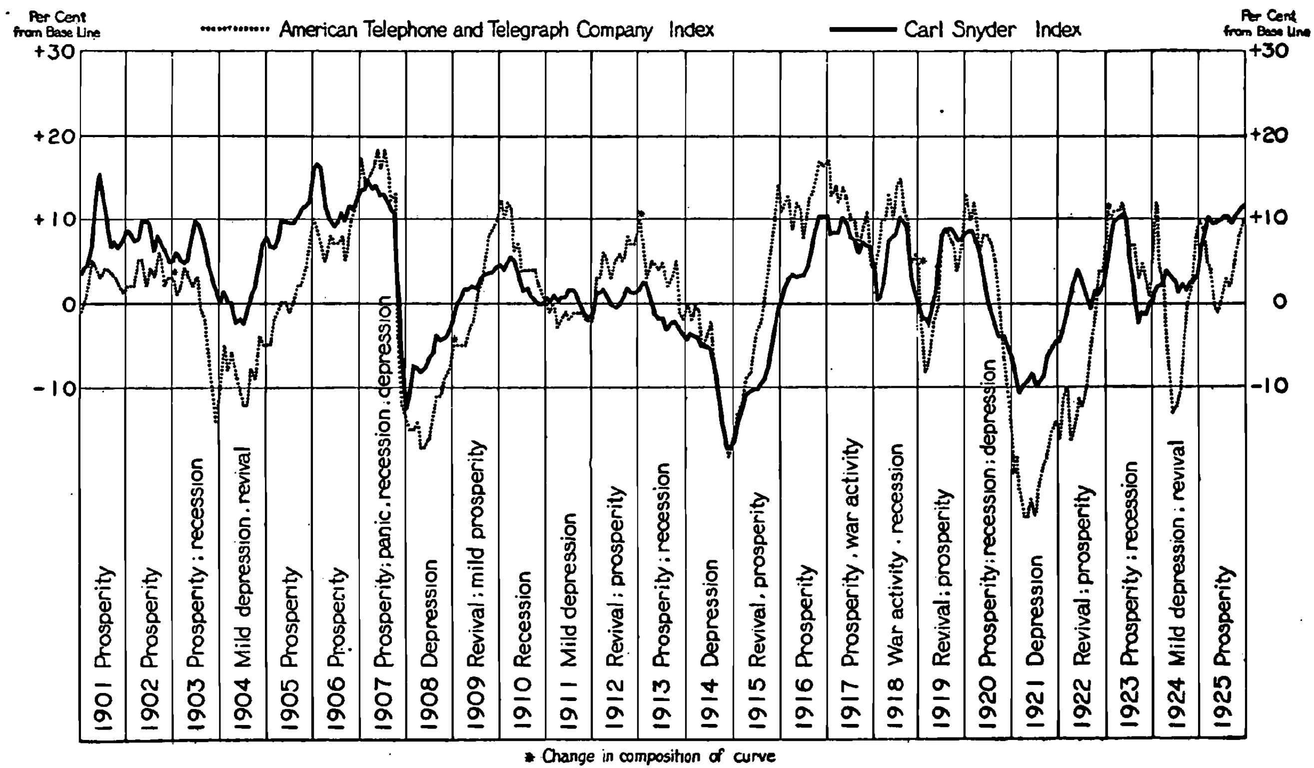


Chart I. Business Fluctuations in the United States, as shown by the Annals and by Two Statistical Indexes, 1875-1925.—*(Continued)*



On the American chart the correspondence between the annals and the two statistical indexes is very close. Indeed, there are no serious discrepancies. To be more specific, the annals show 13 business recessions, mild or severe, between 1875 and 1924. Every one of these recessions is marked in both of the statistical indexes by a decline in the curve. These declines are slight in the recessions which the annals describe as mild, and abrupt in the recessions which the annals (in their fuller form) describe as crises or panics.[1] Further, the two curves give joint evidence of no recessions other than those mentioned by the annals. Similarly with other phases of the successive cycles. When the annals report revivals the curves ascend; when the annals report prosperity the curves fluctuate on levels decidedly higher than in the preceding or following depressions, and when the annals report depressions the curves are relatively low.

The chief difference between the two records is that the annals show but vaguely and irregularly the degrees of prosperity and depression attained in successive cycles, whereas the curves necessarily deviate from the horizontal base by definite distances. Finally, there are indications in the American chart that business commentators are influenced in their use of the terms prosperity and depression by recent experience. From such subjective waverings, the statistical indices are exempt. But this point comes out more clearly in the British chart, and will be discussed in that connection.

For opportunity to compare the British annals with a British index, the National Bureau is indebted to Dr. Dorothy Swaine Thomas, who generously put at our disposal before publication a series showing changes in business conditions from 1855 to 1913 by quarters.[2] This index, like the "A. T. and T." index for the United States, is a composite made from a list of series which reflect various types of economic activity. Since these materials have grown more abundant with the years, Dr. Thomas's index represents British business as a whole more faithfully in the later decades than in the earlier ones. But of course the introduction of a new series with a numerical value different from the average of the other components of the index produces changes which may not correspond with the changes in business conditions.

[1] On the use of these three terms in the annals to suggest the varying character of the transitions from prosperity to depression, see below, pp. 34-37.

[2] See "An Index of British Business Cycles," by Dorothy S. Thomas, *Journal of the American Statistical Association,* March, 1926, vol. xxi, pp. 60-63.

On the whole, the correspondence between the British annals and the British index is close, though not so close as in the American comparison. Dr. Thomas's curve usually rises when the annals report revival, stands high when the annals report prosperity, sinks when the annals report recession, and runs on a low level when the annals report depression. But there are exceptions to the rule which require comment.

(1) Judging from the curve, one would expect the annals to report a recession of British business in 1860-61. These years present an unusually mixed state of affairs. As a result of the American Civil War, the cotton textile industry suffered severely from scarcity of raw material. But reports from other trades do not indicate that there was a general recession of activity. On the contrary, most industries seem to have been very active. In the fuller form of the annals these facts are succinctly stated. For his two-word summary Dr. Thorp could find no phrase which seemed more accurate than "uneven prosperity", a phrase which he uses in all cases when most industries are thriving, but one or more important trades are depressed by special circumstances. The statistics available to Dr. Thomas for the 1860's are data in which the cotton industry counts heavily. Hence her curve drops abruptly.

(2) In 1874-75 the annals report depression while Dr. Thomas's curve, though declining, is still above the base line. In 1881, 1897-98 and 1910-11 the annals report "mild prosperity" or "prosperity", while Dr. Thomas's curve is slightly below or but slightly above the base line. Perhaps these differences between the statistical record and the annals are due in part to defects in the data at Dr. Thomas's disposal, or to the technical difficulties of eliminating secular trends. But it is probable that they indicate one of the characteristic defects of business annals. In judging current business conditions, everyone is influenced by comparisons with recent experience. When business has been notably good for several years, as it had been in England during the early 1870's, and then grows slack, a commentator will say that business is depressed, though the volume of trade still remains large. Similarly, after business has passed through a period of hard times, commentators are likely to hail as prosperity any substantial increase of activity. In short, men's judgments upon business conditions belong among the social phenomena which are influenced by business cycles. As a summary of current opinion about

CHART II. Business Fluctuations in England, as shown by the Annals and Dr. Dorothy S. Thomas' "Quarterly Index of British Cycles," 1855-1914.

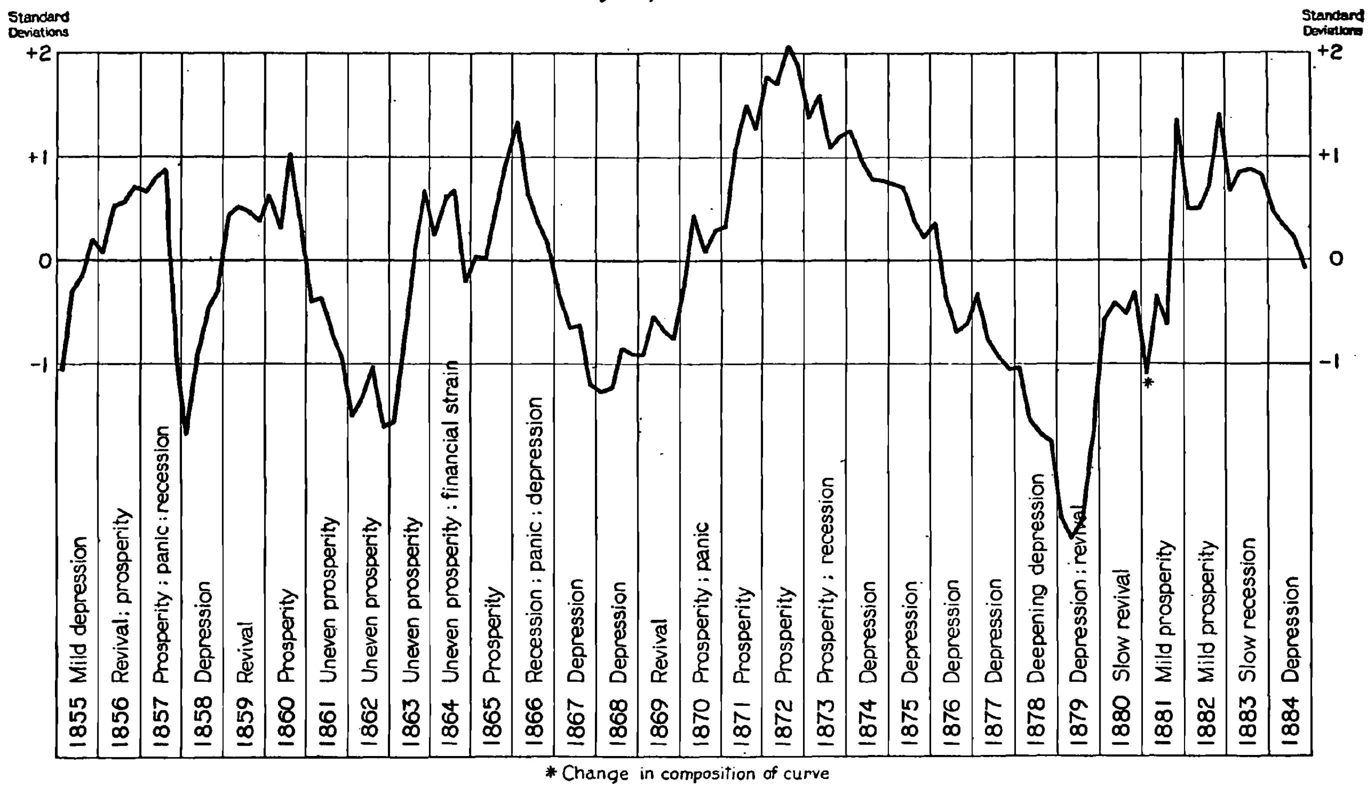
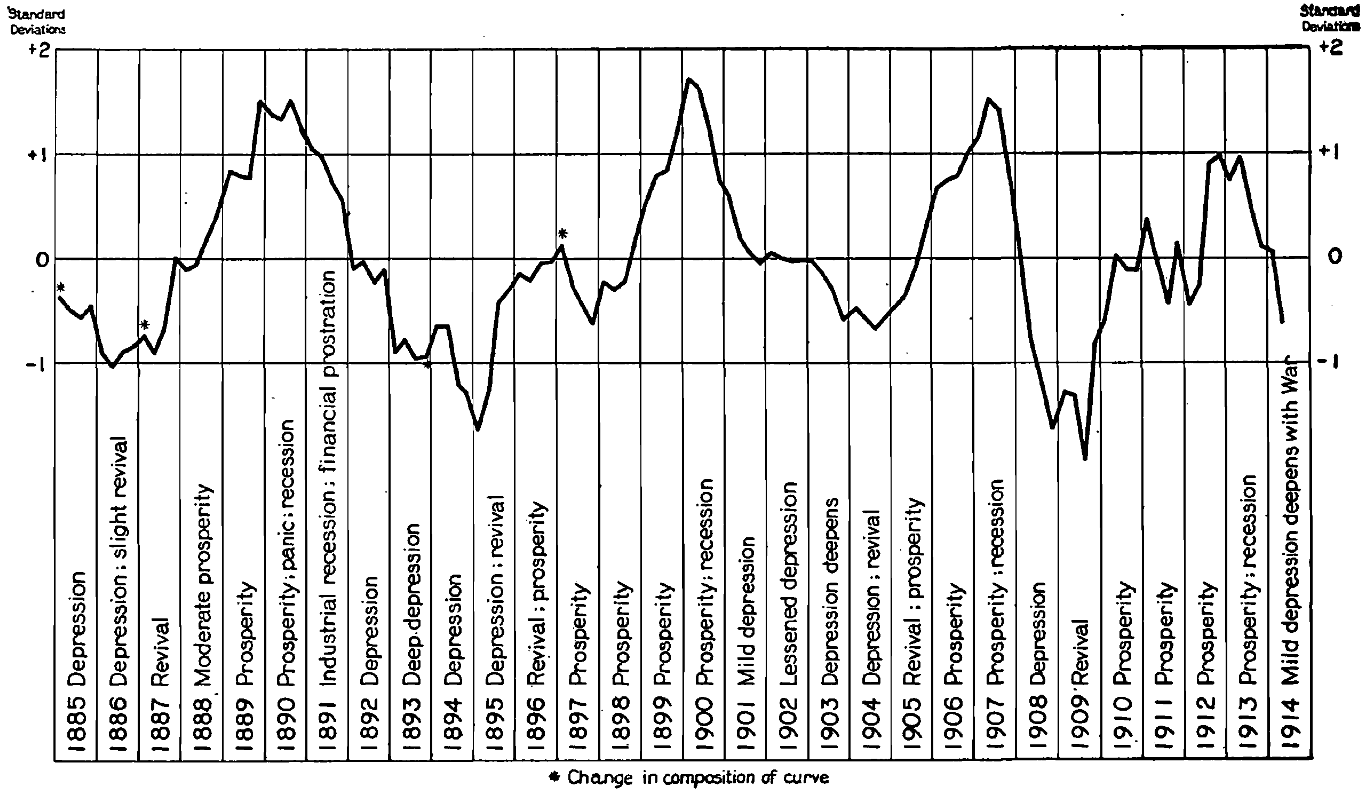


Chart II. Business Fluctuations in England, as shown by the Annals and Dr. Dorothy S. Thomas' "Quarterly Index of British Cycles," 1855-1914.—(*Continued*)



the state of trade, our annals reflect these subjective changes in the use of terms.

The preceding comparisons cover periods and countries in which business reporting is well developed. Presumably the annals for earlier years in the United States and England, and the annals for countries with a less integrated organization, contain a wider margin of error. But usually there is such a consensus of judgment among the sources as to leave little doubt about the general tenor of affairs. In years when differences of opinion appear among contemporary writers, Dr. Thorp has consulted every source available to him and has weighed the evidence with care. He has endeavored also to use the technical terms employed in characterizing different states of business as consistently as possible. Yet the results are subject to emendation, and readers who discover errors of any sort are urged to let the National Bureau of Economic Research benefit by their acumen.

The most satisfactory materials for studying business cycles are statistical data—not mere business indexes, like those shown in the preceding charts, but numerous series of materials, of the sort given in our other collection, showing month by month the fluctuations of many types of economic activity—the production of raw materials, the manufacture of producers' and consumers' goods, transportation by rail and water, supplies on hand, orders booked, sales by wholesale and retail merchants, employment in different trades, the disbursement of money incomes, the prices of all kinds of goods from farm produce to securities, interest rates, bank loans, deposits and reserves, the turnover of money, profits, bankruptcies, new investments and so on. But the periods and the places for which such data can be had in abundance are few. Even in the United States, where the statistical record is perhaps as full as anywhere, data have been collected on some of these heads only since the great war. Few even of the basic series extend back to the 1870's. Hardly a dozen American cycles can be studied by statistical methods with respect to more than three or four of their manifestations. In England the situation is much as it is in America. In other countries the number of cycles for which any but the scantiest data can be found is smaller still.

Narrow limits of time and of space are thus drawn around the quantitative study of business fluctuations. One cannot trace back business cycles to their beginnings in any country of Europe by the aid of figures. Nor can one trace in figures the spread of business cycles to countries which are just beginning to standardize their economic life on the European pattern. For the compilation of abundant statistics of business activities does not begin in any country until the business activities themselves have become highly organized. That comes later than business cycles.

According to the logic of the statistical method, this limitation of the number of cycles for which data have been preserved is most serious. The statistician's art, as practiced in the social sciences, consists in establishing generalizations about variable phenomena by the analysis of an array of cases. When his cases are few, no elaboration of technique can enable the statistician to generalize with security. Business cycles are both highly complex and highly variable phenomena, and statistical inferences concerning them must be taken as tentative until the number of cases available for analysis has grown decidedly larger than at present.

Under these circumstances it is well to learn all that we can from the annals of business. In countries like the United States and England these annals cover at least twice as many cycles as are covered by more than a few statistical series. In countries where statistics are in their infancy, the annals give us some insight into the course of developments. Precision, of course, cannot be had from descriptive accounts; but the annals speak in terms of more and less, they mark off turning points in business trends, they compare in general terms the contemporary fortunes of different countries. Taken, not as a rival, but as a supplement of statistical analysis, an attempt to find the characteristics of business cycles as shown by the longer and wider record of the annals has its value. Indeed, it will appear that there are certain fundamental problems concerning business cycles which can be answered more certainly by studying the annals than by analyzing the statistics now available.

IV. The Cyclical Character of Business Fluctuations.

1. The "Normal State of Trade" a Figment.

The broadest conclusion established by the long and wide experience covered by the annals is that there is no "normal state of trade". The phrase is common both in treatises upon economic theory and in the talk of business men. Yet the historical record shows no reality corresponding to this figment of the imagination.

If "normal" is interpreted to mean usual, prevailing, that which exists in the absence of grave "disturbing causes", the annals show that the only normal condition is a state of change—which is not what the phrase means to those who use it. From England in 1790 to China in 1925, from Sweden to Australia, the tables reveal incessant fluctuations. Frequently the word "prosperity" is used in the annals of some country for several years in succession. But "depression" occurs in series perhaps as often. And in a less condensed summary both of these catchwords would be qualified always, as they often are qualified even in these tables, by adjectives indicating that the prosperity or depression is waxing or waning.

If "normal" means, not that which usually does prevail, but that which we think should prevail, it is equally a figment—though one of a useful kind. There are good reasons for trying to decide what phase of business cycles is most conducive to social welfare; for seeking ways to make that phase last longer and to mitigate departures from it. But when such is the meaning in mind, a less ambiguous word than "normal" should be used.

An additional source of confusion and therefore an additional reason for avoiding the word is supplied by the slipshod practice of business-cycle statisticians, who sometimes write "normal" when they mean "average", and sometimes write "normal" when they mean the course marked by the ordinates of a secular trend.

2. Use of the Term "Cycle".

While the annals show that business is subject to continual fluctuations, they also show that in no country are the alternations of expansion and contraction highly regular. Is it justifiable, then, to speak of these fluctuations as business "cycles"?

That of course is a question regarding the proper use of a technical term. In 1922, President John C. Merriam of the Carnegie Institution called "A Conference on Cycles", in which representatives of several sciences discussed the cyclical phenomena with which they deal. To prevent misunderstandings the conferees needed a definition of cycles applicable alike in meteorology, botany, geology, paleontology, astronomy, geography and economics. Subsequent discussion showed that the definition given by the first speaker, Dr. F. E. Clements, commended itself to the others.

