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CHAPTER V.

RESULTS AND PLANS.

I. The Concept of Business Cycles.

1. Evolution of the Concept.

To the early workers in our field the pressing problem was to account for the dramatic events which they called "commercial crises." Not only did they confine themselves mainly to this single phase of business fluctuations; also they confined themselves mainly to excogitating explanations. The occurrence of crises was known to everyone. What need was there of elaborate factual investigations? And why need one explain prosperity?

This approach led to a discussion which centered in the validity of rival doctrines, rather than in the characteristics of business fluctuations. The participants debated with each other on the basis of common knowledge, reënforced by occasional citations of evidence. Even in using evidence, their aims were oftener dialectical than positive. A second consequence was that the discussion tended to drift away from the main body of economic theory and to become a "specialty." For when crises are taken out of their setting in a continuous process of change, they appear to be "abnormal" phenomena. As such they lie on the edge, rather than in the center, of the theoretician's domain. In discussions of what were taken to be the leading problems of economics, changes in business activity were among the matters hidden from sight under the blanket assumption, "other things remaining the same." While chapters on the cause of crises appeared in some of the standard treatises which applied economic principles to practical issues, the topic had no place in "pure theory." Most of the contributions were monographs, and many of the writers had but slender knowledge of economics. As late as 1898, Böhm-Bawerk thought it necessary to argue that a theory of crises "should always form the last, or next-to-the-last, chapter in a system of economic theory, written or unwritten."[1] The converse view, that ideas developed in the study of business fluctuations may lead to reformulations of economic theory, still strikes most economists as strange.[2]

A broader conception of the problem was implied by John Wade's casual observation, made in 1833, that "the commercial cycle," with its "alternate periods of prosperity and depression," had been running its course in England "during the last seventy years."[3] Probably the notion that trade fluctuations are cyclical occurred independently to other men; certainly it spread rapidly. Clement Juglar made this conception his own, and in 1860 sought to show the relations between the "three periods of prosperity, crisis, and liquidation," which "always follow one another in the same order." More than that, Juglar threw himself energetically into factual investigations, basing his conclusions largely upon analyses of changes in commodity prices, interest rates, and bank balances, supplemented by a history of crises since 1696.[4] His work marks a critical turning point in the study. But, though Juglar grasped the need of dealing with business cycles, he called his book *Des Crises Commerciales*. If to this day many writers (especially Europeans) follow his precedent in choosing titles for their books, they also follow his other precedent by making their theories of crises include a discussion of prosperity and depressions, if not also of revivals.[5]

Most of the changes made since Juglar's time in the conception of the problem have resulted from doing the kind of work he did on a larger scale and more intensively. Ideas implicit in his notions have become clear; matters which he passed over lightly have been emphasized; better methods of analyzing time series have been invented; terms have come into use which Juglar would not have under-

[1] See Böhm-Bawerk's review of Eugen von Bergmann's *Geschichte der Nationalökonomischen Krisentheorien*, in *Zeitschrift für Volkswirtschaft, Sozialpolitik und Verwaltung*, vol. vii, p. 112.

[2] Compare Dr. Adolf Löwe's elaborate argument that the problem of cyclical fluctuations cannot be treated by the "variation methods" of pure economics, and that it, among other problems, calls for the development of a dynamic theory, in which the concept of equilibrium will be replaced by the concept of cyclical oscillations. "Wie ist Konjunkturtheorie überhaupt möglich?" *Weltwirtschaftliches Archiv*, October, 1926, vol. xxiv, pp. 165-197.

[3] See Chapter I, section iii.

[4] To appreciate the scope of Juglar's long-continued labors, one must examine the second edition of his book, *Des Crises Commerciales*, Paris, 1889. The phrases quoted in the text are from p. 21.

[5] For example, see Mentor Bouniatian's remarks concerning the ground which should be covered by a theory of crises: *Les Crises Économiques*, Paris, 1922, p. 28.

stood. Both in seeming and in truth, the whole discussion is on a different plane; yet one can read many of the ideas which seem to us fresh between the lines of Juglar's book, if not in the text itself.