In general scientific use (said Dr. Clements) the word (cycle) denotes a recurrence of different phases of plus and minus departures, which are often susceptible of exact measurement. It has no necessary relation to a definite time interval, though this is frequently a characteristic of astronomical cycles. Apart from the familiar cycles of the day, the lunar month, and the year, the one best known is the sun-spot recurrence, to which the term cycle is almost universally applied. This furnishes convincing evidence that the significance of the term resides in the fact of recurrence rather than in that of the time interval, since the sun-spot cycle has varied in length from 7 to 17 years since 1788, while the minimum-maximum phase has ranged from 3 to 5 years and the maximum-minimum phase from 6 to 8 years since 1833. In consequence, it seems desirable to use cycle as the inclusive term for all recurrences that lend themselves to measurement, and period or periodicity for those with a definite time interval, recognizing, however, that there is no fixed line between the two.[1]

Now our annals show beyond doubt "a recurrence of different phases" in business activity, and these recurrences "lend themselves to measurement". Hence we have ample warrant in the usages of other sciences than economics for applying the term "cycles" to business fluctuations. But the term "periodicity" we should not use with reference to business cycles, or with reference to crises. For the time intervals between crises are far from regular. They vary, as will appear presently, even more than the length of sun-spot cycles.

3. The Phases of Business Cycles.

The different phases which recur in business activity are sometimes treated as only two—depression and prosperity. More often there are said to be three phases which recur in the order prosperity, crisis, depression.[2] But if the transition from prosperity to depression is recognized as a separate phase, it seems logical to give similar recognition to the transition from depression to prosperity. Then we

[1] "Report of a Conference on Cycles," *The Geographical Review,* Special Supplement, October, 1923, vol. xiii, pp. 657, 658.

[2] Compare for example, Dr. E. H. Vögel's description of a cycle, *Die Theorie des volkswirtschaftlichen Entwickelungsprozesses und das Krisenproblem,* Vienna, 1917, pp. 31, 32.

have a four-phase cycle of prosperity, crisis, depression, and revival.[1] Professor Warren M. Persons goes further still. By dividing the transition from prosperity to depression into "financial strain" and "industrial crisis", he gets five phases.[2]

This process of subdivision can be carried further indefinitely as statistics with brief time intervals become more abundant. And as knowledge of the subject grows and its practical applications become more important, there may be call for such refinements. As matters stand, however, four phases satisfy the needs of systematic inquiry. The separation of the phase of "financial strain" from that of "industrial crisis" rests on logical quite as much as upon chronological grounds, and is somewhat confusing in a cycle of recurrence in time. Phases of financial strain occur every now and then at other stages of the cycle than the transition from prosperity to depression, and industrial reactions have occurred when it is difficult to find any trace of preceding financial strain, for example, in the United States in 1923. But we are trenching upon a topic which requires separate treatment.

4. "Crises" and "Recessions".

Concerning only one of the four phases of the cycle here recognized are there doubts regarding its character, or its place in the order of recurrence. Rather curiously, this doubtful phase is the one which earliest attracted attention and which has been most studied.

Two quite distinct conceptions of business crises are current in recent books. Professor Aftalion, for example, defines the crisis as "the point of intersection . . . at which prosperity passes over into depression".[3] Professor Bouniatian, to give a corresponding example of the second usage, applies the term "to an organic disturbance of economic life, bringing upon a large number of enterprisers loss of fortune and income or complete economic ruin".[4]

From this difference of definition there follow differences in the lists of crisis recognized in various books, and hence differences in the

[1] These four phases were recognized and separately described as long ago as 1867 by John Mills, "On Credit Cycles, and the Origin of Commercial Panics," *Transactions of the Manchester Statistical Society*, 1867-68, pp. 5-40.

[2] See Professor Persons' numerous articles in the *Review of Economics Statistics*, and his *Measuring and Forecasting General Business Conditions*, New York, 1920, p. 34.

[3] Albert Aftalion, *Les Crises Périodiques de Surproduction*, Paris, 1913, vol. i, Preface, p. vi.

[4] Mentor Bouniatian, *Les Crises Économiques*, Paris, 1922, p. 31.

average intervals asserted to lie between crises. Professor Lescure, who antedated Aftalion in defining crisis as the point of intersection between prosperity and depression, includes the crisis of 1913 in his historical section. But Bouniatian admits no crisis between 1907 and 1920, and quite consistently; for, as Lescure himself explains, there was no epidemic of bankruptcies in 1913.[1] Tugan-Baranovski goes even further than Bouniatian in stressing the violence of crises, and consequently in shortening his list of crisis dates. A crisis "breaks out like a tempest" in the midst of prosperity, "bringing bankruptcies, unemployment, misery, etc." With this conception in mind, he quite rightly says that England escaped a crisis in 1873, in 1882, in 1890, in 1900 and in 1907—though the "industrial cycle" shows itself in the evolution of English business in these later times "with the same neatness and clarity as before".[2]

Which of these two conceptions of the crisis fits better in a discussion of business cycles is easy to decide. What concerns such a discussion is the recurrence of certain phases of business activity. The transition from prosperity to depression is one of the regularly recurring phases, whether it is marked by "an organic disturbance of economic life", in Bouniatian's phrase, or whether financial strain is conspicuous by its absence.

But while there is no doubt about the reality of these transitions, there is grave doubt whether the word crisis should be retained to describe them. For with that word there is associated in the public mind, as in the minds of writers like Bouniatian and Tugan-Baranovski, the idea of financial strain. When such strain is scarcely perceptible, it is confusing to call the transition a crisis. Close study of the annals shows that transitions free from strain are frequent—perhaps more frequent than violent transitions. And there are cheering indications that the preponderance of mild transitions is growing greater.

To make the confusion worse, the annals report numerous cases of financial strain, not at the moment when prosperity is passing into depression, but in other phases of the cycle. "Financial stringency" and "bourse panics" are common phenomena in "booms", often occurring a year or two before the phase of expansion in general business ends. Less remembered, but not less important, are the

[1] Lescure, *Des Crises Générales et Périodiques de Surproduction,* 3rd ed., Paris, 1923, pp. 2 and 238-253; Bouniatian, as cited above, pp. 43, 44.

[2] Michel Tugan-Baranovski, *Les Crises Industrielles en Angleterre,* Paris, 1913, pp. 34, 150, 152, 166, 167, 174.

cases of financial strain coming in periods of depression. To cite a dozen examples, the annals make such reports for France in 1861, Germany in 1877, England in 1878, Argentina in 1891, Australia and Russia in 1892, Italy and the Netherlands in 1893, the United States in 1896 (as well as in 1819 and 1884), South Africa in 1898, Japan in 1901, and China in 1912. Often the sources from which the annals are drawn use the words "crisis" or "panic" in describing these episodes of depression, and sometimes they use "crisis" as equivalent to depression itself.

"Crisis", then, is a poor term to use in describing one of the four phases of business cycles. If it is to be retained, it must be defined in the colorless fashion of Lescure and Aftalion—as the mere point of intersection between prosperity and depression. But sad experience shows how much misunderstanding comes from the effort to use familiar words in new technical senses. Scientific writers can hardly expect that readers will purge their minds of old associations and form new ones at a terminologist's bidding.

One remedy for the ambiguity of "crisis" is to apply a qualifying adjective whenever the word is used. Thus Mr. Joseph Kitchin distinguishes between major and minor crises. But his major crises are in some cases such mild transitions that many writers refuse to call them crises at all. Such is the case with the American crises of 1882 and 1899 (*sic*, the date should be 1900), and the English crisis of 1913, all of which Mr. Kitchin labels "major".[1] Thus his conception of a major crisis is even more confusing to non-technical readers than the use of the unqualified term. If the ambiguity is to be remedied by applying adjectives, it seems best to use a pair that bear directly upon the ambiguous point. Thus the common expressions "mild crisis" and "severe crisis" are clear in intent and safe to use in descriptive work, such as business annals, provided there are not too many cases on the borderline between mildness and severity.

But no set of adjectives can make "crisis" a suitable name for the fourth phase of business cycles. Hardly can one say "depression, revival, prosperity, mild or severe crisis". The choice lies between retaining crisis defined in an unfamiliar way, or replacing it by some word corresponding to "revival", which is used to designate the upward turn of the cycle. This second alternative seems the lesser evil,

[1] See the "Dates of Major Crises" in Mr. Kitchin's paper, "Cycles and Trends in Economic Factors," *Review of Economic Statistics*, January, 1923, Prel. vol. v, pp. 10-16.

especially in view of the fact that our theoretical and practical interests lie increasingly in those mild transitions from prosperity to depression which have been little attended to by theorists.

In this discussion, accordingly, business cycles are treated as having four phases—depression, revival, prosperity and recession. The word "crisis" is not dropped, but is used like the words "panic" or "boom" to indicate degrees of intensity. Every business cycle includes a phase of recession; this recession may or may not be marked by a crisis; the crisis, if there is one, may or may not degenerate into a panic. All the old and most of the recent books on the subject deal chiefly with crises, panics, and severe depressions; these annals endeavor to show also the mild recessions and the periods of dull business.

We have, indeed, gone far—we hope not too far—in calling attention to the mild recessions. Our aim has been to include all cases in which the evidence indicates a general slackening of activity, even though the slackening lasted but a few months, and did not reach grave proportions. Cases in point may be found in the American annals for 1888, 1900 and 1923. Other illustrations are Italy in 1900, England in 1803 and 1854, and the brief reaction in the majority of our 17 countries after the Armistice of 1918. On the other hand, we have tried not to include cases in which only one or two branches of business suffered a setback—such as the British case of 1860-61 already referred to, or the financial difficulties caused in London by the outbreak of war between France and Prussia in 1870.

5. The Uniformity and the Variability of Business Cycles.

Recurrence of depression, revival, prosperity and recession, time after time in land after land, may be the chief conclusion drawn from the experience packed into our annals; but a second conclusion is that no two recurrences in all the array seem precisely alike. Business cycles differ in their duration as wholes and in the relative duration of their component phases; they differ in industrial and geographical scope; they differ in intensity; they differ in the features which attain prominence; they differ in the quickness and the uniformity with which they sweep from one country to another.

This mixture of uniformity and variability in business cycles may seem disconcerting when stated so baldly. But we confront a similar mixture of fundamental similarity and detailed differences when we visualize men's faces, or consider their characters, or study any social phenomena. In all such cases, variability presents conceptual difficulties not to be glossed over, and difficulties of explanation not surmounted as yet. But uncounted ages ago men found that they could think of pines despite difference in the size, shape, location, color, roughness, and hardness of particular specimens; they could think of trees despite the differences among pines, maples and palms, and the difficulty of delimiting trees from shrubs. And within the past hundred years men have developed a technique for studying variations about a central tendency, a technique which reveals the existence of formerly unsuspected uniformities among variations themselves.

Differences among business cycles, then, afford no reason for doubting that these cycles constitute a valid species of phenomena. But the existence of such differences should put us on our guard against using concepts and methods of analysis appropriate only in work where differences among individuals of a given species either do not exist or can be precisely defined (as in geometry), or are not significant for the problems under consideration (as in certain branches of physics and chemistry). The student of business cycles should picture their characteristic differences as clearly as may be, measure them with what precision he can, and find how these differences are distributed around their central tendencies. While the annals are not quantitative in form, they can be used to some extent in treating this statistical problem.

V. The Duration of Business Cycles.

1. Current Estimates of Average Length.

The differences among business cycles which have attracted most attention are differences in duration. Quite naturally, the discoverers of the recurrence overstressed its uniformity in this respect as in others. Influenced by the dominant type of economic theory, these discoverers thought of a "normal" cycle and so simplified their problem—a practice still common. To cite an extreme example: in 1867 John Mills described the "credit cycle" as lasting ten years—three years of declining trade, three years of increasing trade, three years of over-excited trade, and one year of crisis.[1] Even the early statis-

[1] "On Credit Cycles and the Origin of Commercial Panics," *Transactions of the Manchester Statistical Society*, 1867–68, pp. 5-40. Compare the diagram of a cycle which Jevons gives in his *Primer of Political Economy*, New York, 1882, p. 121.

tical workers yielded to the lure of "normality." They were eager to establish the "periodicity of crises," which was suggested by such crisis dates as 1815, 1825, 1836, 1847, 1857 and 1866. This desire warped their selection and treatment of data. Jevons had an admirably candid mind; yet in 1875, when the sun-spot cycle was supposed to last 11.1 years, he was able to get from Thorold Rogers' *History of Agriculture and Prices in England* a period of 11 years in price fluctuations, and when the sun-spot cycle was revised to 10.45 years he was able to make the average interval between English crises 10.466 years.[1] To get this later result, Jevons purposely left out from his list of crises "a great commercial collapse in 1810-11 (which will not fit into the decennial series)"; he also omitted the crisis of 1873, and inserted a crisis in 1878, which other writers do not find.[2]

Jevons' way of reckoning the length of cycles by the intervals between crises, and of counting as crises periods of financial strain coming after booms, or recessions followed by long depressions, is still common among theoretical writers. The results they get are not in close agreement. Tugan-Baranovski takes 7 to 11 years as the limits of variation in the length of cycles and 10 years as the average duration. Bouniatian says that "under normal conditions" cycles last from 9 to 11 years, but adds that there is "a tendency toward a normal period of about 10 years". Cassel takes 1873, 1882, 1890, 1900, and 1907 as crisis years in Europe, and 1873, 1882, 1893, 1903, and 1907 as crisis years in the United States. Cassel himself strikes no average, but his dates give limits of 4 to 11 years and an average of 8½ years. Lavington also accepts 8 years as the average duration.

Slightly different is the method of reckoning cycles by the intervals between depressions. Otto C. Lightner records 18 depressions in American business from 1808 to 1921, not counting "minor" cases, with intervals ranging from 3 to 12 years and averaging 6⅔ years. George H. Hull, denying that depressions are periodic, counts 17 "industrial crises" in the United States from 1814 to 1907. His dates differ somewhat from Lightner's, having intervals ranging from 1 to 11 years, and averaging a little less than 6 years.

[1] Jevons withdrew his first paper from publication when he discovered "that periods of 3, 5, 7, 9, or even 13 years would agree with Professor Rogers' data just as well as a period of 11 years." See his *Investigations in Currency and Finance*, London, 1884, pp. 207, 225.

[2] See the three papers on crises reprinted in Jevons' *Investigations in Currency and Finance*, especially pp. 200-203, 225, 233.

With these results may be given two others of the same order of magnitude, but reached by quite different methods. Pigou, using British unemployment returns and measuring intervals between both the crests and the troughs of the industrial waves, gets a trifle less than 8 years as his average length. Henry L. Moore also gets 8 years as the standard length both of "generating" and of "derived economic cycles", but gets it from periodigram analysis of time-series.[1]

Other statistical workers have recently reached quite different conclusions. Thus Professor W. L. Crum made a periodigram analysis of monthly interest rates upon commercial paper in New York from 1866 to 1922 and found (somewhat doubtful) evidence of a period of 39-40 months in their fluctuations. At the same time Mr. Joseph Kitchin, after analyzing bank clearings, interest rates, and wholesale prices in Great Britain and the United States from 1890 to 1922, suggested that the cyclical fluctuations of trade are composed of minor cycles averaging 40 months in length, and major cycles, which are aggregates of two or less often, of three minor cycles.[2] Since the publication of these two papers in January, 1923, "the 40-month cycle" has enjoyed a considerable vogue among statisticians.

2. Measurements Based upon the Annals.

It is not necessary to examine narrowly the discrepancies among the results obtained by measuring the intervals between years of crisis or years of depression. They run back partly to differences in the countries and the periods covered, and partly to differences of opinion concerning the severity which entitles a particular disturbance to be called a true crisis or depression. Granted each author his own conception of what constitutes a cycle, his measurements are presumably correct for the land and period covered. By using the present annals, anyone so disposed might validate, and anyone so disposed might question any of the averages and limits of variations which have been derived in this way.

[1] See M. Tugan-Baranovski, *Les Crises Industrielles en Angleterre,* 1913, pp. 247, 248; M. Bouniatian, *Les Crises Économiques,* 1922, p. 42; G. Cassel, *The Theory of Social Economy,* 1924, p. 508; A. Aftalion, *Les Crises Périodiques de Surproduction,* 1913, vol. i, pp. 8-14; F. Lavington, *The Trade Cycle,* 1922, p. 14; O. C. Lightner, *History of Business Depressions,* 1922, table of contents; G. H. Hull, *Industrial Depressions,* 1911, pp. 54-57, and the chronological table, pp. 50, 51; A. C. Pigou, *The Economics of Welfare,* 1920, p. 804; Henry L. Moore, *Generating Economic Cycles,* 1923, pp. 15, 64.

[2] See W. L. Crum, "Cycles of Rates on Commercial Paper," *Review of Economic Statistics,* January, 1923, preliminary vol. v, pp. 17-28; Joseph Kitchin, "Cycles and Trends in Economic Factors," the same, pp. 10-16.

But anyone who reads the annals closely, whatever the definition of crisis in his mind, will see that there is grave question regarding the unity of many of the 6-, or 8-, or 10-year cycles. Take as the simplest example Professor Cassel's list of crisis years in the United States: 1873, 1882, 1893, 1903 and 1907. One may argue that the annals justify these dates from Cassel's viewpoint. But the important point is that the cycle from 1882 to 1893 was punctuated by the recessions of 1888 and 1890, and that the cycle from 1893 to 1903 was punctuated by recessions both in 1896 and in 1900.

Now, the differences of opinion concerning the length of American cycles in this period turn less on the facts of business expansion and contraction than on what movements of expansion and contraction should be selected for treatment as business cycles. The older writers fastened upon the salient phenomena—severe crises and the rather long intervals between them—as requiring explanation. This tradition still rules in theoretical treatises. But as knowledge of business cycles grows, and as men seek to use this knowledge more effectively in interpreting current developments month by month, a more intensive treatment becomes both feasible and useful. Without denying the graver importance of the wider swings, we find ourselves involved much of the time in dealing with fluctuations of less amplitude, fluctuations which the theorists have passed over lightly. The same developments which make it wise to substitute the concept of recession for the concept of crisis make it wise to recognize the shorter segments into which the long swings are frequently divisible. This change reduces the typical duration of American cycles to roughly one-half of the estimate commonest among theoretical writers.

By way of illustration, we may compile from the American annals a list of recessions in the United States since 1790. In this list the recessions are characterized by phrases which indicate their severity, and leading features. Financial troubles occurring in the middle of depressions are not counted as recessions, but cases of this sort which have commonly been listed as crises are noted in the table.[1] In the early years the business fortunes of the northern states alone are followed; sometimes conditions were quite different in the agricultural south and west. Since the annals seldom permit a precise dating

[1] Other cases of financial troubles while business was depressed occurred in 1797, 1819, 1842, and 1914.

of recessions, the duration of successive cycles is reckoned to the nearest whole year.

TABLE 1

BUSINESS RECESSIONS IN THE UNITED STATES AND APPROXIMATE DURATION OF BUSINESS CYCLES, 1790–1925

		Duration of Cycles in Years
1796 *	Financial crisis, spring.....	
1802	Recession early in year....	6
1807 *	Recession late in year.....	6
1812	Brief recession, June, War with England	5
1815 *	Crisis, March, following peace	3
1822	Mild recession, May.......	7
1825 *	Panic, autumn	3
1828	Recession, summer	3
1833	Recession, panic, autumn..	5
1837 *	Panic, spring	4
1839 *	Panic, October	3
1845	Brief recession, May	6
1846	Mild recession early in year, War with Mexico	1
1847 *	Recession, financial panic, November	2
1853	Recession, last quarter....	6
1857 *	Recession, late spring, panic in August	4
1860	Recession late in year, prospect of Civil War	3
1865	Recession, second quarter, close of Civil War	5
1870	Recession, January	5
1873 *	Violent panic, September..	4
1882	Recession late in year, financial panic in 1884 *....	9
1888	Slight recession, early in year	5
1890	Financial crisis, autumn....	3
1893 *	Severe panic, May........	2
1896	Recession early in year, financial stringency	3
1900	Brief and slight recession, spring	4
1903 *	Financial strain, spring....	3
1907 *	Severe crisis, autumn......	4
1910	Mild recession, January....	2
1913 *	Recession, summer	3
1918	Recession after Armistice, November	5
1920 *	Severe crisis, May	2
1923	Mild recession, summer....	3

* The dates thus marked show the commonly accepted years of financial crises. Other dates frequently listed are 1819, a case of financial strain in a business depression, and 1890. The "rich man's panic" of 1903 is omitted in some lists.