Juglar did not realize clearly that the intervals between crises frequently contain two, and sometimes contain three, alternations of prosperity and depression. Nor is this important fact firmly grasped by contemporary writers upon crises. It stands out sharply only when one analyzes appropriate time series, or reads business reviews with care. Of course, the reason why these brief cycles are overlooked by writers upon crises is that the cycles in question include no crises, in the traditional meaning of the term. A man who composes a treatise upon "Commercial Crises" may entertain the idea of "commercial cycles," plan to treat them, and yet not recognize a goodly part of the cycles revealed by his own materials. To minimize the danger of being thus misled, statistical investigators, who plume themselves upon following faithfully the indications of their data, have discarded what seemed to be the most firmly established term in the whole discussion. They call the transition from prosperity to depression a recession. It follows that the cycles which they recognize are briefer on the average than the cycles of the books on crises. Instead of thinking about periods seven or eight years long, they think of three- or four-year cycles as typical. But they are also concerned to find how the longer and shorter cycles are distributed about this mode, and how the average duration of cycles varies from period to period and from one country to another.

In word, at least, Juglar held that crises are "periodic": his full title runs *Des Crises Commerciales et de leur Retour Périodique en France, en Angleterre et aux États-Unis*. But his own history of crises in these three countries shows that in no one of them have the intervals between crises been regular. Theoretical writers frequently follow this inexact precedent, calling crises periodic in their titles and showing in their texts that the period varies widely.[6] Statistical

[6] Compare the titles of the following books with the passages cited in each: A Aftalion, *Les Crises Périodiques de Surproduction*, Paris, 1913, vol. i, pp. 8-14; M. Bouniatian, *Les Crises Économiques—Essai de Morphologie et théorie des crises économiques périodiques*, Paris, 1922, pp. 42-45; J. Lescure, *Des Crises Générales et Périodiques de Surproduction*, 3d ed., Paris, 1913, pp. 1-288 (note the intervals between the dates of the crises described); Ludwig Pohle, *Bevölkerungsbewegung, Kapitalbildung, und periodische Wirtschaftskrisen*, Göttingen, 1902, statistics in the appendix, especially pp. 89-90.

This may be one more case in which we should explain what seems to be a verbal contradiction by observing that what a theorist takes to be "normally" true he does not expect to find historically true.

workers have avoided this loose use of a term which in other sciences implies strict regularity of timing. What they find to be regular is the recurrence of prosperity, recession, depression and revival, in that sequence. One of their leading aims, as said above, is to find out just how business cycles, and their constituent phases, vary in duration. Yet to this day an occasional critic treats the word "cyclical" as synonymous with "periodic," and imputes belief in the periodicity of fluctuations to writers upon business cycles.

John Wade spoke confidently of "the" commercial cycle; on occasion Juglar used the corresponding French phrase; [7] there are recent books upon "the" business cycle and "the" trade cycle.[8] Possibly the misleading implications which can be read into these phrases would have been accepted by their early users. John Wade may have conceived the commercial cycle as a single movement, or as a succession of grand, unitary swings from prosperity to depression and back again. Maybe a ghost of this dim notion still haunts the minds of some who trace business cycles to a single cause. But most of those who now speak of "the" business cycle, mean by it, not one phenomenon, but a congeries of interrelated phenomena. Increasing emphasis upon the diversities in respect to amplitude and timing found among the cyclical fluctuations of different processes is highly characteristic of recent work. Statistics provide no direct evidence of the existence of "the" business cycle; what they provide is evidence of cyclical fluctuations in hundreds of time series. Indeed, it is difficult to construct from the data, or even to conceive of constructing, any single index of "the general trend" in business activity.[9] But the more thoroughly investigators anatomize the business cycle, the more they need a general term to designate the whole.

Yet the words we use set traps for us. Starting with a vague conception of a group of seemingly related phenomena which we wish to study, we name it. That step is necessary, but dangerous. The definiteness of the name may conceal from us the indefiniteness of our knowledge. If the name is a compound of words familiar in other uses, we may take their implications for facts. Assuming tacitly that

[7] For example, "Le cycle est parcouru dans le monde entier sur toutes les places de commerce;" *Des Crises Commerciales*, 2d ed., p. 17.

[8] For example, Miss Dorothy S. Thomas calls her valuable study *Social Aspects of the Business Cycle*, and Mr. F. Lavington uses *The Trade Cycle* as a title.