To show the usual way of reckoning the length of cycles, the commonly accepted dates of crises in the United States are marked with asterisks. Anyone who checks these dates against those given in other books will find different ways of counting; for example, 1837-1839 is sometimes put down as a single crisis. But, taking the dates as marked, we have 14 cycles between 1796 and 1920, ranging from about 2 years (1837-39) to about 16 years (1857-1873) in length, and averaging 8⁶⁄₇ years. We can raise this average by omitting or combining some of the crises counted here, or reduce it by counting some of the other recessions as crises. At best there is a considerable margin for admissible difference of opinion.

When we drop the effort to discriminate the degrees of severity among crises and count all recessions, this margin of uncertainty becomes narrower, though it does not vanish. It is easier to recognize a change of direction in business movements than it is to determine how serious a change for the worse has been. Yet, another compiler drawing off a list of recessions from the most detailed form of our annals might give a slightly different set of dates, and one who made a fresh set of annals from the original sources might increase these differences somewhat. The broad results, however, seem well assured.

Counting business cycles now as the intervals between recessions, noting the quarters in which the turns came, and reckoning to the nearest whole year, we get the following results:

1	cycle	about	1	year	long	(1845-46)
4	cycles	"	2	years	"	
10	"	"	3	"	"	
5	"	"	4	"	"	
6	"	"	5	"	"	
4	"	"	6	"	"	
1	"	"	7	"	"	(1815-1822)
0	"	"	8	"	"	
1	"	"	9	"	"	(1873-1882)

In all we have 32 cycles in 127 years, which yields an average length of not quite 4 years. The commonest length is about three years; and two-thirds of the cases fall within the limits of three to five years. There is no indication that the average duration of business cycles is changing. There were 16 cycles in the first 64 years covered by the table (1796-1860) and 16 cycles in the following 63 years (1860-1923). Of 3-year cycles, there were five in the first period and five in the second.

These results may be compared with similar summaries from the other country for which we have annals covering 136 years. The dates given by Bouniatian, who has written a history of English crises, are starred to show the conventional view of cycle chronology. His 16 dates mark off 15 cycles in the 127 years from 1793 to 1920—an average length of almost 8½ years. If 1913 be added to the list of crises, and it seems to belong there quite as much as certain dates which Bouniatian admits as turning-points unaccompanied by severe financial strain, there are 16 cycles, ranging in length from about 4 to about 13 years, and averaging not quite 8 years.

Of the cycles marked off by recessions, 22 are shown. Perhaps we should add recessions in 1814 after the first abdication of Napoleon, in 1861 when the American Civil War upset the cotton trade, and in 1870 when the Franco-Prussian War brought confusion to the financial markets. But in none of these cases does the evidence indicate a general slackening of trade. Even if these cases were counted, it would still appear that English business has experienced fewer recessions than American business during the same period of four generations.

Hence English cycles have been longer on the average than American cycles. Taking the dates entered in the table we get an average

TABLE 2

BUSINESS RECESSIONS IN ENGLAND AND APPROXIMATE DURATION OF BUSINESS CYCLES, 1790–1925

		Duration of Cycles in years
1793	Recession, February, following financial pressure in 1792 *	
1797 *	Panic, February	4
1803	Recession, May, renewal of war	6
1807	Mild recession	4
1810 *	Severe crisis, July	3
1815 *	Crisis, autumn, following end of war	5
1819 *	Recession, early spring	4
1825 *	Recession, spring, followed by financial panic	6
1829	Recession, first quarter	4
1831	Recession	2
1837	Recession early in year, following financial panic in 1836 *	6
1847 *	Financial panic, April, recession, summer	10
1854	Recession, January, Crimean War	7
1857 *	Financial panic, November	4
1866 *	Severe financial crisis, first quarter, Overend-Gurney failure	8
1873 *	Recession late in year	8
1883	Slow recession, early in year, perhaps beginning in 1882 *	9
1890 *	Recession following financial crisis in November	8
1900 *	Recession, summer	10
1907 *	Recession, autumn, financial stringency	7
1913	Recession, last quarter	6
1918	Recession on Armistice, November	5
1920 *	Severe crisis, second quarter	2

* The dates thus marked show the crises recognized by Mentor Bouniatian, *Les Crises Économiques,* Paris, 1922, p. 43. Most authorities would include 1913, also, on the same grounds that lead Bouniatian to find crises in 1882 and 1900, although these years were not marked by severe financial strain.

duration of 5¾ years in England, against 4 years in the United States. And the frequency of recessions has been diminishing in England, though not in this country. In the first half of the period covered (1793-1857), the average length of English cycles was nearly 5 years, in the second half (1857-1920) exactly 7 years.

But these averages are even less a guide to business forecasting in England than in America. It is difficult to find any regular order in the lengths of the successive cycles in either Table 1 or Table 2. When we tabulate the frequency of English cycles according to duration we find less concentration at the mode than in the corresponding American table. From 1793-1920 there were

2	cycles	about	2	years	long	(1829-31, and 1918-20)
1	"	"	3	"	"	(1807-10)
5	"	"	4	"	"	
2	"	"	5	"	"	
4	"	"	6	"	"	
2	"	"	7	"	"	
3	"	"	8	"	"	
1	"	"	9	"	"	(1873-83)
2	"	"	10	"	"	(1837-47, and 1890-1900)

Four-year cycles are most common in England, three-year cycles in the United States. One-half of the English cases are 4-6 years in length, while two-thirds of the American cases are grouped at 3-5 years.

On applying the same methods of analysis to the three other countries for which we have annals running back to the 1860's, 1850's, and 1840's, we find that in average duration their cycles are intermediate between the English and the American patterns. The average length works out as follows:

1838-1920—82 years

France, 15 cycles, average length 5½ years.

England, (1837-1920), 12 cycles, average length nearly 7 years.

United States, (1837-1920), 22 cycles, average length 3¾ years.

1848-1925—77 years
- Germany, 15 cycles, average length 5 years.
- England (1847-1920), 11 cycles, average length 6⅔ years.
- United States (1847-1923), 19 cycles, average length 4 years.

1866-1922—56 years
- Austria, 10 cycles, average length 5.6 years.
- England (1866-1920), 8 cycles, average length 6¾ years.
- United States (1865-1923), 15 cycles, average length not quite 4 years.

If we split the periods covered by our annals for these three countries as nearly in the middle as possible, we find that the average length of business cycles has increased in France as in England, decreased slightly in Germany, and remained constant in Austria as in the United States. The figures are:

	First Half of Period				Second Half of Period			
	Dates	Number of Years	Number of Cycles	Average Duration	Dates	Number of Years	Number of Cycles	Average Duration
France	1838–76	38	8	4.75 yrs.	1876–1920	44	7	6.29 yrs.
Germany	1848-90	42	8	5.25 "	1890-1925	35	7	5.00 "
Austria	1866–94	28	5	5.60 "	1894–1922	28	5	5.60 "
England	1793–1857	64	13	4.92 "	1857–1920	63	9	7.00 "
United States	1796–1860	64	16	4.00 "	1860–1923	63	16	3.94 "

3. Frequency Distributions of the Measurements Based on the Annals.

A systematic summary of our evidence concerning the duration of business cycles is provided by the following exhibits. Table 3 is a companion piece to Tables 1 and 2. It shows the dates of recessions in fifteen countries as accurately as Dr. Thorp can determine them from the annals, and shows also the approximate duration of successive cycles reckoned to the nearest whole year. Chart III is a graphic version of Tables 1, 2 and 3. It uses lines of varying length to show the duration of business cycles in each of our countries, in chronological order.

We can treat the observations upon the duration of business cycles assembled in this table and chart as the data of an historical inquiry, or as the data of a theoretical problem. In the first case we ask: What has been the duration of business cycles in the countries and during the periods for which we have annals? In the second case we ask: What expectations regarding the duration of business cycles are justified by the sample observations in hand?

As historical data, our observations probably contain inaccuracies. Conceiving a business recession as a decline in economic activity which follows a period of expansion and spreads over most of a country's industries, we have sought to find and date every recession which occurred in certain countries during certain periods. On the basis of these recession dates, we have measured the duration of successive cycles to the nearest whole year. Finally, we have struck averages from these measurements. Mistakes may have occurred in any of these steps. We may have omitted some recessions; we may have included some cases which do not fit our definition of recessions; we may have blundered in measuring or averaging. But so long as we are trying merely to report what has taken place in the past, these doubts concerning the accuracy of our work are all that need concern us. The historical record is fixed; it has its unique features and interest; in studying it we can indulge in no speculations.

A subtler problem and doubts of another order are presented when we treat our observations as data for drawing theoretical conclusions regarding the duration of business cycles at large. For this purpose, we must ask, not merely whether our observations are historically dependable, but also whether they constitute a representative sample of the phenomena measured. Are the observations sufficiently numerous? Are they sufficiently independent of each other? Ought we discard the observations upon cycles which we think have been cut short or prolonged by factors which have no organic relation to business activity?

In the sense in which the term is used here—recurrences of prosperity, recession, depression and revival in the business activities of countries taken as units—the total number of past business cycles may well be less than a thousand. For business cycles are phenomena peculiar to a certain form of economic organization which has been dominant even in Western Europe for less than two centuries, and for briefer periods in other regions. And the average cycle has lasted five years, if we may trust our data. Of the whole number of cases to date, the 166 cycles we have measured form a significant fraction. By compiling business annals for Norway, Belgium, Switzerland, Denmark, Spain, New Zealand and Chile we could probably get additional observations as satisfactory as some of those already included. Perhaps we could trace business cycles in Greece, Egypt, Turkey, some of the Balkan States, possibly Mexico, and additional countries

TABLE 3

DATES OF BUSINESS RECESSIONS IN FIFTEEN COUNTRIES: VARIOUS YEARS TO 1925

France

		Duration of Cycles in years
1838		
1847	early	9
1854	March	7
1857	autumn	3
1860	autumn	3
1867	early	6
1870	July	3
1873	early	3
1876	early	3
1882	early	6
1890	early	8
1900	late summer	11
1908	early	7
1913	early summer	5
1918	November	5
1920	summer	2

Germany

		Duration of Cycles in years
1848		
1857	autumn	9
1866	June	9
1870	July	4
1873	autumn	3
1878	early	4
1880	early	2
1882	summer	3
1890	early	8
1900	August	10
1904	summer	4
1907	summer	3
1913	summer	6
1918	November	5
1922	summer	4
1925	summer	3

Austria

		Duration of Cycles in years
1866		
1869	late	3
1873	summer	4
1884	early	11
1892	early	8
1894	early	2
1900	early	6
1908	early	8
1912	autumn	5
1918	October	6
1922	autumn	4

Russia

		Duration of Cycles in years
1891	early	
1899	third quarter	8
1904	February	5
1908	early	4
1914	early	6
1917	March	3
1923	October	7
1925	late	2

Sweden

		Duration of Cycles in years
1892	early	
1901	early	9
1907	late autumn	7
1913	autumn	6
1917	....	4
1920	summer	3

Netherlands

		Duration of Cycles in years
1891	early	
1901	early	10
1907	autumn	7
1913	late	6
1917	early	3
1920	autumn	4

Italy

		Duration of Cycles in years
1888	early	
1900	spring	12
1907	last quarter	8
1913	second half	6
1918	October	5
1920	early	1

Argentina

		Duration of Cycles in years
1890	first quarter	
1892	autumn	3
1900	early	7
1908	early	8
1911	early	3
1913	early	2
1920	December	8

Brazil

		Duration of Cycles in years
1889	November	
1896	early	6
1900	autumn	5
1907	autumn	7
1912	late	5
1918	November	6
1920	autumn	2
1924	second half	4

TABLE 3—(*Continued*)

DATES OF BUSINESS RECESSIONS IN FIFTEEN COUNTRIES

		Duration of Cycles in years			Duration of Cycles in years			Duration of Cycles in years
Canada			Australia			Japan		
1888			1890	January		1890	January	
1893	early	5	1901	January	11	1894	August	5
1900	autumn	7	1908	January	7	1897	autumn	3
1907	autumn	7	1913	January	5	1905	September	8
1913	second half	6	1914	autumn	2	1907	spring	2
1918	November	5	1920	November	6	1914	spring	7
1920	autumn	2	1924	January	3	1918	November	5
1924	spring	4				1920	March	1
South Africa			India			China		
1890	September		1889					
1895	autumn	5	1896	summer	7	1888		
1899	October	4	1900	summer	4	1897		9
1903	early	3	1907	autumn	7	1900	May	3
1913		10	1914	August	7	1906		6
1918	late	5	1918	November	4	1910		4
1920	autumn	2	1920	May	2	1920	midyear	10

in Spanish America. Doubtless we might carry our observations further back in most of the seventeen countries which we have studied. But after we had pushed our investigations everywhere into the twilight zone where business cycles are doubtfully recognizable, we should still be dealing with relatively small numbers.

The observations are not all independent of each other. We shall see presently that the duration of business cycles in every country influences, and is influenced by, the duration of business cycles in other countries. Moreover, the non-business factors which affect the duration of business cycles often produce uniform results in several countries. To cite one example: 7 of our 17 countries had a two-year cycle at the end of the World War. One hundred and sixty-six observations, many of which come in clusters, are likely to show a less regular distribution around their central tendency than would 166 observations strictly independent of each other.

If we wish to find out what we can about the probable duration of future business cycles, we should discard observations upon cycles whose duration has been determined by factors of a kind not likely to be influential in the future. If the data for any country show

Chart III. Approximate Duration of Business Cycles, arranged in Chronological Sequence.

White inset figures indicate approximate duration in years.

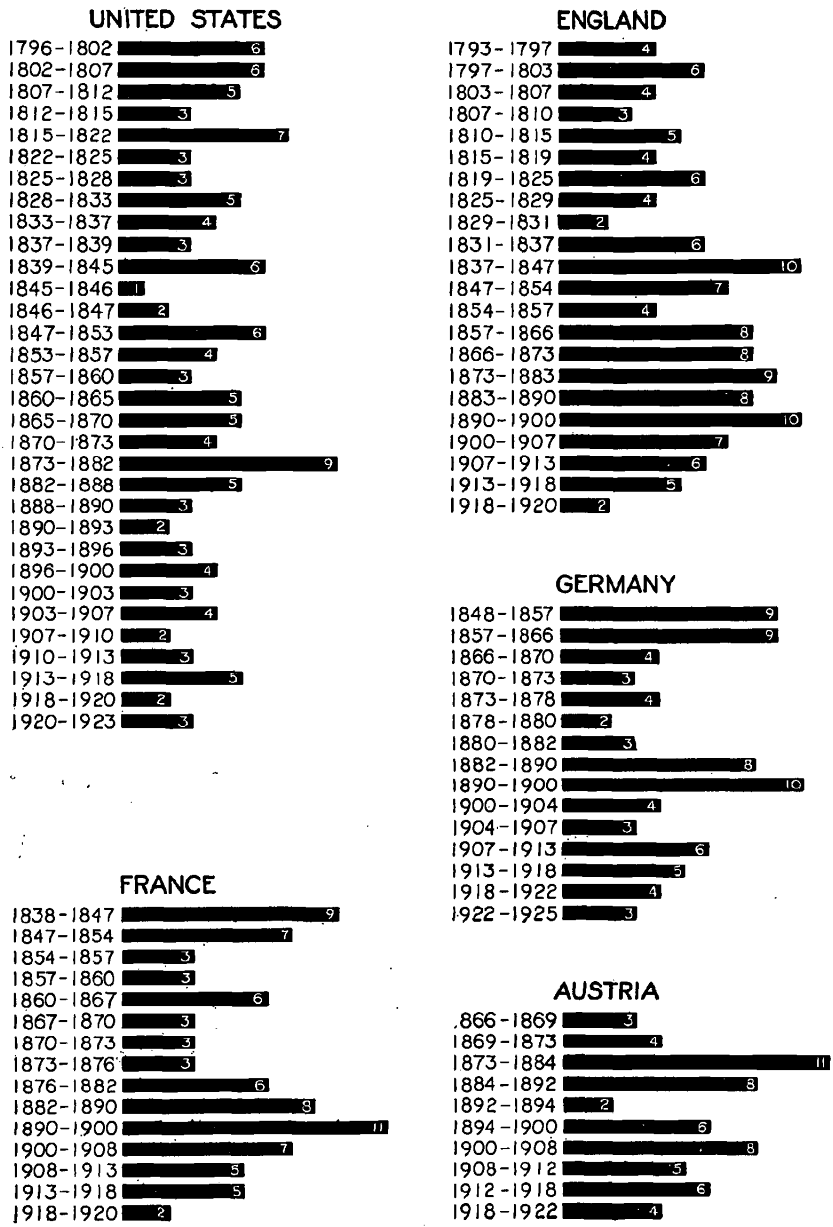
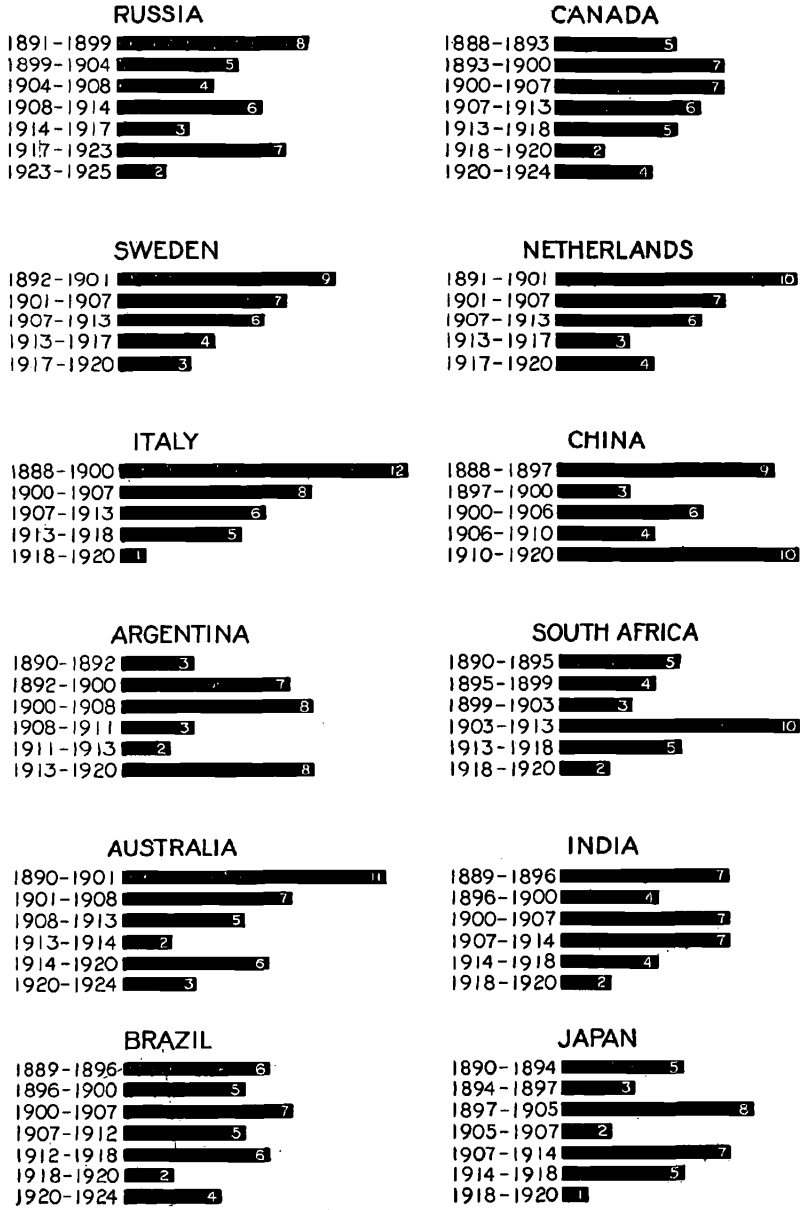


CHART III (*Continued*). Approximate Duration of Business Cycles, arranged in Chronological Sequence.