[9] Compare Chapter III, section vi, 2 "A Critique of the Indexes of Business Conditions."

we know what we have named, we may begin contriving explanations, when we should be trying to find out what our words mean.[10]

All this was said at the beginning of the book. It explains why no definition of business cycles was given there. It explains why even the review of theories was made to emphasize a fundamental feature of business cycles, to indicate what detailed facts should be looked for, and how those facts should be studied. It explains the long chapters on economic organization, statistical methods, and business annals. It explains the present section on the evolution of the concept of business cycles. Even now, we can do no more than frame a working definition to use in trying to learn more—a definition which presumably will require modification as knowledge grows.

2. A Working Concept of Business Cycles.

To find out what business cycles are, we have looked at them through the eyes of economic theorists, through the eyes of economic statisticians, and through the eyes of business reporters. Each group of workers helps us to appreciate features of the common object which the other groups take for granted, or fail to see. It is by combining the three sets of observations that we can form the mental picture of business cycles most useful in the constructive work which lies before us.

(1) Elements derived from Business Reports.

Treated in one way, business reports give a most confusing view of business fluctuations; but treated in another way, they give the simplest view. When we wade through the commercial histories printed in financial papers or consular documents, we may get no general impression except that of infinite detail. But by careful planning and hard work, we can put these records in such form that they afford a view over wide areas and through decades. Then the details fade, and the broad features of commercial history become clear. Among these broad features, one of the most prominent is a pattern in the changes taking place in time—a pattern common to all countries which can be said to have a business history. Again and

[10] It seems to me that as a name for our subject "the business cycle" exposes us to these dangers rather more than does "business cycles." On that ground, I prefer the latter term in most contexts. Surely it is safer usage to speak of "commercial crises" than to speak of "the commercial crisis."

again in many lands, a period of active trade ends in a relapse; then dull times prevail; afterwards comes a quickening, and presently trade is active once more. This frequently recurring sequence, of which there are so many examples in the record slowly built up by the coöperation of numberless business reporters, is what men have in mind when they speak of the business cycle.

But business annals give us much more than this bare skeleton of a concept.

(1) Current commercial histories usually take nations as their units, but they make it clear that a given wave of prosperity or depression does not always sweep over all parts of a country, and that such a wave sometimes sweeps over the commercial world. So unequal are the areas affected by different waves that we cannot associate business cycles with any given geographical or political unit. For convenient discussion it seems wise to abide by the convention of our sources, and think of (say) Japanese cycles, Swedish cycles and Brazilian cycles. There is the more reason for this practice in that the record of business cycles in every country has its own peculiarities. But we must conceive of the phenomena as international, not only in the sense that they occur in many countries, but also in the sense that the state of trade prevailing in any country at any time actively promotes the development of a similar condition in all other countries with which the first has important business relations. On the other hand, we must recognize that in a large country whose economic organization is not highly integrated different sections sometimes have cyclical fluctuations more divergent than those of neighboring nations.

(2) The conception of prosperity or depression within a given country has the character of an average. Seldom does a detailed survey show that all branches of business are active, or all dull, at the same time. As a rule, the reporters are clear and unanimous concerning the "prevailing tone"; but sometimes they picture conditions as so mixed that it is hard to discover the trend. And sometimes when reporters agree concerning the prevailing tone, they agree also that certain industries present striking exceptions. In other words, a reader of commercial histories conceives of business cycles as a sequence of phases each of which is a highly complex aggregate of conditions in different industries—conditions which are never strictly uniform, and which are at times markedly divergent.

(3) Another characteristic of business cycles as pictured by com-

mercial histories is that they vary in intensity. The writers tell of wild panics and of quiet recessions, of sensational booms and of mild prosperity, of complete prostration and of mere dullness, of dramatic revivals and of long-drawn-out recuperations. These descriptive terms and their hundred variants cannot be interpreted with precision. We cannot even rank successive or contemporary cycles in the order of their intensities,—to say nothing of measuring degrees of intensity. But neither can we doubt the fact that cycles run the gamut from violent fluctuations to moderate swings. And if we follow these sources faithfully, we must drop crises from our conception of business cycles, for in the moderate swings no phase occurs which is fitly designated by that word.