White inset figures indicate approximate duration in years.



unequivocal evidence of a change in the length of cycles, the later data are likely to be a safer guide to expectations than the earlier data, or the full array. But we have no warrant for discarding cases in which cycles seem to have been cut short or prolonged by wars, civil disorders, exceptional harvest conditions, or any other factor, unless we believe that such "disturbing circumstances" will not recur in the future as in the past. Even the man who has supposed that business cycles "tend" to have some standard period will probably conclude upon studying the present charts that he had better take the data as they come.

In fine, our observations form a fairly satisfactory basis for studying the duration of business cycles. Like all observations, their accuracy is open to question; but they have been made with care and their number is sufficient to allow errors to offset each other in some measure. We should be glad to have a larger sample; but the present one constitutes an appreciable fraction of its "universe." We need not reject any of the observations on the ground that the duration of certain cycles has been affected by "disturbing circumstances"; for we are interested in actual cycles in the actual world where "disturbing circumstances" are always present. We might expect a more regular distribution if all our observations were strictly independent of each other. But once again, as the world is constituted, inter-dependence in duration is characteristic of business cycles in different countries. A complete array of measurements for all past cycles would resemble our sample in this respect, and future cycles seem likely to show increasing interdependence in duration. Perhaps we should conceive of our distributions as made from a number of independent measurements smaller than the nominal count, but with the use of "weights" which total 166. Many cycles are weighted by one, while other cycles, which began and ended on the same dates in countries with close business relations, or dominated by the same non-business factors, are weighted by numbers running as high as seven.

To put our data in shape for analysis, we must disregard the chronological sequence of cycles of varying length, shown in Chart III, and rearrange all the cases in frequency tables of the sort already given for American and English cycles—tables which show the number of cycles of each recorded duration. That step is taken in Table 4. But the tabulations by separate countries have slight significance, except for England and the United States, because the number of cases is small (5-15 cycles). Hence Table 5 is made from Table 4, by combining the observations from single countries into various groups. To facilitate comparisons among the two dozen distributions here shown, all the samples are put in percentages. Chart IV is a graphic form of these percentage distributions.

TABLE 4

FREQUENCY DISTRIBUTION OF BUSINESS CYCLES ACCORDING TO DURATION IN YEARS

Data from Seventeen Countries. Various Dates to 1925.
Based upon Tables 1, 2 and 3.

Duration in Years	England 1793–1920	France 1838–1920	Germany 1848–1925	Austria 1866–1922	Italy 1888–1920	Netherlands 1891–1920	Sweden 1892–1920	Russia 1891–1925
1 year	..	..	..	..	1	..	..	..
2 years	2	1	1	1	..	..	..	1
3 "	1	5	4	1	..	1	1	1
4 "	5	..	4	2	..	1	1	1
5 "	2	2	1	1	1	..	..	1
6 "	4	2	1	2	1	1	1	1
7 "	2	2	..	..	..	1	1	1
8 "	3	1	1	2	1	..	..	1
9 "	1	1	2	..	..	..	1	..
10 "	2	..	1	..	..	1	..	..
11 "	..	1	..	1	..	..	..	..
12 "	..	..	..	..	1	..	..	..
Total number	22	15	15	10	5	5	5	7
Average duration in years	5.8	5.5	5.1	5.6	6.4	5.8	5.6	4.9

Duration in years	United States 1796–1923	Canada 1888–1924	Australia 1890–1924	South Africa 1890–1920	Argentina 1890–1920	Brazil 1889–1924	India 1889–1920	Japan 1890–1920	China 1888–1920
1 year	1	..	..	..	..	..	..	1	..
2 years	4	1	1	1	1	1	1	1	..
3 "	10	..	1	1	2	..	..	1	1
4 "	5	1	..	1	..	1	2	..	1
5 "	6	2	1	2	..	2	..	2	..
6 "	4	1	1	..	..	2	..	..	1
7 "	1	2	1	..	1	1	3	1	..
8 "	..	..	..	..	2	..	..	1	..
9 "	1	..	..	..	..	..	..	..	1
10 "	..	..	..	1	..	..	..	..	1
11 "	..	..	1	..	..	..	..	..	..
Total number	32	7	6	6	6	7	6	7	5
Average duration in years	4.0	5.1	5.7	5.0	5.0	5.0	5.2	4.3	6.4

TABLE 5

FREQUENCY DISTRIBUTION OF BUSINESS CYCLES ACCORDING TO APPROXIMATE DURATION IN YEARS: BY COUNTRIES, GROUPS OF COUNTRIES AND PERIODS

(Based upon Table 4)

Duration in Years	United States		England		United States and England		United States, England, France, Germany and Austria: Before 1873		After 1873		Full Period		Duration in Years
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	
1	1	3.1	..	...	1	1.9	1	2.1	..	...	1	1.1	1
2	4	12.5	2	9.1	6	11.1	2	4.3	7	14.9	9	9.6	2
3	10	31.2	1	4.5	11	20.4	12	25.5	9	19.1	21	22.4	3
4	5	15.6	5	22.7	10	18.5	10	21.3	6	12.8	16	17.0	4
5	6	18.8	2	9.1	8	14.8	5	10.6	7	14.9	12	12.8	5
6	4	12.5	4	18.2	8	14.8	8	17.0	5	10.6	13	13.8	6
7	1	3.1	2	9.1	3	5.6	3	6.4	2	4.3	5	5.3	7
8	..	...	3	13.6	3	5.6	2	4.3	5	10.6	7	7.4	8
9	1	3.1	1	4.5	2	3.7	3	6.4	2	4.3	5	5.3	9
10	..	...	2	9.1	2	3.7	1	2.1	2	4.3	3	3.2	10
11	..	...	..	...	..	...	..	...	2	4.3	2	2.1	11
Totals	32	100.0	22	100.0	54	100.0	47	100.0	47	100.0	94	100.0	Totals

Duration in Years	Countries with close business relations [1]		Countries relatively independent of each other [2]		Countries with average duration of 5.5 years or more [3]		Countries with average duration of 5.2 years or less [4]: Excluding United States		Including United States		Countries with average duration of 5.0 to 5.7 [5] years		Duration in Years
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	
1	..	...	1	2.6	1	1.4	1	1.6	2	2.2	..	...	1
2	4	10.3	5	13.2	5	6.9	8	13.1	12	12.9	11	10.5	2
3	7	18.0	5	13.2	11	15.4	9	14.8	19	20.4	16	15.2	3
4	6	15.4	8	21.0	10	13.7	10	16.4	15	16.1	17	16.2	4
5	4	10.3	6	15.8	7	9.6	10	16.4	16	17.2	13	12.4	5
6	5	12.8	6	15.8	13	17.8	5	8.2	9	9.7	14	13.3	6
7	2	5.1	3	7.9	7	9.6	9	14.8	10	10.8	13	12.4	7
8	6	15.4	2	5.3	7	9.6	5	8.2	5	5.4	9	8.6	8
9	1	2.6	1	2.6	4	5.5	2	3.3	3	3.2	5	4.8	9
10	2	5.1	1	2.6	4	5.5	2	3.3	2	2.2	4	3.8	10
11	2	5.1	..	...	3	4.1	..	...	..	...	3	2.9	11
12	..	...	..	...	1	1.4	..	...	..	...	..	...	12
Totals	39	100.0	38	100.0	73	100.0	61	100.0	93	100.0	105	100.0	Totals

[1] England, France, Germany, and Austria, 1866–1920.

[2] England, 1793–1825; United States, 1825–1857; Germany, 1857–1890; Canada, 1888–1924; and Russia, 1891–1925.

[3] France, Austria, Sweden, England, Australia, Netherlands, Italy, and China.

[4] United States, Japan, Russia, South Africa, Argentina, Brazil, Canada, Germany, and India.

[5] South Africa, Argentina, Brazil, Canada, Germany, India, France, Austria, Sweden, England, and Australia.

TABLE 5—(*Continued*)

FREQUENCY DISTRIBUTION OF BUSINESS CYCLES ACCORDING TO APPROXIMATE DURATION IN YEARS: BY COUNTRIES, GROUPS OF COUNTRIES AND PERIODS

(Based upon Table 4)

Duration in Years	Eight European Countries		Nine Non-European Countries		Five English-Speaking Countries[1]		Twelve Non-English-Speaking Countries		All Countries except United States		All Countries		Duration in Years
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	
1	1	1.2	2	2.4	1	1.4	2	2.2	2	1.5	3	1.8	1
2	6	7.1	11	13.4	9	12.5	8	8.6	13	9.7	17	10.2	2
3	14	16.7	16	19.5	13	17.8	17	18.3	20	14.9	30	18.1	3
4	14	16.7	11	13.4	12	16.4	13	14.0	20	14.9	25	15.1	4
5	8	9.5	15	18.3	13	17.8	10	10.8	17	12.7	23	13.9	5
6	13	15.5	9	11.0	10	13.7	12	12.9	18	13.4	22	13.3	6
7	7	8.3	10	12.2	6	8.2	11	11.8	16	11.9	17	10.2	7
8	9	10.7	3	3.7	3	4.1	9	9.7	12	9.0	12	7.2	8
9	5	6.0	2	2.4	2	2.7	5	5.4	6	4.5	7	4.2	9
10	4	4.8	2	2.4	3	4.1	3	3.2	6	4.5	6	3.6	10
11	2	2.4	1	1.2	1	1.4	2	2.2	3	2.2	3	1.8	11
12	1	1.2	..	...	..	...	1	1.1	1	0.7	1	0.6	12
Totals	84	100.0	82	100.0	73	100.0	93	100.0	134	100.0	166	100.0	Totals

RECENT CYCLES ONLY: ABOUT 1890 TO 1925

Duration in Years	European and Non-European Countries				Industrial and Non-Industrial Countries				Totals excluding and including United States				Duration in Years
	Eight European Countries		Eight Non-European Countries[2]		Seven Industrial Countries[3]		Ten Non-Industrial Countries[4]		Excluding United States		Including United States		
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	
1	1	2.2	1	2.0	..	...	2	3.2	2	2.1	2	1.9	1
2	3	6.7	7	14.0	5	11.6	8	12.9	10	10.5	13	12.4	2
3	6	13.3	6	12.0	9	20.9	7	11.3	12	12.6	16	15.2	3
4	7	15.6	6	12.0	8	18.6	7	11.3	13	13.7	15	14.3	4
5	6	13.3	9	18.0	5	11.6	11	17.7	15	15.8	16	15.2	5
6	8	17.8	5	10.0	6	14.0	7	11.3	13	13.7	13	12.4	6
7	5	11.1	9	18.0	4	9.3	10	16.1	14	14.7	14	13.3	7
8	3	6.7	3	6.0	1	2.3	5	8.1	6	6.3	6	5.7	8
9	1	2.2	1	2.0	1	2.3	1	1.6	2	2.1	2	1.9	9
10	3	6.7	2	4.0	3	7.0	2	3.2	5	5.3	5	4.8	10
11	1	2.2	1	2.0	1	2.3	1	1.6	2	2.1	2	1.9	11
12	1	2.2	..	...	..	...	1	1.6	1	1.1	1	1.0	12
Totals	45	100.0	50	100.0	43	100.0	62	100.0	95	100.0	105	100.0	Totals

[1] England, United States, Canada, Australia, South Africa.
[2] Not including United States.
[3] England, France, Germany, Austria, Netherlands, Sweden, United States.
[4] All other countries included in *Annals*.

CHART IV. Percentage Distribution of Business Cycles in Various Countries and Various Periods According to their Approximate Duration in Years.

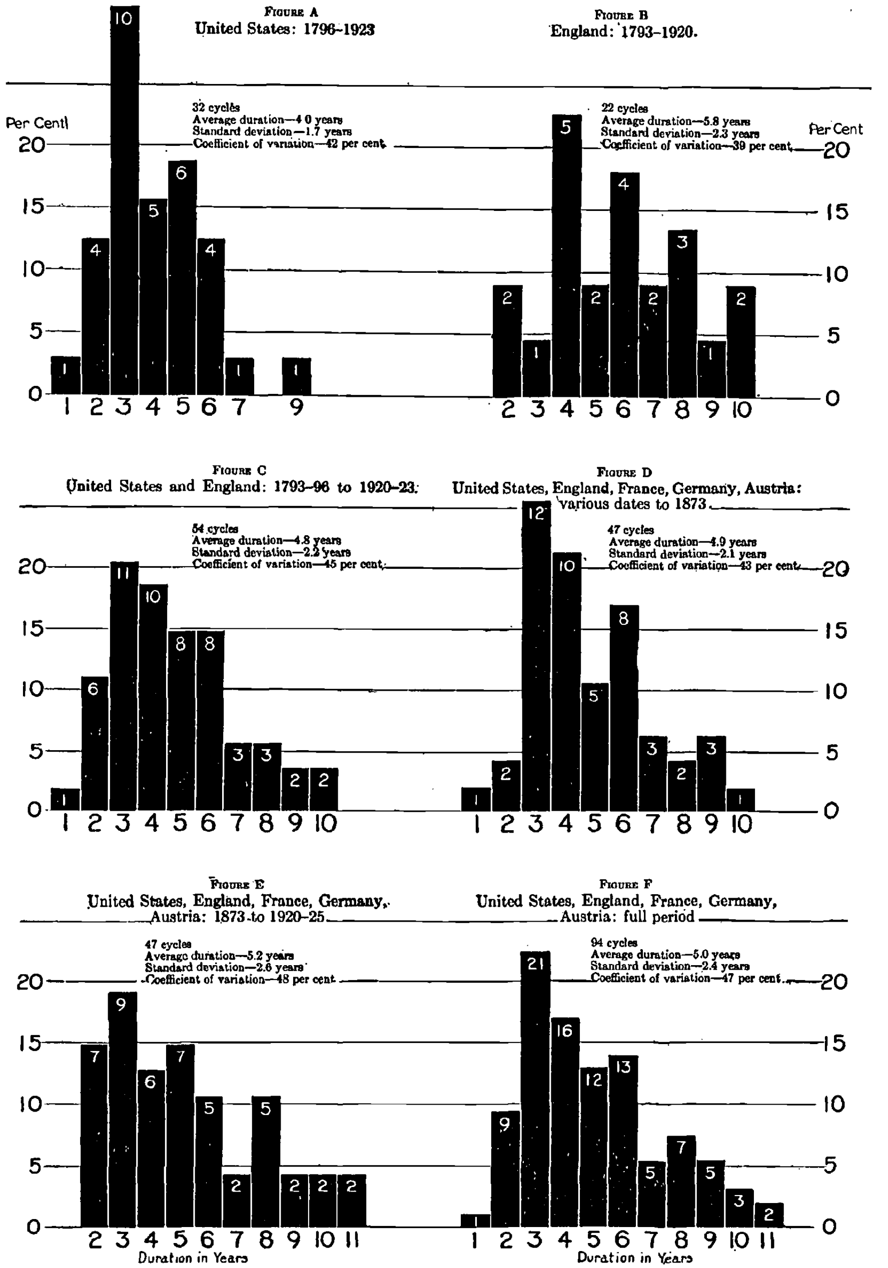


CHART IV. Percentage Distribution of Business Cycles in Various Countries and Various Periods According to their Approximate Duration in Years.—(*Continued*)

FIGURE G
Countries with Close Business Relations—England, France, Germany, Austria: 1866–1920.

FIGURE H
Observations Relatively Independent of Each Other—England, 1793–1825; United States, 1825–1857; Germany, 1857–1890; Russia, 1891–1825; Canada, 1888–1924.

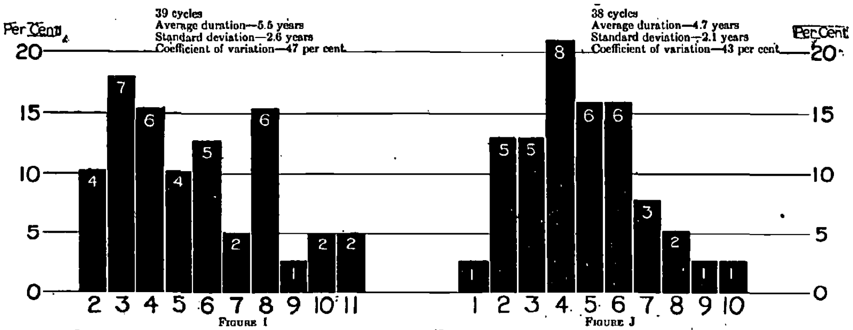


FIGURE I
Countries Having Cycles with Average Duration of 5.5 Years or More—France, Austria, Sweden, England, Australia, Netherlands, Italy, China: various dates to 1920–24.

FIGURE J
Countries Having Cycles with Average Duration of 5.2 Years or Less, excluding United States—Japan, Russia, South Africa, Argentina, Brazil, Canada, Germany, India: various dates to 1920–25.

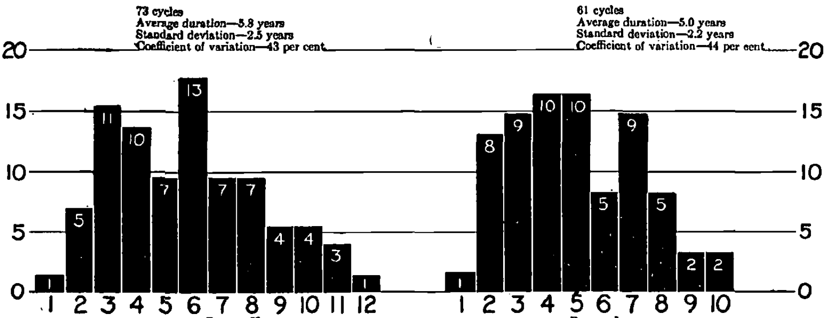


FIGURE K
Countries Having Cycles with Average Duration of 5.2 Years or Less—Countries listed in Figure J, United States added: various dates to 1920-25.

FIGURE L
Countries Having Cycles with Average Duration of 5.0–5.7 Years—South Africa, Argentina, Brazil, Canada, Germany, India, France, Austria, Sweden, England, Australia: various dates to 1920–25.

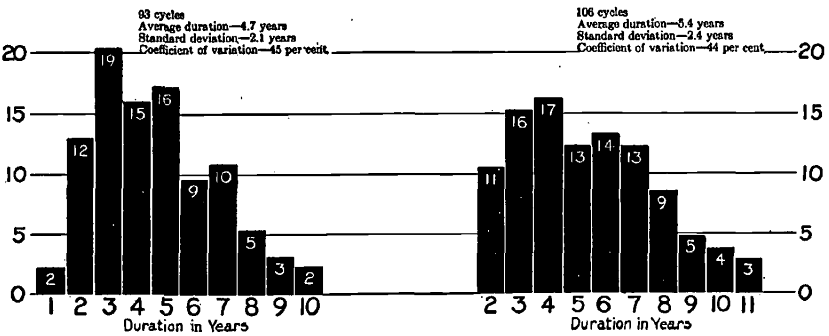


CHART IV. Percentage Distribution of Business Cycles in Various Countries and Various Periods According to their Approximate Duration in Years.—(*Continued*)

FIGURE M

Eight European Countries: various dates to 1920–25

84 cycles
Average duration—5.6 years
Standard deviation—2.5 years
Coefficient of variation—45 per cent

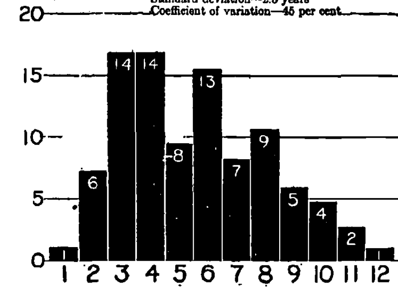


FIGURE N

Nine Non-European Countries: various dates to 1920–24.

82 cycles
Average duration—4.7 years
Standard deviation—2.2 years
Coefficient of variation—46 per cent

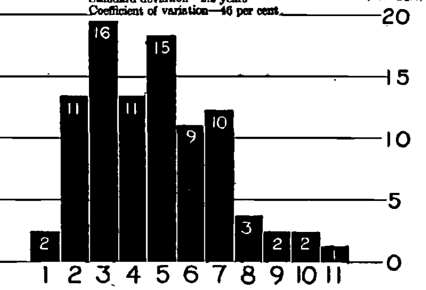


FIGURE O

Five English-Speaking Countries—England, Canada, Australia, South Africa, United States: various dates to 1920–24.

73 cycles
Average duration—4.9 years
Standard deviation—2.2 years
Coefficient of variation—46 per cent

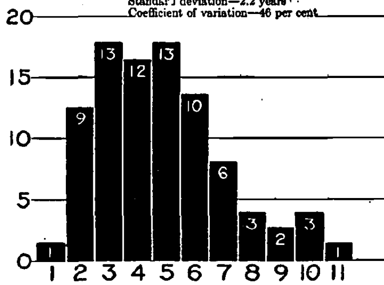


FIGURE P

Twelve Non-English-Speaking Countries: various dates to 1920–25.

93 cycles
Average duration—5.4 years
Standard deviation—2.5 years
Coefficient of variation—47 per cent

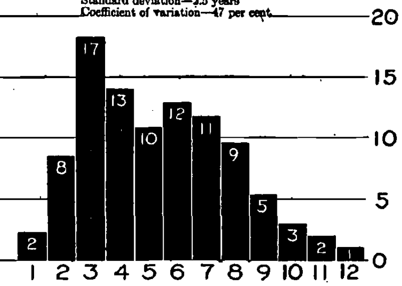


FIGURE Q

All Countries except United States: various dates to 1920–25.

134 cycles
Average duration—5.4 years
Standard deviation—2.5 years
Coefficient of variation—45 per cent

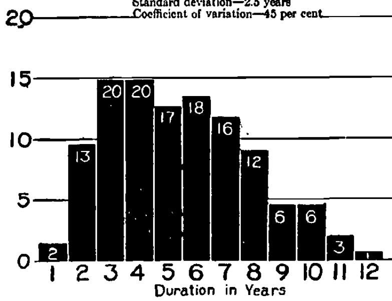


FIGURE R

All Countries: various dates to 1920–25.

166 cycles
Average duration—5.2 years
Standard deviation—2.4 years
Coefficient of variation—47 per cent

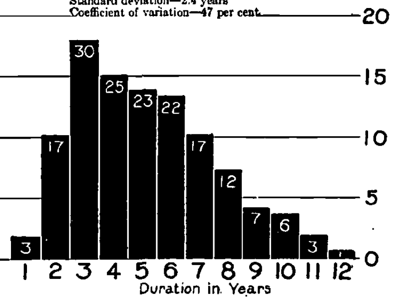


CHART IV. Percentage Distribution of Business Cycles in Various Countries and Various Periods According to their Approximate Duration in Years.—(*Continued*)

FIGURE S
Eight European Countries: 1888–92 to 1920–25.

FIGURE T
Eight Non-European Countries, excluding United States: 1888–1890 to 1920–24.

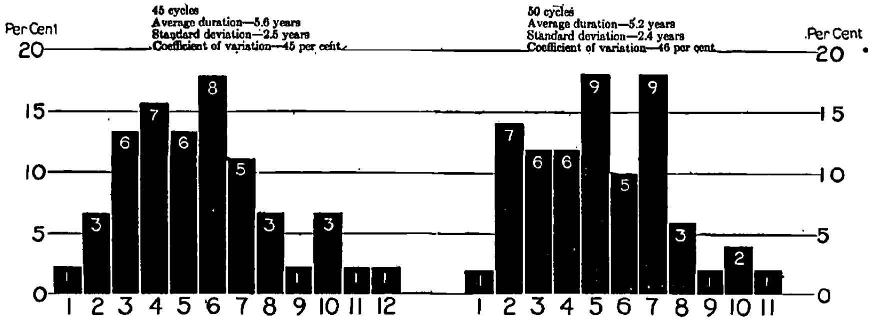


FIGURE U
Seven Industrial Countries—England, France, Germany, Austria, Netherlands, Sweden, United States, 1890–92 to 1920–25.

FIGURE V
Ten Non-Industrial Countries—Russia, Italy, Argentina, Brazil, Canada, South Africa, India, Australia, Japan, China: 1888–91 to 1920–25.

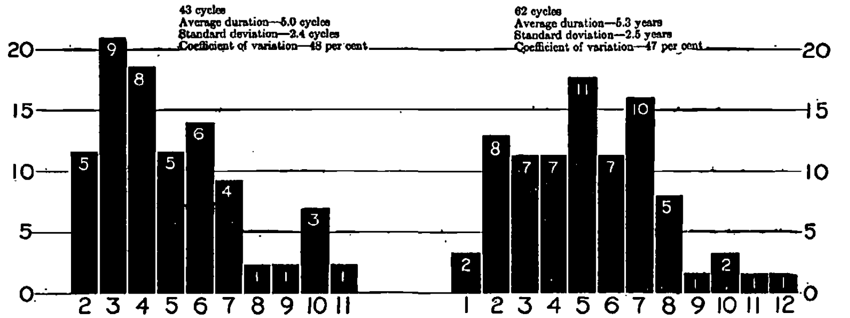
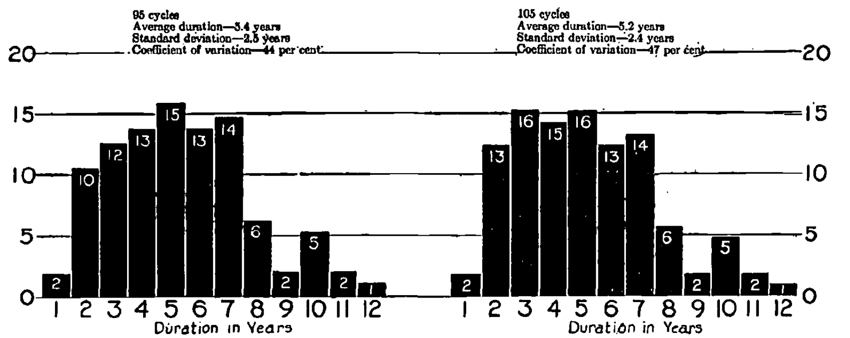


FIGURE W
All Countries except United States: 1888–92 to 1920–25.

FIGURE X
All Countries: 1888–92 to 1920–25.



The first six figures in the chart deal with the five countries for which we have annals covering relatively long periods. The peculiarities of the American distribution stand out clearly—the pronounced mode, almost a "spike," at three years, and the relatively slight dispersion, indicated by a standard deviation and a coefficient of variation which are respectively the lowest and next the lowest in the list. In the English distribution, there is a curious predominance of cycles lasting 2, 4, 6, 8 and 10 years over cycles lasting 3, 5, 7 and 9 years. In view of the small number of observations (only 22), it is uncertain whether this result is significant. However that may be, the irregularities in the American and English distributions compensate each other for the most part, so that Figure C is more regular than either of the arrays from which it is made.

Next, the French, German and Austrian observations are combined with the English and American. Advantage is taken of the larger number of cases to compare earlier with later cycles. By using 1873 as the dividing point, we get two groups each of which contains 47 observations. From 1873 to the end of the late war, the business fortunes of these countries, particularly of the European countries, ran more similar courses than in earlier years. That is, the observations in the later period are less independent of each other than the earlier observations—a fact which may explain the lesser regularity of Figure E as compared with Figure D. As a test of this suggestion we have made a distribution of the cycles in the four countries in our list which seem to have the closest business ties with each other for the period in which we have annals for all four. The results, shown in Figure G, constitute one of the least regular distributions in the whole twenty-four. As a companion piece we have made up a random group of similar size from observations which must be nearly independent of each other, taking English cycles in 1793-1825, American cycles in 1825-57, German cycles in 1857-90, Canadian cycles in 1888-1924, and Russian cycles in 1891-1925. In this comparison the 38 independent observations (Figure H) yield a much more regular distribution than the 39 observations which are inter-correlated with each other. Indeed, the contrast in regularity is more striking than we would expect from other comparisons of the sort.

There follow ten figures in which all of the observations are broken into parts on the basis of four criteria. First, the countries are grouped according to the average duration of their business cycles as given in our annals. Figure I shows the observations from countries with relatively long cycles, Figures J and K the observations from countries with relatively short cycles (excluding and including the United States), and Figure L the observations from countries with cycles of medium length. The latter group contains part of the observations used in Figure I and part of those used in Figure J. Second, the European and non-European observations are presented separately in Figures M and N. Third, the observations from five English-speaking and twelve non-English-speaking countries are shown. Fourth, Figure Q gives all the non-American observations for comparison with the American distribution of Figure A. Figure R sums up the whole body of data.

The final section of the chart is confined to recent cycles—those occurring since about 1890. Again the data are divided into groups: observations from European and non-European countries, from industrial and non-industrial countries; from all countries except and all including the United States.

When we review the whole array of distributions, we see that the diagrams and the differences among the diagrams are of a sort common in studies of social phenomena. As usually happens in such work, the small samples, especially when they contain inter-correlated observations, are rather irregular. But with increase in the size of the samples and in the independence of the observations, the distributions grow fairly regular, though not symmetrical.

The materials appear to be homogeneous, with the important exception already noted—the distribution of American business cycles in respect to length differs from the distribution of cycles in other countries. This difference stands out most sharply in the contrast between Figures A and Q. It is responsible for the double modes, separated by a lower point, in Figures O and X, and for the relatively high coefficients of variation in most of the groups combining American and foreign observations. In the samples drawn solely from foreign countries, the diagrams usually have a rounded top quite unlike the spike of Figure A. Combining the American with foreign observations generally produces an unambiguous mode at three years, but twice (Figures O and X) it produces the double mode already spoken of.

Barring out the twelve distributions into which American observations enter does not reduce the variety in the position of the crude modes. Two of the remaining dozen figures have modes at three years (G and P); two at three and four years (M and Q); and eight at 4, 5, or 6 years, if we may include here one double mode at 5 and 7 years (Figures T). By way of generalization we can hardly be more specific than to say that two thirds of the foreign cycles are concentrated in the interval three to seven years.

All of the distributions have rather high coefficients of variation (the standard deviations expressed as percentages of the arithmetic means). In other words, the observations do not cluster closely around their averages. These coefficients are least in the two distributions confined to single countries (Figures A and B), and greatest in the distributions made from American, British, French, German and Austrian observations since 1873 (Figure E). But the difference between the lowest and highest coefficients (39 and 48 per cent) is not great, and 14 of the 24 round off at 45, 46 or 47 per cent.

All the distributions are skewed positively. The range runs farther above the arithmetic mean than below it in every case, and in every case but Figure T the range also runs farther above the crude mode than below it. Moreover, the crude mode is less than the arithmetic mean in 16 cases, about equal to it in 7 cases, and clearly higher than the mean only in Figure T. One of the most significant distributions, Figure W, which includes all cycles since about 1890 in countries other than the United States, approaches symmetry; but the very broadest groups, Figures X (all recent cycles), Q (all foreign cycles), and R (all cycles) are decidedly, though not extremely, skewed.

Before attempting to interpret these frequency distributions, it is advisable to consider the relative duration of periods of prosperity and depression in business cycles, and the bearing of long-period trends of wholesale prices upon our problem.

4. The Relative Duration of Prosperity and Depression.

Dr. Thorp has made a special study of the annals to determine as accurately as possible how many months of the record for each country can be classed as prosperous and how many as depressed. Needless to say, this task involved the continuous exercise of personal judgment.

As pointed out in the comparison between the annals and certain statistical indexes of business activity, contemporary observers are always influenced by recent experience in their use of the terms depression and prosperity. Hence, no rigid criterion of what constitutes business prosperity and depression can be evolved from, or read into, our sources. But that fact does not obstruct, it really facilitates, the task in hand. For we seek to compare the duration of the prosperous phase with that of the depressed phase within each cycle treated as a unit. That the prosperous phases of successive cycles in the same country and of synchronous cycles in different countries attain different degrees of intensity is a matter of deep interest, both practically and theoretically; but it is beside the present point.

Dr. Thorp's chief difficulty was that his sources seldom date the transitions from one phase of a cycle to the next phase. In trying to supply that omission in every case, he had to rely upon indications which are often faint. In detail his decisions must be subject to a wider margin of error than his measurements of the durations of whole cycles, since the recessions on which the latter measurements are based, are the phases which have attracted most attention. Hence it will be advisable to confine attention to his averages, covering several or many cycles, and to draw only broad conclusions.

Table 6 shows the form and drift of Dr. Thorp's tabulations. It

TABLE 6

RELATIVE DURATION OF DIFFERENT PHASES OF BUSINESS CYCLES IN SEVENTEEN COUNTRIES, 1890–1925

	Months	Percentages
Months of prosperity	2,888	39.3
Months of recession and revival	1,756	23.9
Months of depression	2,700	36.8
Total	7,344	100.0

Years of prosperity per year of depression: 1.07.

appears that the phases of recession and revival put together make up rather less than one-quarter of the duration of recent cycles. But in view of the difficulty of saying just when revival has blossomed into prosperity, and just when recession has merged into depression, this conclusion should not be stressed heavily. However, if these decisions can be made on a substantially consistent basis, the comparison between the relative duration of the prosperous and depressed phases of the cycles will not be compromised.[1] What the table indicates is that in this period of 36 years the prosperous phases averaged somewhat longer than the depressed phases.

Similar averages showing the relative duration of prosperity and depression for particular countries and periods are given in Table 7. To get comparable results it has been necessary both to take periods which comprise whole cycles, and to make these periods as nearly synchronous as may be. For the results in any one country vary considerably from one period to another. For example, the English and American averages come out in three different periods as follows:

		Years of Prosperity per Year of Depression			Years of Prosperity per Year of Depression
England	1790–1925	1.11	United States	1790–1925	1.50
	1890–1913	1.24		1890–1913	1.57
	1890–1920	1.71		1890–1923	1.79

As a guide to future expectations, the averages which include the years of the great war seem less significant than the averages which we have for longer periods of time in five countries, or than the averages for 17 countries in the period from about 1890 to 1913.

The wide differences between the averages for the countries at the bottom and the top of the list in Table 7 show how much business conditions are affected by political turmoil and stability. Brazil, China, Russia and South Africa had grave troubles in the period for which we have compiled their annals, and Austria suffered from her proximity to the Balkan volcanoes. The other figures speak for themselves. But we should remember that the figures for each country speak that country's language. Swedish prosperity may differ from Canadian prosperity—the comparison made is between the prosperous and the depressed phases of Swedish cycles in one case, and between the prosperous and the depressed phases of Canadian cycles in the other case. It is risky to say that one of these countries has been more prosperous than the other, even in the period here covered. And it is easy to conceive that any country might change its ranking in such a list radically within a decade or two.

[1] Chart VI, below, shows for every cycle the quarters and years which Dr. Thorp has taken as marking off revival and recession.

TABLE 7

Relative Duration of the Prosperous and Depressed Phases in the Business Cycles of Seventeen Countries during Various Periods

	Period	Years of Prosperity per Year of Depression
United States	1790–1925	1.50
England	1790–1925	1.11
France	1840–1925	1.18
Germany	1853–1925	1.18
Austria	1866–1925	0.70

	Period	Years of Prosperity per Year of Depression	Period	Years of Prosperity per Year of Depression
Canada	1888–1924	1.86	1888–1913	2.08
United States	1890–1923	1.79	1890–1913	1.57
England	1890–1920	1.71	1890–1913	1.24
France	1890–1920	1.70	1890–1913	1.47
Australia	1890–1920	1.69	1890–1913	1.37
Sweden	1892–1920	1.67	1892–1913	1.89
Netherlands	1891–1920	1.61	1891–1913	1.59
India	1889–1920	1.43	1889–1914	1.26
Argentina	1890–1920	1.07	1890–1913	1.06
Japan	1890–1920	1.05	1890–1914	.75
Germany	1890–1925	1.03	1890–1913	1.14
Italy	1888–1920	.98	1888–1913	.90
South Africa	1890–1920	.89	1890–1913	.66
Russia	1891–1925	.81	1891–1914	1.09
China	1888–1920	.65	1888–1910	.57
Austria	1892–1922	.63	1892–1912	.73
Brazil	1889–1924	.45	1889–1912	.29
Seventeen Countries		1.14		1.08

One of the main reasons why these ratios of years of prosperity to years of depression are unstable is revealed by a further analysis of the long records for England and the United States. From various index numbers of prices, it is known that the long-period trend of the wholesale price level changed direction four times in the 130 years, 1790 to 1920. The turning points came at nearly the same dates in this country and England, save that our greenback prices reached their highest point just before the end of the Civil War in 1865, whereas in gold-standard nations prices continued to rise until

1873. Thus we have in both countries five periods of alternately declining and advancing price trends. From 1790 to 1814 wholesale prices rose unsteadily; from 1814 to 1849 wholesale prices declined unsteadily; from 1849 to 1865 in the United States and to 1873 in England wholesale prices rose unsteadily; from 1865 in the United States and 1873 in England prices declined unsteadily until 1896; from 1896 to 1920 they rose unsteadily. For the periods thus marked off, Dr. Thorp has obtained the following ratios of years of prosperity to years of depression:

TABLE 8

RELATIVE DURATION OF THE PROSPEROUS AND THE DEPRESSED PHASES OF BUSINESS CYCLES IN PERIODS OF RISING AND DECLINING TRENDS OF WHOLESALE PRICES: ENGLAND AND THE UNITED STATES, 1790–1925

England	Years of Prosperity per Year of Depression	United States	Years of Prosperity per Year of Depression
1790–1815 Prices rising	1.0	1790–1815 Prices rising	2.6
1815–1849 Prices falling	.9	1815–1849 Prices falling	.8
1849–1873 Prices rising	3.3	1849–1865 Prices rising	2.9
1873–1896 Prices falling	.4	1865–1896 Prices falling	.9
1896–1920 Prices rising	2.7	1896–1920 Prices rising	3.1

These results are so uniform and so striking as to leave little doubt that the secular trend of the wholesale price level is a factor of great moment in determining the characteristics of business cycles. That is no novel conclusion; but Dr. Thorp's data lend it new force and precision.

A final point established by study of the relative duration of the prosperous and the depressed phases of business cycles is that the very long cycles usually owe their length primarily to prolongation of depression. Among the 166 cycles we have measured there are 17 which lasted 9 years or more. The average of all our observations, it will be remembered, is 5.2 years. Dr. Thorp has made a special examination of these long cycles to determine when the revivals occurred, and how long were the periods of declining and of increasing activity. His results appear in Table 9.

Whereas the most inclusive average in Table 7 gives a ratio of 1.14 years of prosperity per year of depression, the present table gives a ratio of 0.79. In 11 of the 17 cycles the phase of depression is longer than the phase of prosperity. The longest period of prosperity found is 72 months; the longest periods of depression run 72, 76 and 100 months. Finally, the average phase of depression in these long cycles is nearly a year longer than the average phase of prosperity.

TABLE 9

RELATIVE DURATION OF PHASES OF DEPRESSION AND PHASES OF PROSPERITY IN BUSINESS CYCLES LASTING NINE YEARS OR MORE

Length in Years	Country	Periods Covered by the Cycles	Year of Revival	Months of Depression	Months of Prosperity
12	Italy	1888, early–1900, early	1897	100	30
11	France	1890, early–1900, late	1895	60	42
11	Austria	1873–1884	1880	72	36
11	Australia	1890–1901	1896	62	48
10	England	1837, early–1847, April	1843	68	44
10	England	1890, Nov.–1900	1895	42	48
10	Germany	1890, early–1900, summer	1894, late	44	51
10	Netherlands	1891–1901	1896	48	48
10	South Africa	1903–1913	1909	60	36
10	China	1910–1920	1916	60	48
9	United States	1873–1882	1878	57	42
9	England	1873, late–1883, early	1880	69	24
9	France	1838–1847	1840	24	72
9	Germany	1848–1857	1853	54	42
9	Germany	1857–1866	1860	18	66
9	Sweden	1892–1901	1895	30	60
9	China	1888–1897	1895	76	12
			Total	944	749
			Average	55	44

Years of prosperity per year of depression: 0.79.