(4) Concerning the wave-length of business cycles, commercial histories give us more definite impressions. We can measure approximately the intervals between successive recessions. There are doubtful cases, because the industrial complexity just referred to sometimes makes it hard to say whether a given set of difficulties was general enough to be called a recession; but these cases are not sufficiently numerous to cut much figure in the results.

Some cycles are found in the record which appear to have been nearer one year than two years in length. At the other extreme, we find a few cycles lasting 11 or 12 years. But the bulk of the cases fall within the three- to six-year range. And when a goodly number of observations are put together the measurements distribute themselves about their central tendency in a fairly regular, though not symmetrical, fashion.

Further, it appears that the phases of revival and recession, as reported in the sources from which business annals are compiled, are brief in comparison with the phases of prosperity and depression; that on the average prosperity lasts a little longer than depression; that this relation of prosperity to depression is accentuated when wholesale prices have a rising secular trend, and reversed when that trend declines; that the very long cycles are due more to the prolongation of depression than to the prolongation of prosperity.

(5) On reading the business records of any country year after year, one is impressed by the continuity of cyclical changes. In the sequence of prosperity, recession, depression and revival, any stage can be treated as the end of one cycle and the beginning of another. Yet it seems wiser to say that there is no beginning and no end; or better still, that there is a continuous movement which passes through

certain phases in an established order, but at a pace which varies from time to time and country to country.

(6) Current business commentators say many hasty things about the causes of changes in conditions which we cannot incorporate into a working conception of business cycles. But for one generalization along this line we have use: business cycles are highly sensitive phenomena, influenced by a host of factors not of business origin. Among such factors, wars, civil disturbances, inequalities in harvests, and epidemics play prominent rôles.

(7) Finally, a survey of business annals of countries at different stages of development, and of the business annals of the same country through successive stages, suggests that business cycles are associated with a certain form of economic organization. This suggestion is confirmed by a longer-range study of economic history.[1] While commercial and financial crises can be traced back a long time in England, the Netherlands, France, Southern Germany, and northern Italy, these early modern and late medieval crises appear to have been due far more largely to non-business factors than are modern recessions, and to have been less general in their incidence. Business cycles which affect the fortunes of the mass of people in a country, which succeed each other continuously, and which attain a semblance of regularity, do not become prominent in the economic history of a country until a large proportion of its people are living mainly by making and spending money incomes. Also, there is evidence that business cycles keep changing character as economic organization develops. The most violent manifestations are brought under control. Panics subside into crises, and crises into recessions. It seems probable that the average length of cycles grows shorter at one stage of institutional development, and at a later stage grows longer again. In fine, we must think of the recurrence of prosperity, recession, depression and revival as characteristic of economic activity only when economic activity is organized on the basis of what is here called "business economy."

Thus the conception of business cycles obtained from a survey of contemporary reports starts with the fundamental fact of rhythmical fluctuations in activity, and adds that these fluctuations are peculiar to countries organized on a business basis, that they appear in all

[1] See Chapter II, section i, "The Historical Connection between Business Cycles and the Use of Money."

such countries, that they tend to develop the same phase at nearly the same time in different countries, that they follow each other without intermissions, that they are affected by all sorts of non-business factors, that they represent predominant rather than universal changes in trend, and that, while they vary in intensity and duration, the variations are not so wide as to prevent our identifying different cases as belonging to a single class of phenomena.

(2) Elements Derived from Theories of Business Cycles.

What alterations in this concept are suggested by studying the theories of business cycles?

Read one after another in full detail, these theories are scarcely less confusing than are commercial reviews. It is feasible, however, to deal with the theories in much the same way as we have dealt with the business reports. Chapter I presents a collection of theoretical accounts, which can be set against the historical accounts summarized in Chapter IV. Treating one collection as we did the other, we can ask, What do the theories as a whole tell us about the phenomena?

First, the theories put fresh emphasis upon the exceeding complexity of cyclical fluctuations. But the complexity revealed by the theories is complexity of an order different from that revealed by commercial reports. While the latter deal with business conditions in different areas and different industries, the theories deal with different processes—processes which are supposed to run their course in, or to affect, all industries and all communities organized upon a business basis.