5. CONCLUSIONS.

1. Our measurements of the intervals between recessions do not bear precisely upon the obsolescent debate concerning the periodicity of crises. But measurements made from the annals upon the old plan would be as fatal to the hypothesis of periodicity as the measurements which we prefer. Indeed, counting from crisis to crisis would make the limits within which cycles vary even wider than does counting from recession to recession. The longest cycle shown by our annals —the Italian case of 1888-1900—would be extended from 12 to 19 years if we skipped the mild recession of 1900 and passed on to the

crisis of 1907. Perhaps still longer cycles might be found, were this method of counting systematically applied to all countries. Nor could the extension of the range in one direction be compensated by reduction at the other end of the scale. The shortest cycle could not be prolonged beyond two or three years, except by such violent procedures as telescoping the American panics of 1837 and 1839 into a single crisis.

Nor can we confirm the ingenious suggestion made by Professor H. S. Jevons and Mr. Joseph Kitchin, that long cycles are multiples of two or three short ones.[1] Were such the case, and were the short cycles 3⅓ or 3½ years long as these writers suppose, one would expect our frequency diagrams to show modes, primary or secondary, at 3, 7, and 10, or 11 years. None of them do so. There are diagrams with modes, pronounced or faint, at 3 and 7 years, and 4 and 8 years. But there are also diagrams with modes, pronounced or faint, at 3 and 4 years; 3 and 5 years; 3 and 6 years; 3 and 8 years; 3, 4, 6, and 8 years; 3, 5, and 7 years; 3, 5, and 10 years; 3, 6, and 10 years; 4 and 5 years; 4 and 6 years; 5 and 7 years, etc. More significant is the fact that as the size of the samples increases the minor modes tend to disappear, instead of tending to grow clearer. In the most inclusive sample of all (Figure R of Chart IV), there are no secondary modes.

While few if any recent writers maintain the hypothesis of periodicity in any form, many of them do give some average figure to represent the duration typical of business cycles. Such averages are adequate for certain purposes. But our results show that no average can suggest the facts about the duration of cycles which are most significant for theory and practice.

2. If there is any regularity in the sequence of cycles of different lengths, we have failed to find it. Chart III, which represents the duration of cycles taken in chronological order, shows the hazard of attempting to forecast how long the next cycle will last in any of our countries. Neither modal length, nor the duration of the preceding cycle is a safe guide.

3. A semblance of regularity does appear, however, when we disregard chronological sequence and group our observations in frequency tables. And the regularity becomes more marked as the size

[1] See Herbert Stanley Jevons, *The Sun's Heat and Solar Activity,* London, 1910, and Joseph Kitchin, "Cycles and Trends in Economic Factors," *Review of Economic Statistics,* January, 1923, Preliminary vol. v, pp. 10-16.

of the sample increases, that is, as the number of independent observations upon the duration of business cycles becomes greater.

The regularity which emerges, consists, not in the preponderance of cycles of any given duration, but in the way in which cycles of different durations group themselves about their central tendency. The distribution is of a type found in many studies of biological and social phenomena. It is not symmetrical, but skewed positively. In all the groups into which we have divided the observations for analysis, the range runs farther above than below the arithmetic mean, and in two-thirds of the groups the crude mode is less than the arithmetic mean.

4. American cycles have a shorter average duration than those of any other country studied. The averages of 32 American and of 134 foreign measurements are 4.0 and 5.4 years respectively. The shortest average duration found in any foreign country is 4.3 years in Japan, where 7 cycles occurred in approximately the period covered by 10 American cycles. The American distribution shows a pronounced mode at 3 years; the most inclusive of the foreign distributions shows a rounded top with equal numbers of cases at 3 and 4 years, and no marked decline in numbers before 8 years.

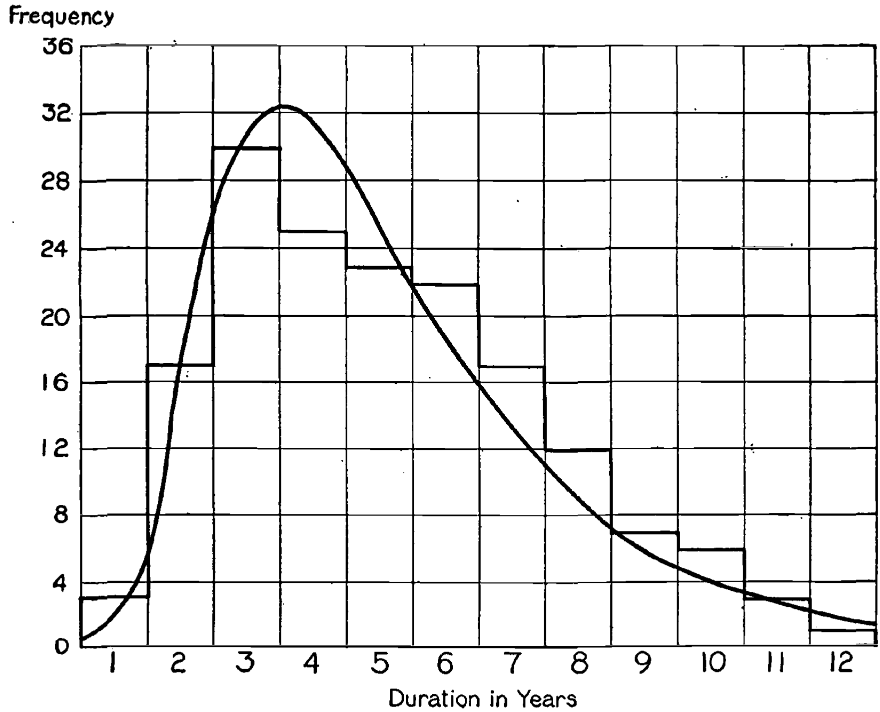
The peculiarity of the American cycles cannot be due to the "newness" of the country; for Canadian, Australian, and South African cycles conform more closely to the European type. Nor have we reason to believe that in our American sources the standard of business reports concerning recessions is peculiar. Certainly the differences between the duration of American and English cycles shown by our annals since the 1870's are matched by corresponding differences between the American and English indexes of business activity, shown for these years in an earlier section. Our confidence in the American measurements is further confirmed by the fact that several statisticians, dealing with various time series, have called attention to the prominence of a 40-month cycle in American business fluctuations. While the annals support this statistical finding on the basis of descriptive materials, they start a new problem by indicating that the predominance of 3-year cycles in recent years has been confined to the United States.[1]

5. While our frequency distributions lack the symmetry of the

[1] Table 3 shows that France had a remarkable run of 3-year cycles in 1854-1876. Since the latter date, however, we find that in France only 1 cycle out of 7 has been so brief.

Gaussian normal curve, their form suggests fitting "a logarithmic normal curve; that is a Gaussian curve in which the successive units (standard deviations) of the horizontal scale are readjusted to distances having a constant ratio rather than a constant difference."[1] This experiment has been tried upon Figure R of Chart 4—the distri-

CHART V. Logarithmic Normal Curve Fitted by Davies' Method to the Frequency Distribution of 166 Observations upon the Duration of Business Cycles.



bution which includes all of our 166 observations. Chart V shows that the fit of the logarithmic normal curve to the data is on the whole rather close.[2]

From this fact we infer that, like other biological and social phenomena whose distributions are well described by some form of the

[1] See George R. Davies, "The Logarithmic Curve of Distribution," *Journal of the American Statistical Association,* December, 1925, vol. xx, pp. 467–480. Dr. Thorp has adopted Professor Davies' method in making the chart which follows.

[2] When the cycles now running in our 17 countries are ended, the new batch of observations promises to modify the distribution of Chart V somewhat. Five years have already elapsed since the latest recession in three of our countries, and six years in seven countries.

normal curve, the durations of business cycles may be regarded as the net resultants of a multitude of factors which are largely independent of each other. If there is any dominant factor or set of factors, which tends to produce cycles of uniform duration, its influence is greatly modified by a host of other factors combined in ways which vary endlessly. This conclusion has an important bearing upon the theory of business cycles and the methods by which that theory may be improved.

6. Regarding the relative duration of the several phases which make up business cycles, the annals yield certain fragmentary, but significant, results.

As we interpret them, the phases of recession and revival are relatively brief. Put together, they account for only one-quarter of the duration of business cycles on the average. Of the remaining three-quarters, the prosperous phase occupies a somewhat longer time than the phase of depression. But the ratio of months of prosperity to months of depression varies widely from country to country, and within any country it varies widely from cycle to cycle. Consequently, the average ratios approach stability only when long periods of time and many countries are included. Perhaps the most significant figures are those for the United States and England in 1790-1925, and for all our 17 countries in 1890-1913. These three results come out respectively 1.50, 1.11 and 1.08 years of prosperity per year of depression.

Both the English and the American records indicate that the relative duration of the prosperous and depressed phases of business cycles is dominated by the secular trend of wholesale prices. In the three periods of rising price trends since 1790, the prosperous phases of the cycles have been prolonged and the depressed phases have been relatively brief. In the three periods of declining price trends, the prosperous phases of the cycles have been relatively brief and the depressed phases prolonged. While the observations upon which these conclusions rest are subject to a margin of uncertainty in every cycle considered, random errors could hardly produce such uniform results as we find.

Finally, it appears that the depressed phases of business cycles are susceptible of greater prolongation than the prosperous phases. Whereas our averages including many cycles all show a slight preponderance of years of prosperity over years of depression, our long cycles as a group show a marked preponderance of years of depression over years of prosperity.

In weighing the conclusions drawn in this section, one should bear in mind certain features of the data and methods used.

No selection or "adjustment" has been practiced upon the observations. The "abnormal cases"—if that phrase has an intelligible meaning—are included with the "normal". Every reader of the annals will note how frequently foreign wars and domestic turmoil, harvest fluctuations, epidemics, floods and earthquakes have checked or reënforced the tides of business activity. A tendency toward alternations of prosperity and depression must have considerable constancy and energy to stamp its pattern upon economic history in a world where other factors of most unequal power are constantly present, and where one or other of these factors, singly or in combination, rises to dominance at irregular intervals.

Our measurements are based solely upon the intervals between recessions. It would be desirable to check the results by a second set, based on the intervals between revivals. We have not attempted such a check, because business commentators have paid less attention to the upward than to the downward turning points of business cycles. The materials for making the second set of measurements are less full and reliable than the materials we have exploited. If a second set as satisfactory as the first could be made, the frequency distributions it yielded would doubtless differ in numberless details from the frequency distributions here presented. But we have no reason to believe that the broad conclusions suggested by the new frequency distributions would run counter to the conclusions we have drawn.

The year is too large a unit for measuring business cycles. Our results have the crudity of an effort to ascertain the stature distribution of men, women and children from measurements made in feet. In statistical work with time series, it is often possible to substitute the more appropriate unit of a month. But such investigations of business fluctuations are confined to those narrow limits of time, place, and type of business for which elaborate numerical data have been collected. In a problem which requires a considerable array of cases to yield significant results, the cruder but more numerous measures afforded by business annals have their advantages. And the preceding comparison between the business annals and the business indexes for the United States and England favor the view that the results to which the annals point would be supported by statistical analysis, did the numerical data cover a longer period.

VI. International Relationships Among Business Cycles.

1. Other Problems Upon Which the Annals Throw Light.

Despite their brevity, the running accounts found in the following chapters on business conditions in various countries can be made to throw light upon many aspects of business cycles besides their duration. For example, variations in the intensity of different periods of prosperity and depression, in the severity of successive recessions, and in the character of successive revivals are here revealed, though they are not expressed in quantitative terms. The relations between the intensity of business fluctuations and their duration also appear, as well as the relations between intensity in one phase of a cycle and intensity in succeeding phases. So, too, the annals afford many insights into the complexities of business expansion and contraction. Often they show what branches of trade led a certain movement and what branches lagged behind, what parts of a country benefited or suffered most in a given cycle. The exceedingly mixed relations between business conditions and agricultural fortunes receive much attention. In one sense every cycle is a unique historical episode; the annals bring out many of the idiosyncrasies of particular cases, as well as the features which recur in case after case.

All these are matters which one will notice upon casual reading, but about which one can learn much more by systematic comparisons of the annals for different countries and different times. In the treatise upon *Business Cycles,* which the National Bureau has under way, we plan to make continual use of this collection, which, as said at the outset, covers a period longer and an area wider than we can cover, save in the most fragmentary way, in our collection of statistical data.

The present introduction, then, falls far short of developing the full significance of the materials contained in later chapters. But there is one more problem which must be discussed, both because of its relation to the duration of business cycles, and because of its large significance.

2. A Conspectus of Business Conditions in Different Countries.

Opinions differ widely concerning the relations between the economic fortunes of different countries. One prevalent view, often implied in discussions of public policy though seldom avowed openly, is that competition for foreign markets and foreign investments makes one nation's gain another nation's loss. A second view is that small countries with a vast commerce—England, the Netherlands, Belgium, Sweden and Norway—experience prosperity or depression as world business quickens or slackens; but that nations with a continental spread need feel slight concern about foreign factors—to them internal development is of overshadowing importance. There is still a third view, that business enterprise has been silently establishing a "world economy", a "commercial league of nations", in which all the members prosper or suffer together.

Needless to say, the annals do not give clear proof or disproof of any of these contentions. But they do indicate a trend in the direction of "world economy".

To facilitate international comparisons of economic fortunes, the annals of all the countries studied have been compressed into a single table. This conspectus begins with the United States and England in 1790, adds France in 1840, Germany in 1853, Austria in 1867, and 12 other countries in 1890. For the last generation it affords a fair view of world experience. The entries have the bleakness of statistical averages; they do not indicate the complexity of conditions prevailing every year within each country. For most purposes the fuller form of the annals given on later pages should be used rather than the conspectus. But it is only as we concentrate in each country upon the net resultant of its diverse conditions that we can gain a clear view of the international similarities and diversities. Even the conspectus is not simple enough to tell its own story; it needs to be analyzed and summarized, as the reader who looks it over will agree.

TABLE 10

Conspectus of Business Fluctuations in Various Countries

	1790	1791	1792	1793
United States	Revival; prosperity	Prosperity	Prosperity; financial distress	Prosperity
England	Moderate prosperity	Prosperity	Prosperity; financial strain	Recession; panic; depression

	1794	1795	1796	1797
United States	Uneven prosperity	Prosperity	Recession; depression	Depression; panic
England	Depression	Revival	Uneven prosperity	Recession; panic; depression

	1798	1799	1800	1801
United States	Depression	Revival	Prosperity	Mild prosperity
England	Depression	Depression	Depression	Depression; revival

	1802	1803	1804	1805
United States	Recession	Mild depression	Revival	Prosperity
England	Prosperity	Prosperity; recession	Mild depression	Revival

	1806	1807	1808	1809
United States	Prosperity	Prosperity; recession	Depression	Depression
England	Prosperity	Recession	Mild depression	Revival; prosperity

	1810	1811	1812	1813
United States	Revival	Moderate prosperity	Brief recession; uneven prosperity	Prosperity
England	Prosperity; recession	Deep depression	Revival	Prosperity

	1814	1815	1816	1817
United States	Prosperity; financial distress	Prosperity; panic; recession	Depression	Mild depression
England	Uneven prosperity	Boom; recession	Deep depression	Depression; revival

	1818	1819	1820	1821
United States	Mild depression	Severe depression; financial panic	Depression	Depression; revival
England	Prosperity	Recession; depression	Depression; slight revival	Slow revival

TABLE 10—(*Continued*)

CONSPECTUS OF BUSINESS FLUCTUATIONS IN VARIOUS COUNTRIES

	1822	1823	1824	1825
United States	Mild recession	Revival	Prosperity	Prosperity; panic; recession
England	Revival; prosperity	Prosperity	Prosperity	Prosperity; recession; panic
	1826	**1827**	**1828**	**1829**
United States	Depression; revival	Moderate prosperity	Prosperity; recession	Depression; revival
England	Depression	Revival	Prosperity	Recession; depression
	1830	**1831**	**1832**	**1833**
United States	Moderate prosperity	Prosperity	Moderate prosperity	Prosperity; panic; recession
England	Slow revival	Recession; depression	Depression	Revival
	1834	**1835**	**1836**	**1837**
United States	Mild depression	Revival; prosperity	Prosperity	Prosperity; panic; recession; depression
England	Prosperity	Prosperity; stock exchange panic	Prosperity; financial panic	Recession; panic; depression
	1838	**1839**	**1840**	**1841**
United States	Depression; slight revival	Revival; panic; recession	Depression	Depression
England	Depression	Depression	Depression	Depression
France	....	....	Revival	Prosperity
	1842	**1843**	**1844**	**1845**
United States	Depression	Depression; revival	Revival; prosperity	Prosperity; brief recession
England	Depression	Revival	Mild prosperity	Prosperity
France	Prosperity	Prosperity	Prosperity	Prosperity; bourse panic
	1846	**1847**	**1848**	**1849**
United States	Recession; mild depression	Revival; prosperity; panic; recession	Mild depression; revival	Prosperity
England	Prosperity	Prosperity; panic; recession	Depression	Depression; revival
France	Prosperity	Recession; panic	Depression; panic	Depression
	1850	**1851**	**1852**	**1853**
United States	Prosperity	Prosperity	Prosperity	Prosperity; recession
England	Prosperity	Prosperity	Prosperity	Prosperity
France	Depression	Depression	Revival	Prosperity
Germany	....	....	....	Revival

TABLE 10—(*Continued*)

CONSPECTUS OF BUSINESS FLUCTUATIONS IN VARIOUS COUNTRIES

	1854	1855	1856	1857
United States	Recession; depression	Depression; revival	Prosperity	Prosperity; panic; recession; depression
England.....	Recession	Mild depression	Revival; prosperity	Prosperity; panic; recession
France.......	Prosperity; brief recession	Prosperity	Brief recession	Moderate prosperity; panic; recession
Germany....	Prosperity	Prosperity	Prosperity; bourse panic	Prosperity; panic; recession

	1858	1859	1860	1861
United States	Depression	Revival	Prosperity; recession	Mild depression; revival
England.....	Depression	Revival	Prosperity	Uneven prosperity
France.......	Depression	Revival	Prosperity; recession	Recession
Germany....	Recession; depression	Depression	Revival	Mild prosperity

	1862	1863	1864	1865
United States	War activity	War activity	War activity	Boom; recession
England.....	Uneven prosperity	Uneven prosperity	Uneven prosperity; financial strain	Prosperity
France......	Mild depression	Uneven depression	Depression; financial panic	Depression
Germany....	Uneven prosperity	Moderate prosperity	Moderate prosperity	Prosperity

	1866	1867	1868	1869
United States	Mild depression	Depression	Revival	Prosperity; monetary difficulties
England.....	Recession; panic; depression	Depression	Depression	Revival
France.......	Revival	Recession; mild depression; bourse panic	Depression; revival	Prosperity;
Germany....	Prosperity; recession; depression	Depression; revival	Revival	Prosperity bourse panic
Austria......	....	Revival	Moderate prosperity	Prosperity; panic; recession

TABLE 10—(*Continued*)

CONSPECTUS OF BUSINESS FLUCTUATIONS IN VARIOUS COUNTRIES

	1870	1871	1872	1873
United States	Recession; mild depression	Revival; prosperity	Prosperity	Prosperity; panic; recession
England	Prosperity; panic	Prosperity	Prosperity	Prosperity; recession
France	Prosperity; recession; depression	Depression; panic	Revival	Recession; depression
Germany	Prosperity; brief recession	Prosperity	Prosperity	Prosperity; panic; recession; depression
Austria	Slow recession	Mild depression	Revival; prosperity	Prosperity; panic; recession

	1874	1875	1876	1877
United States	Depression	Depression	Depression	Depression
England	Depression	Depression	Depression	Depression
France	Mild depression	Revival	Gradual recession	Mild depression
Germany	Depression	Depression	Depression	Slow revival
Austria	Deep depression	Depression	Depression	Depression

	1878	1879	1880	1881
United States	Depression; revival	Revival; prosperity	Prosperity	Prosperity
England	Deepening depression	Depression; revival	Slow revival	Mild prosperity
France	Depression	Revival; bourse panic	Prosperity	Moderate prosperity
Germany	Recession; depression	Depression; revival	Recession; mild depression	Renewed revival
Austria	Depression	Depression	Revival	Mild prosperity

	1882	1883	1884	1885
United States	Prosperity; slight recession	Recession	Depression	Depression; revival
England	Mild prosperity	Slow recession	Depression	Depression
France	Recession; panic	Depression	Depression	Depression
Germany	Prosperity; recession	Mild depression	Depression	Depression
Austria	Moderate prosperity; bourse panic	Prosperity	Recession	Mild depression

	1886	1887	1888	1889
United States	Revival	Prosperity	Brief recession	Prosperity
England	Depression; slight revival	Revival	Moderate prosperity	Prosperity
France	Depression	Revival	Moderate prosperity	Moderate prosperity; financial strain
Germany	Depression; revival	Revival	Moderate prosperity	Prosperity
Austria	Depression; revival	Revival	Prosperity	Prosperity

TABLE 10—(*Continued*)

Conspectus of Business Fluctuations in Various Countries

	1890	1891	1892	1893
United States	Prosperity; recession	Depression; revival	Prosperity	Recession; panic; depression
England	Prosperity; panic; recession	Industrial recession; financial prostration	Depression	Deep depression
France	Recession; mild depression	Mild depression	Depression	Depression
Germany	Recession	Depression	Depression	Depression
Austria	Uneven prosperity	Prosperity	Recession	Revival
Russia	Mild prosperity	Recession, depression	Depression	Revival
Sweden	Prosperity	Prosperity	Recession, mild depression	Depression
Netherlands	Mild prosperity	Recession	Depression	Depression
Italy	Depression	Depression; panic	Depression	Depression; panic
Argentina	Recession; depression	Depression; panic	Revival, recession	Mild depression
Brazil	Depression	Depression	Uneven depression	Depression
Canada	Mild depression	Depression; revival	Mild prosperity	Recession; depression
South Africa	Prosperity; recession; depression	Depression	Rapid revival	Prosperity
Australia	Recession; depression	Depression	Depression	Depression; panic
India	Mild depression	Depression	Uneven depression	Depression
Japan	Recession; depression	Depression	Depression	Mild depression
China	Mild depression	Mild depression	Depression deepens	Depression

TABLE 10—(*Continued*)

CONSPECTUS OF BUSINESS FLUCTUATIONS IN VARIOUS COUNTRIES

	1894	1895	1896	1897
United States	Deep depression	Depression; revival	Recession; depression	Depression; revival
England.....	Depression	Depression; revival last half-year	Revival; prosperity	Prosperity
France.......	Depression	Depression; revival	Revival	Moderate prosperity
Germany....	Depression; revival	Revival	Prosperity	Prosperity
Austria......	Recession; mild depression	Mild depression	Mild depression	Mild depression
Russia.......	Prosperity	Prosperity	Prosperity	Prosperity
Sweden......	Mild depression	Revival	Prosperity	Prosperity
Netherlands..	Depression	Depression	Revival	Mild prosperity
Italy.........	Depression	Depression	Depression; slight revival	Revival
Argentina....	Depression	Lessening depression	Revival	Revival retarded
Brazil........	Revival	Mild prosperity	Recession; panic; depression	Depression; panic
Canada......	Acute depression	Depression	Lessening depression	Revival
South Africa.	Prosperity	Prosperity; recession	Depression	Depression
Australia....	Depression	Depression; slight revival	Strong revival	Mild prosperity; agricultural depression
India........	Uneven revival	Mild prosperity	Recession	Depression
Japan........	Revival; recession	Revival	Prosperity	Prosperity; recession
China.......	Depression	Revival	Prosperity	Gradual recession

TABLE 10—(*Continued*)

CONSPECTUS OF BUSINESS FLUCTUATIONS IN VARIOUS COUNTRIES

	1898	1899	1900	1901
United States	Revival; prosperity	Prosperity	Prosperity, brief recession	Prosperity
England.....	Prosperity	Prosperity	Prosperity; recession, summer	Mild depression
France.......	Prosperity	Prosperity	Prosperity; recession	Depression
Germany....	Prosperity	Prosperity	Prosperity; recession; depression	Depression
Austria......	Mild depression; revival	Mild prosperity	Recession; depression	Depression
Russia.......	Prosperity	Prosperity; panic; recession	Recession; depression	Depression
Sweden......	Prosperity	Prosperity	Prosperity	Recession; depression
Netherlands.	Prosperity	Prosperity	Prosperity	Recession; mild depression
Italy........	Uneven prosperity	Mild prosperity	Prosperity; brief recession	Prosperity
Argentina....	Mild prosperity	Prosperity	Recession; depression	Depression
Brazil.......	Depression deepens	Depression; revival	Revival; panic; recession	Mild depression
Canada......	Prosperity	Prosperity	Prosperity; slight recession	Revival; prosperity
South Africa.	Depression	Revival; recession	Depression	Revival
Australia....	Prosperity	Prosperity	Prosperity	Recession
India........	Slow revival	Moderate prosperity	Recession	Depression
Japan.......	Depression	Depression	Deeper depression	Depression; financial panic, spring
China.......	Mild depression	Revival; prosperity	Prosperity; recession; depression	Depression; revival

TABLE 10—(*Continued*)

CONSPECTUS OF BUSINESS FLUCTUATIONS IN VARIOUS COUNTRIES

	1902	1903	1904	1905
United States	Prosperity	Prosperity; recession	Mild depression; revival	Prosperity
England	Lessened depression	Depression deepens	Revival	Revival; prosperity
France	Depression	Revival	Moderate prosperity	Prosperity
Germany	Depression	Revival	Mild prosperity; recession	Revival; prosperity
Austria	Depression	Depression; revival	Revival	Mild prosperity
Russia	Depression	Depression; revival	Recession; depression	Depression
Sweden	Depression	Revival	Mild prosperity	Prosperity
Netherlands	Depression	Depression	Revival; prosperity	Prosperity
Italy	Moderate prosperity	Prosperity	Prosperity	Prosperity
Argentina	Depression; revival	Prosperity	Prosperity	Prosperity
Brazil	Mild depression	Depression deepens	Depression	Depression
Canada	Prosperity; financial distress	Prosperity	Uneven prosperity	Full prosperity
South Africa	Prosperity	Recession	Depression	Depression
Australia	Mild depression	Deepening depression	Revival	Mild prosperity
India	Revival	Prosperity	Prosperity	Prosperity
Japan	Slow revival	Revival	Prosperity	Prosperity; recession; depression
China	Mild prosperity	Mild prosperity	Mild prosperity	Mild prosperity

TABLE 10—(*Continued*)

CONSPECTUS OF BUSINESS FLUCTUATIONS IN VARIOUS COUNTRIES

	1906	1907	1908	1909
United States	Prosperity	Prosperity; panic; recession; depression	Depression	Revival; mild prosperity
England	Prosperity	Prosperity; recession	Depression	Revival
France	Prosperity	Prosperity	Recession; mild depression	Revival
Germany	Prosperity	Prosperity; recession; depression	Depression	Depression; revival
Austria	Prosperity	Prosperity	Recession; depression	Depression
Russia	Depression; slight revival	Revival	Recession; depression	Depression; revival
Sweden	Prosperity	Prosperity; recession; panic	Depression	Depression
Netherlands	Prosperity	Prosperity	Depression; revival	Revival; prosperity
Italy	Prosperity	Prosperity; recession	Depression	Depression
Argentina	Prosperity	Prosperity	Mild recession	Revival; prosperity
Brazil	Slow revival	Revival; recession, autumn	Depression	Revival
Canada	Prosperity peak	Prosperity; panic; recession	Depression; revival	Revival
South Africa	Depression	Depression deepens	Depression lessens	Revival
Australia	Prosperity	Prosperity	Recession; mild depression	Rapid revival; prosperity
India	Prosperity	Prosperity; recession	Depression	Depression; slight revival
Japan	Revival; prosperity	Prosperity; panic; recession	Depression	Depression; revival
China	Recession	Depression	Depression	Revival

TABLE 10—(*Continued*)

CONSPECTUS OF BUSINESS FLUCTUATIONS IN VARIOUS COUNTRIES

	1910	1911	1912	1913
United States	Recession	Mild depression	Revival; prosperity	Prosperity; recession
England.....	Prosperity	Prosperity	Prosperity	Prosperity; recession, last quarter
France.......	Prosperity	Prosperity	Prosperity	Prosperity; recession
Germany....	Revival; prosperity	Prosperity	Prosperity	Prosperity; recession
Austria......	Depression	Revival	Prosperity; recession; depression	Depression; panic
Russia.......	Prosperity	Prosperity	Prosperity	Prosperity except on bourse
Sweden......	Revival	Prosperity	Prosperity	Prosperity; slight recession
Netherlands..	Prosperity	Prosperity	Prosperity	Recession
Italy........	Mild depression	Revival halted, autumn	Uneven prosperity	Mild prosperity; recession
Argentina....	Prosperity	Recession; mild depression	Depression; revival, autumn	Recession
Brazil........	Prosperity	Prosperity	Prosperity	Uneven prosperity
Canada......	Prosperity	Prosperity	Prosperity	Prosperity; recession
South Africa.	Prosperity	Prosperity	Prosperity	Uneven recession
Australia....	Prosperity	Prosperity	Prosperity	Mild recession
India........	Revival	Prosperity	Prosperity	Uneven prosperity
Japan.......	Revival; prosperity	Prosperity	Prosperity	Prosperity
China.......	Recession	Depression	Depression	Depression

TABLE 10—(*Continued*)

CONSPECTUS OF BUSINESS FLUCTUATIONS IN VARIOUS COUNTRIES

	1914	1915	1916	1917
United States	Depression	Revival; prosperity	Prosperity	Prosperity; war activity
England.....	Mild depression deepens with war	War activity	War activity	War activity
France.......	Depression	War activity	War activity	War activity
Germany....	Mild depression; revival	War activity	War activity	War activity
Austria......	Depression	War activity	War activity	War activity
Russia.......	Recession; panic; depression	Uneven depression	War activity	Recession; depression
Sweden......	Recession; depression	Revival, prosperity	Prosperity	Recession
Netherlands..	Recession; panic; depression	Revival; uneven prosperity	Moderate prosperity	Recession
Italy........	Recession; panic; depression	Uneven depression	War activity	War activity
Argentina....	Depression; panic	Uneven depression	Depression; slow revival	Revival
Brazil.......	Depression deepens	Depression; revival	Revival; prosperity	Prosperity
Canada......	Depression deepening with war	Depression; revival	War activity	War activity
South Africa.	Recession; depression	Slow revival	Rapid revival	Prosperity
Australia.....	Revival; recession	Mild depression; revival	War activity	War activity
India........	Prosperity; recession	Depression	Revival	Prosperity
Japan.......	Recession; depression	Revival; prosperity	Prosperity	Uneven prosperity
China.......	Depression deepens	Depression	Revival; prosperity	Uneven prosperity

TABLE 10—(*Continued*)

CONSPECTUS OF BUSINESS FLUCTUATIONS IN VARIOUS COUNTRIES

	1918	1919	1920	1921
United States	War activity; recession	Revival; prosperity	Prosperity; recession; depression	Depression
England.....	War activity; recession	Revival; prosperity	Prosperity; recession; depression	Deep depression
France.......	War activity; stagnation	Depression; revival; boom	Prosperity; recession; depression	Depression; revival
Germany....	War activity; disorganization, November	Depression	Depression	Revival, spring
Austria......	War activity; chaos	Depression	Slow revival	Revival
Russia.......	Depression	Depression	Depression	Depression
Sweden......	Depression	Depression; revival	Boom; recession; depression	Depression
Netherlands..	Depression	Revival; prosperity	Prosperity; recession; depression	Depression
Italy........	War activity; slight recession	Mild depression; revival	Recession; depression	Depression; panic
Argentina....	Moderate prosperity	Prosperity	Prosperity; recession	Depression
Brazil.......	Prosperity; brief recession	Prosperity	Prosperity; recession; depression	Severe depression
Canada......	War activity; recession	Revival; prosperity	Prosperity; recession	Depression
South Africa.	Prosperity; recession	Revival; prosperity	Prosperity; recession; depression	Deep depression
Australia.....	War activity	Prosperity	Prosperity; recession	Depression
India........	Prosperity; recession	Revival; prosperity	Prosperity; recession; depression	Depression
Japan.......	Uneven prosperity; recession	Depression; revival; prosperity	Prosperity; recession; depression	Depression
China.......	Uneven prosperity	Prosperity	Prosperity; recession; depression	Depression

TABLE 10—(*Continued*).

CONSPECTUS OF BUSINESS FLUCTUATIONS IN VARIOUS COUNTRIES

	1922	1923	1924	1925 (Preliminary)
United States	Revival; prosperity	Prosperity; recession	Mild depression; revival	Prosperity
England.....	Depression	Depression	Lessening depression	Depression
France.......	Revival	Prosperity	Prosperity	Prosperity
Germany....	Revival checked, summer; disorganization	Depression	Revival; temporary check, summer	Halting revival; recession
Austria......	Uneven recession	Depression	Depression; financial strain	Depression
Russia.......	Depression; slight revival	Revival; recession, October	Mild depression; revival	Uneven prosperity; recession
Sweden......	Depression; revival	Revival	Mild prosperity	Mild prosperity
Netherlands..	Depression	Depression	Revival	Mild prosperity
Italy........	Depression	Depression; revival	Moderate prosperity	Prosperity
Argentina....	Depression	Lessening depression	Revival	Prosperity
Brazil.......	Lessening depression	Revival	Mild prosperity; recession	Depression
Canada......	Depression; revival	Moderate prosperity	Recession; mild depression	Revival; prosperity
South Africa.	Depression	Revival	Mild prosperity	Prosperity
Australia.....	Slow revival	Revival; mild prosperity	Mild recession	Revival; prosperity
India........	Depression	Slow revival	Revival; mild prosperity	Mild prosperity
Japan.......	Depression	Depression	Depression	Depression; revival
China.......	Depression	Depression	Depression	Depression

3. How Closely the Cycles in Different Countries Agree.

Concerning the fact of fundamental interest in this inquiry, the conspectus of business conditions gives an exaggerated impression of century-long and world-wide similarity. Periods of prosperity, recession, depression and revival are here pictured as recurring in much the same way in every country and during every decade. The fuller form of the annals makes it clear, not only that this recurrence is nowhere the whole story of economic fluctuations, but also that it is farther from being the whole story in some countries than in others. The importance of business cycles as a factor in national life was less during the closing decades of the 18th century than during the opening decades of the 20th century in England and the United States. There is a similar difference between these two countries and China, Russia or Brazil at present. The more highly organized a country's business, the larger the proportion of its people who live by making and spending money incomes, the more important become the recurrent cycles of activity. Let us, however, take cyclical oscillations for granted, disregard their relative importance, and inquire what influence the cycles in one country exercise upon cycles in other countries.

It has long been recognized that the great financial crises have an international sweep. Thus the conspectus shows that England and the United States shared in the crises of 1815, 1825 and 1837; that England, the United States and France (which now is represented in the annals) shared in the crisis of 1847; that these three countries, and Germany also, shared in the panic of 1857; that England, the United States, France, Germany and Austria shared in varying degrees the crisis of 1873. To these familiar facts our annals add that all five countries had mild recessions in 1882-84. Of the 17 countries included in the annals after 1890, 10 had recessions in 1890-91, 15 had recessions in 1900-01, 15 in 1907-08, 12 in 1912-13, 11 in 1918, and 14 in 1920. Further, the countries which escaped a share in these world reactions usually owed their exemption to still worse fortune. Thus South Africa and Japan had no recession in 1900-01 because they were already suffering from depression. The three countries of our 17 which escaped in 1920 were Germany, Austria and Russia.

Of course the experiences of the several countries were not identical in the years of crises and recessions. In the whole record there is no crisis which was equally severe everywhere. In 1873, for example, the United States, Germany and Austria suffered far more severely than England and France. In 1890, on the contrary, the financial strain was more severe in London than in New York or Berlin, while Vienna deferred its recession until 1892. The center of disturbance in 1900 seems to have been Germany; countries like the United States and Italy felt but repercussions of a foreign shock. In 1907 the gravest difficulties appeared in the United States. Probably the nearest approach to a severe world-wide crisis was made in 1920, and that case was obviously dominated by post-war re-adjustments. It is clear, however, that a financial crisis breaking out in any country of commercial importance produces financial strains in other countries, and that even mild recessions like those of 1882-83 and 1913 spread widely.

It has been less noticed that other phases of business cycles also propagate themselves. The long depressions of the 1870's, the checkered fortunes of the 1880's, the revival of the middle 1890's, the boom of 1906-7, the calmer prosperity of 1912, the hectic activity of the war years, and the severe depression after 1920 had much the same international character as the crises to which attention is commonly restricted.

Yet business cycles do not run a strictly parallel course in any two countries. Perhaps the best way to bring out the degree of likeness and difference in contemporary fortunes is to note the proportion of years in which conditions in different countries are described by the same terms in the conspectus, and the proportion of years in which conditions are described in unlike terms. An effort to carry out this plan shows that many years do not fall into either category. Business may be reviving in one country and already prosperous in another, depressed in one and entering depression in another; or conditions may be similar during the early part of a year and divergent in the closing months, or different at the start and convergent at the close. In such cases one cannot call the conditions quite similar or decidedly unlike. Thus it is necessary to recognize at least three types of relations between the synchronous phases of business cycles in different countries—agreement, partial agreement and opposition. Arbitrary definitions were adopted, and a statistical tabulation made of these relationships.[1]

Such a comparison of business conditions in the five countries for which we have annals running back of 1890 is provided by Table 11. Most of the comparisons here made show a preponderance of years in which the business cycles of the countries paired were passing through the same phases over years in which they were passing through opposite phases. The intimacy of relations is probably understated by the table; for it takes no account of the shifting relations of lead and lag in the influence exercised by business conditions in one country upon business conditions in the other country with which it is compared. As one would expect from England's position in international trade and finance, English cycles are more highly correlated with the cycles of other countries, than the cycles of other countries are correlated with each other. The closest agreements are found between English and French or English and German cycles; the loosest agreements are between Austrian and American cycles.

From the third section of the table, it appears that the international similarity of phase in business cycles increased on the whole with the passage of time. The breaking of economic bonds by the war, and the tardiness of their restoration after the Armistice, interfered with this process of synchronizing cycles. But the non-economic factors, which played so large a rôle after 1914, had much the same character and influenced business among all the belligerents in much the same way, so long as hostilities lasted. Since 1918, economic

[1] The rules followed by Dr. Thorp in preparing the data for the following table are as follows:

Agreement includes

1. Years in which two countries pass through the same phase or phases of a cycle.
2. Years in which two countries pass through at least two corresponding phases, though one may enter a third phase. Example: "Prosperity; recession" in one country, and "Prosperity; recession; depression" in another.

Partial agreement includes

Years in which two countries pass through phases of the cycle which succeed one another. Example: "Revival" in one country, and "Prosperity" in another; or "Recession" in one country, and "Recession; depression" in another.

Opposition of phases includes

Years in which opposite phases of cycles occur, whatever intermediate phases are noted. Example: "Prosperity; recession; depression" in one country, and "Depression; revival" in a second.

War activity is interpreted in this tabulation as corresponding to prosperity.
The relative severity of recessions in different countries is not taken into account.