Among the processes so intimately involved in cyclical fluctuations that they have been made to yield explanations of business cycles, we noted the following:

Banking operations—particularly the processes of expanding or contracting bank loans, with their effects in enlarging or reducing the volume of credit currency; fluctuations in discount rates, and the fluctuations of bank reserves which result from changes in the public's use of coin and paper money, and from the banks' efforts to maintain solvency.

Saving and investing in their relation to the amount of construction work undertaken, the supply of consumers' goods sent to market, and the volume of retail buying.

The process of adjusting the current supply of goods of all sorts to the demand for them, as that process affects business commitments, or is affected by (1) the uncertainties incident to all business planning, (2) changes in the marginal utilities of consumers' goods and the marginal utility of money, on the one hand, and, on the other hand, by changes in the demand for and in the operation of industrial equipment.

Disbursing money incomes to consumers and spending money by consumers, in relation to the processes of making and selling goods—relations which may be treated with reference to the influence of price fluctuations upon the incomes and purchasing power of different classes, with reference to the effect of saving by corporations and individuals upon the demand for consumers' goods, or with reference to the difficulty of providing liquid capital for business enterprises without reducing the demand for goods in general below the volume sent to market.

Making profits out of industrial operations—a process which is held to breed illusions concerning the volume of demand, to magnify the moderate fluctuations of retail buying into violent oscillations in production, or to cause the alternate marking up and writing down of the capital values at which business enterprises are rated and upon which loan credits are based.

Promoting new business ventures, or making revolutionary changes in business methods.

"Progress" at large, a characteristic of the age which makes it impossible to keep the rates at which different factors grow properly adjusted to each other.

In addition to these economic processes our attention has been called to:

Waves of optimism and pessimism, which are held by one writer to "give birth to one another in an endless chain," and by another writer to result from fluctuations in birth-, death-, and morbidity-rates.

Cyclical changes in weather, which affect business on one line of analysis because they affect crop yields, on a second line of analysis because they affect health and mental attitudes, and on a third line because they give the industries using organic materials a rhythm different from that of the industries using inorganic materials.

Of course not all of these theories of business cycles can be valid in the sense of their authors. Indeed, if any one theory really shows the chief cause of cyclical fluctuations, none of the rival theories shows the chief cause. But we can take all of the theories into our working conception of business cycles in the sense that we can conceive of the recurrent sequences of prosperity, recession, depression and revival as involving cyclical fluctuations in each of the economic processes listed, and as affected by emotional and climatic conditions. Nor can we limit our view to the processes and conditions on which theories of business cycles have been erected. In working, we must be prepared to study any feature of modern life which appears to be intimately related to business fluctuations. But with every factor in the complex, whether suggested by others or discovered in our inquiry, we must deal critically. Among other things, this means that our conception of a multiplicity of processes involved in business cycles does not commit us in advance to any conclusion about the number of causes at work. If the evidence we find points in that direction, we can conclude that some single cause produces, directly and indirectly, the cyclical fluctuations in an uncounted list of processes.

While adding a significant feature to our conception of business cycles, the survey of theories sheds little light upon the suggestions derived from the survey of business annals. For the cycles explained by economic theorists are not the cycles recorded by business historians. Interested in establishing generalizations, a theorist passes lightly over the differences among successive cycles in the same country and synchronous cycles in different countries. He contemplates an ideal, or a typical, case, supposedly modeled on real cases and summing up all their really essential features. Nor is that procedure open to criticism, provided the theorist takes care to test his ideal construction for conformity to fact. Some modern theorists do so explicitly and at length; doubtless others believe that they have made adequate tests privately, though they spare their readers the heavy task of assessing their evidence. In any case, concentration upon an ideal case by a theorist does not mean that he denies the variability of the phenomena, but that he sets the variations aside in order to get a clearer view of what seem to him fundamentals.

On two points, however, most of the theories of business cycles are at variance with the concept derived from commercial reviews. These points were discussed in Chapter IV, and noted in the preceding section; but they must be mentioned in the present connection. (1) Most theorists take crises to be one of the phases of all business cycles, though a few writers define "crisis" in a way which makes it equivalent to "recession." (2) By taking cycles as the intervals between crises, and not counting mild recessions as crises, most theorists make the duration typical of business cycles roughly twice the length we deduce as typical. On both these points, the conception suggested by business annals, confirmed as it is by statistical analysis, is more useful in constructive work than its rival.