TABLE 11

AGREEMENT AND DIFFERENCE OF PHASE IN ENGLISH, FRENCH, GERMAN, AUSTRIAN AND AMERICAN BUSINESS CYCLES

Various Periods

	Period Covered		Number of Years of			Percentage of Years of		
	Dates	Number of Years	Agreement in Phase	Partial agreement	Opposition in Phase	Agreement in Phase	Partial agreement	Opposition in Phase
I								
English and French cycles.	1867–1925	59	32	20	7	54	34	12
English and German cycles	" "	59	33	22	4	56	37	7
English and Austrian cycles	" "	59	27	21	11	46	36	19
English and American cycles	" "	59	28	18	13	47	31	22
French and German cycles.	" "	59	27	25	7	46	42	12
French and Austrian cycles	" "	59	19	21	19	32	36	32
French and American cycles	" "	59	23	23	13	39	39	22
German and Austrian cycles	" "	59	23	24	12	39	41	20
German and American cycles	" "	59	21	20	18	36	34	31
Austrian and American cycles	" "	59	18	23	18	31	39	31
II								
England and four other countries	1867–1925	236	120	81	35	51	34	15
Germany and four other countries	" "	236	104	91	41	44	39	17
France and four other countries	" "	236	101	89	46	43	38	19
United States and four other countries	" "	236	90	84	62	38	36	26
Austria and four other countries	" "	236	87	89	60	37	38	25
III								
English and American cycles	1790–1857	68	21	28	19	31	41	28
	1857–1925	68	33	21	14	49	31	21
English and French cycles..	1840–1882	43	12	17	14	28	40	33
	1883–1925	43	28	11	4	65	26	9
English and German cycles.	1853–1888	36	19	15	2	53	42	6
	1889–1925	37	21	13	3	57	35	8
English and Austrian cycles.	1867–1895	29	14	12	3	48	41	10
	1896–1925	30	13	9	8	43	30	27

fortunes have diverged widely. Presumably the business forces tending toward convergence are gradually resuming their wonted sway.

In treating the period when the annals include 17 countries, a more significant method of presenting the relations among their business cycles is feasible. For the cycles since 1890 have an international pattern simple enough to be carried in mind, and applied to the experience of one country after another. This pattern may be sketched as follows:

1st cycle, 1890-91 to 1900-01
Recession in 1890-91; depression in 1891-95; revival in 1895-96; prosperity in 1896-00; recession in 1900-01.

2nd cycle, 1900-01 to 1907-08
Recession in 1900-01; depression in 1901-03; revival in 1903-04; prosperity in 1905-07; recession in 1907-08.

3rd cycle, 1907-08 to 1913-14
Recession in 1907-08; depression in 1908-09; revival in 1909-10; prosperity in 1910-13; recession in 1913-14.

4th cycle, 1913-14 to 1918
Recession in 1913-14; depression in 1914-15; revival in 1915; prosperity in 1915-18; recession in 1918.

5th cycle, 1918 to 1920
Recession in 1918; very brief and mild depression early in 1919; quick revival in 1919; prosperity in 1919-20; recession in 1920.

6th cycle, 1920 to —— (unfinished)
Recession in 1920; severe depression in 1921-22; revival in 1922-23; mild prosperity in 1924-25.

During this period, of our 17 countries

Six have had 5 cycles and are now in a 6th: England, France, the Netherlands, Sweden, Italy and China.

Five have had 6 cycles and are now in a 7th: Austria, South Africa, Australia, Argentina and India.

Five have had 7 cycles and are now in an 8th: Germany, Russia, Canada, Brazil, and Japan.

One has had 10 cycles and is now in an 11th: the United States.

Thus no country in our list has had fewer business cycles since 1890 than the international pattern calls for; but the majority of countries have had one or two more than that number. These additional cycles seldom result from failure to participate in the international movements of activity and depression, but rather from the intercalation of what we may call domestic recessions between the dates of international recessions. To take the most striking case: the United States had its share in all the recessions of the international pattern; but it also had domestic recessions in 1893, 1896, 1903, 1910, and 1923. When a country skips an international recession, it is usually because that country has recently suffered a domestic recession. Thus business was already depressed in Japan and South Africa when the international recession of 1900 began; South Africa and China escaped the international recession of 1907 for similar reasons; so too the European neutrals had recessions in 1917 and not in 1918.

The countries whose business cycles diverge most from the international pattern are Italy before say 1907, Russia, South Africa, Brazil and China—all countries rather backward in economic organization and predominantly agricultural. The countries whose cycles have followed the international pattern most closely, on the other hand, are countries of highly developed industry, trade, and finance—England, France, Germany (until 1919), Sweden, and the Netherlands. Australia and Canada lag but a little behind these European powers in conformity. Austrian cycles were being assimilated closely to those of her western and northern neighbors in the decade before the war. Even British India and Japan have followed the European pattern of cycles without very striking divergencies.

Another way of summing up the international relationships of business cycles since 1890 is to run down the columns of entries in Table 10 for each year. There is no year of the 36 covered in which the same phase of the cycle prevailed in all of the 17 countries. Uniformity is approached, however, in 1893, 1899, 1906, 1908, 1912, 1916, 1920, and 1921; and in most years there is a marked preponderance of entries of similar tenor.

A graphic presentation of these facts is given by Chart VI. The irregular bands of white and of black which run vertically across the chart are not quite continuous in any year from 1890 to 1925. But the existence of a general trend toward uniformity of business fortunes is plain.

CHART VI. Conspectus of Business Cycles in Various Countries, 1790-1925.

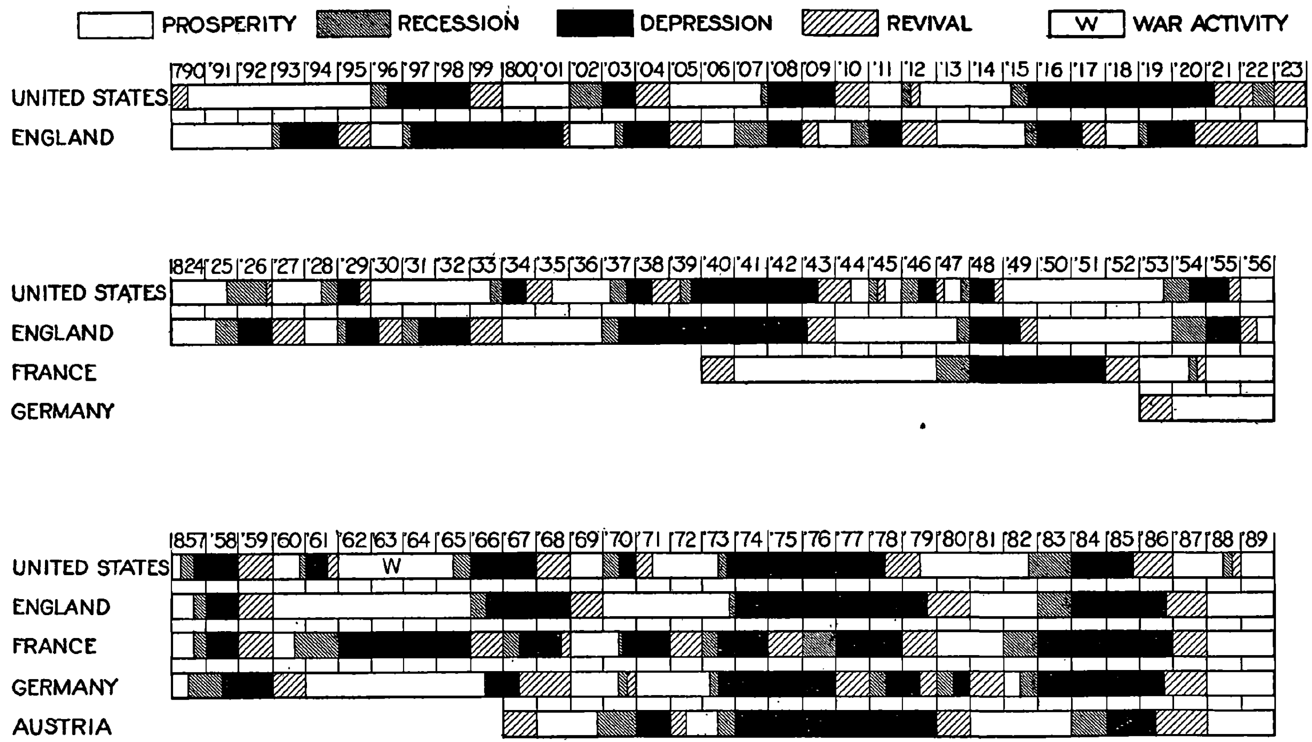
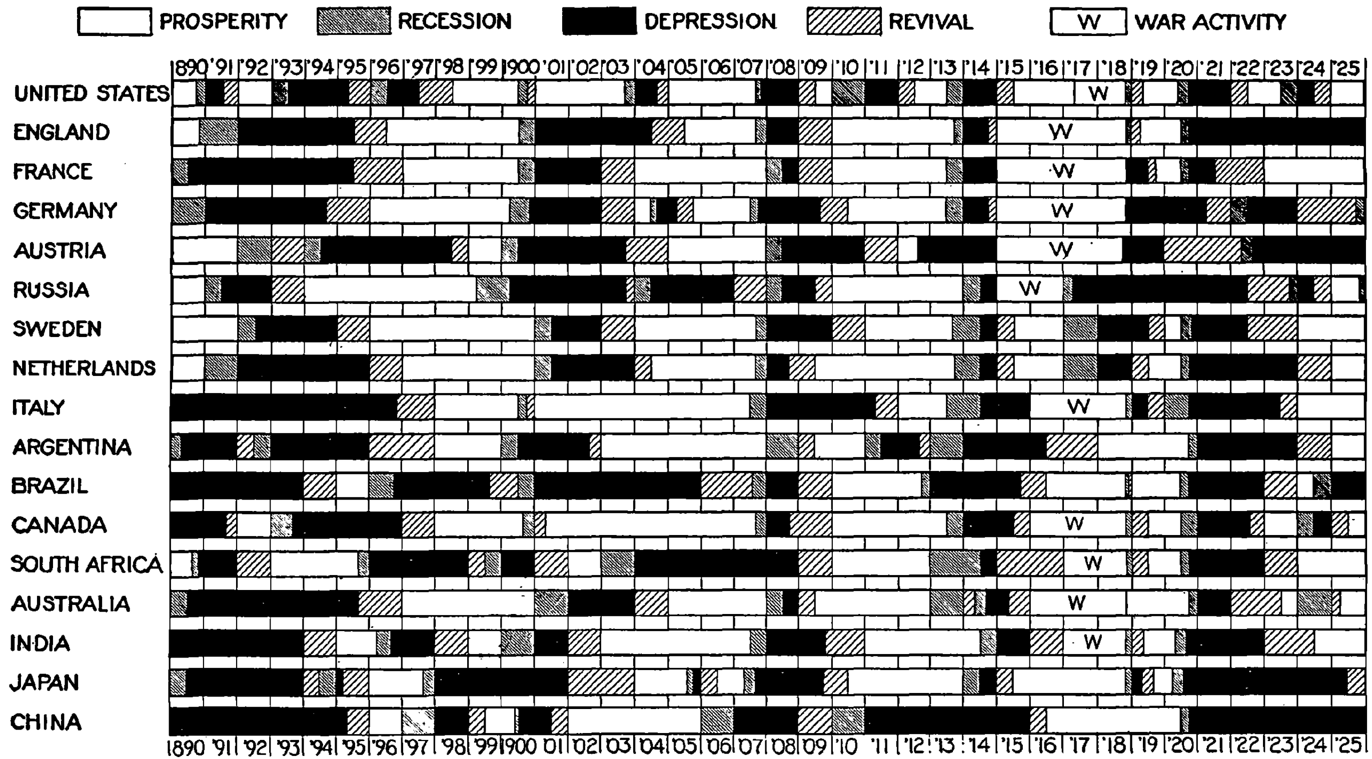


CHART VI. Conspectus of Business Cycles in Various Countries, 1790-1925—(*Continued*)



4. Domestic and Foreign Factors in Business Cycles.

Possibly this tendency to synchronize their phases, found in the business cycles of different countries, arises from some cosmic cause which affects all quarters of the globe in much the same way each year. Upon that daring hypothesis, our annals throw no light. But the annals do suggest certain tamer explanations, which account not only for the general resemblance among cycles in different countries, but also for their differences. These tamer explanations are not inconsistent with the cosmic hypothesis, but they do not depend upon it.

Whatever the causes of the recurrent fluctuations in economic activity may be, the annals suggest that these causes become active in all communities where there has developed an economic organization approximating that of western Europe. There appears to be a rough parallelism between the stage attained in the evolution of this organization by different countries, and the prominence of business cycles as a factor in their fortunes.

One characteristic of the type of organization in question is the wide area over which it integrates and coördinates economic activities. Bare as they are and short their span, the annals reveal a secular trend toward territorial expansion of business relations and a concomitant trend toward economic unity. For example, the American annals show how often the fortunes of the North, the South and the West diverged from one another in the earlier decades after the adoption of the Constitution, and how these divergencies have diminished in later decades. Not that business is ever equally prosperous or equally depressed in all states of the Union even now: always there are perceptible differences, and at times the differences are wide, particularly among the great farming "belts". Yet the annals picture the vastly greater population of today, spread over a vastly greater territory, as having more unity of fortune than had the people of the thirteen original states and the frontier settlements in 1790-1820.

Broadly speaking, the annals support a similar conclusion for the world at large. The network of business relations has been growing closer and firmer, at the same time that it has been stretching over wider areas. The annals allow us to catch some glimpses of this double trend within the borders of a few countries besides the United States, and they show it clearly in the relations among different countries. As American business is coming to have one story, diversified by agricultural episodes, so, before the war shattered international bonds for a time, world business seemed to be approaching the time when it too would have one story, diversified by political and social as well as agricultural episodes in different countries.

The basis of this trend toward unity of economic fortunes among communities organized on the European model is that each phase in a business cycle, as it develops in any area, tends to produce the same phase in all the areas with which the first has dealings.

Prosperity in one country stimulates demand for the products of other countries, and so quickens activities in the latter regions. Prosperity also lessens the energy with which merchants, financiers, and contractors seek competitive business in neutral markets, and so gives a better chance to the corresponding classes in countries where the domestic demand is less active. Further, prosperity, with its sanguine temper and its liberal profits, encourages investments abroad as well as at home, and the export of capital to other countries gives an impetus to their trade. A recession checks all these stimuli. A severe crisis in any important center produces quicker and graver results. Demands for financial assistance raise interest rates and reduce domestic lending power in other centers; apprehensions regarding the solvency of international houses may start demands for liquidation in many places; the losses which bankruptcies bring are likely to be felt by business enterprises the world over. So, too, with depressions and revival; wherever they prevail, they exert influences upon businss elsewhere which tend to produce depressions or revivals in all regions with which the center of disturbance trades.

Nor are these relations one-sided. The condition of business in every country not only influences, but is influenced by conditions in other countries. The trend toward international similarity of business cycles is enforced by an endless series of actions and re-actions among the influences exerted and experienced by all the nations which deal with each other.

Of course, the degree of influence exerted by business conditions in a given area upon business elsewhere depends upon the importance of that area in international commerce and finance. Similarly, the sensitiveness of business in a given area to the influence of business conditions elsewhere is least in communities like interior China, whose economic activities are mainly self-contained, and greatest in communities which depend largely upon foreign markets, foreign investments, and foreign sources of supply, like England. It is also clear that a country of the latter type will reflect world conditions more faithfully, the more widely its foreign interests are distributed.

While this line of analysis explains the tendency of business cycles in different countries to synchronize their phases, it does not hide the obstructions which this tendency meets.

In so far as the people in any country buy and sell, lend and borrow only among themselves, they are likely to have economic vicissitudes all their own. Agricultural communities which live largely on what they produce suffer more from acts of nature than farming populations which trade extensively; but they have little share in the world fluctuations of business. Even in countries where farmers are more business-like, we have noted that agriculture has a story of its own, dictated by the weather at home and abroad—a story which often differs from the story of mining, manufactures, transportation, wholesale trade, and finance.[1] Of course the agricultural story modifies the general tale. Fluctuations in the cost of raw materials and of foods, as well as fluctuations in the buying power of farm families, react upon the prosperity of other industries in proportion to the relative weight of agriculture in the country's total business. Hence, the larger the agricultural element in a given nation, the less likely are that nation's business cycles to fit neatly into the international pattern over a long series of years. For two nations with large farming interests are not likely to have closely similar harvest fluctuations year after year. The one development touching agriculture which most clearly tends toward unifying business fortunes is the decline in the proportion of families which depend on farming, and the concomitant increase in the proportion following industrial pursuits. Dr. Thorp's prefaces to the chapters of annals which follow show that this decline is world-wide.

While the rise of large-scale industry within a nation of cultivators, craftsmen and petty traders links its economic life to that of other nations, there may be a stage in this development when international influences seem to recede and domestic influences to grow more important. The first modern mines, factories, railways,

[1] In one way, the development of a "world market" for the great agricultural staples even increases the hazards of farming. A scanty yield of wheat in Canada, for example, need not cause a compensatory rise of prices.

and banks in such a country are likely to be foreign enterprises, dependent upon foreign investors for their capital and perhaps upon foreign customers for their markets. During that stage, such business as the outside world recognizes in the new-old country will be peculiarly sensitive to foreign fluctuations in finance and commerce. Meanwhile, if the new ventures prosper, natives of the country will learn to imitate modern methods and to consume modern products. Alongside the foreign-owned enterprises, domestic enterprises will multiply, drawing their capital from home sources and selling largely in the home market. After a time perhaps most of the early enterprises will be sold by their foreign owners to native business men. During this stage the country's business will seem to be emancipating itself from the domination of outside influences, and its business cycles will diverge more widely from the international pattern. But if the process of modernizing economic life continues until a considerable fraction of the population is affected, then a gradual reapproach toward world conditions will begin. Some such series of changes probably explains in part, but in part only, a curious feature of our Russian annals. In the earlier years covered by this record, Russian cycles followed the international pattern more closely than in the later years of the Tsarist regime.[1] Perhaps Chinese business will pass through similar stages in the not-distant future.

Besides differences in economic organization, in the proportion of people engaged in farming, and in harvest conditions, there is a host of more obvious causes of divergencies among business cycles, whether we consider successive cycles in the same country or synchronous cycles in different countries. Wars and civil disturbances play a prominent rôle in business annals, and that rôle is most erratic. Many of the differences of business fortune which the annals show seem ascribable to such factors; but we have had occasion to note that during its earlier stages, at least, the World War had a unifying effect upon conditions among both belligerents and neutrals. The after-effects of this war, however, were far from uniform in different nations. In the cycles of every country we can trace also the influence of changes in monetary conditions, banking organization and tariff acts domestic or foreign, if not the influence of changes in taxation, internal improvement plans and public regulation of business enter-

[1] For a fuller discussion of the relations between business cycles in Russia and in Western Europe, see S. A. Pervushin, *The Business Conjuncture,* Moscow, 1925, pp. 209-213. The writer is indebted to Dr. Simon Kuznets for a synopsis of Professor Pervushin's analysis.

prises. Besides these governmental matters, it seems probable that differences of national habit in respect to enterprise and thrift affect the frequency and violence of business oscillations. Still other matters which may count are changes in the methods of directing investments, the integration of industry, the organization of labor, the development of social insurance. But there is little point in extending a list of factors whose relative importance we cannot weigh.

This much seems clear: business activity is influenced by countless developments in the realms of nature, politics and science, as well as by developments within the realm of business itself; few of these developments occur at the same time, in the same form and on the same scale in all countries. Thus there is no difficulty in understanding why business cycles vary in many ways from nation to nation, though it is quite impossible as yet to assign its relative importance to each (perhaps to any) cause of divergence. One's final reflection may be that the quiet business forces working toward uniformity of fortunes must be powerful indeed to impress a common pattern upon the course of business cycles in many countries. And the increasing conformity to an international pattern which the annals reveal in recent years shows that the international influences are gaining in relative importance.