Nor can the idea presented in many theories that business cycles represent an alternate rupture and restoration of economic equilibrium be included in our working conception. Men who take as their point of departure the theorem that economic forces tend to establish a stable equilibrium may conceive the main problem to be, how this fundamental tendency is overcome at times and how it presently reasserts itself. I have not chosen that point of departure. Hence it is no part of my task to determine how the fact of cyclical oscillations in economic activity can be reconciled with the general theory of equilibrium, or how that theory can be reconciled with facts.

Yet this does not dispose of the matter. Whatever his methodological assumptions, anyone who deals with crises is likely to think of a balance of forces, particularly if his explanation centers in some single process. "Over-saving," "over-production," "under-consumption," "a rate of interest higher than that economically justified," "optimistic error," "excess capacity,"—all such phrases imply the idea of an equilibrium which has been disturbed. They may or may not be conscious applications of a general economic theorem. But when we enlarge our problem to include numerous processes and all phases of the cycle, the idea of equilibrium becomes less helpful in conceiving the whole movement than in dealing with details. Provided we interpret equilibrium, not in the mechanical, but in the bookkeeping sense, as suggested in the closing section of Chapter II, we may compare one set of factors or forces with an opposing set, note which set exceeds the other for the time being, and inquire what consequences that excess produces. But in what useful way can we conceive of the equilibrium of the whole system we must contemplate, when that system includes factors which cannot be combined into two opposing totals—quantities of goods in physical terms, prices, pecuniary aggregates? If we could reduce every factor to its money value, the feat might be accomplished; but in the process we should bury qualitative distinctions of great moment. While we can relate all the qualitatively unlike factors in the problem to each other through their bearing upon prospective profits, we cannot add them all together and get results which are illuminating.

(3) Elements Derived from Statistical Analysis.

Our collection of statistics is like our collection of business annals, and unlike our collection of theories, in that it deals with the cycles of history—fluctuations which have occurred in certain countries between certain dates. Hence the statistics can be used to test elements in our concept which are derived from commercial reviews. The tests confirm, with a welcome increase of definiteness, the view that business cycles run a continuous round; that they vary, but vary after the fashion characteristic of most social phenomena, in intensity, in duration and in the intensity and duration of their constituent phases; that the synchronous fluctuations in countries having business relations with one another tend to have a common pattern, and that the course of business changes is frequently altered by factors not of business origin.

On the other hand, our collection of statistics resembles our collection of theories, and differs from our collection of business annals, in that it deals with economic processes rather than with the fortunes of different industries. Hence, the impression derived from the theories, that a business cycle is a highly complex congeries of fluctuations in different processes, can be made clearer by appeal to statistics. And though statistics deal with historical cycles, to a limited extent we can combine the different cases they present in such a way as to test theoretical conceptions of what features of the historical cycles are typical, and what are exceptional.

Besides confirming certain elements in the concept derived from our other sources, the collection of statistics brings forcibly to our attention two elements which are traceable, rather than prominent, in business annals and in certain theories.

Time series show that the cyclical fluctuations characteristic of various economic processes differ in amplitude and timing; they show approximately how much these fluctuations differ in amplitude, and what order they follow in time.

Time series also show that the cyclical fluctuations of most (not all) economic processes occur in combination with fluctuations of several other sorts:—secular trends, primary and secondary, seasonal variations, and irregular fluctuations.

By developing special methods for segregating secular trends and seasonal variations, statisticians have enabled us to get a clearer view of cyclical fluctuations, though they have accomplished little toward isolating the irregular changes in their series. Thus we are forced to deal with materials, which, at best, show cyclical-irregular fluctuations in combination. Even so, we can sort the series into groups, based upon the regularity and the measure of agreement among their movements. There are some time series whose fluctuations, mild or violent, show slight traces of any rhythm. But there are enough series which show tolerably regular cyclical fluctuations, agreeing with one another and with our business annals in tenor, to give us confidence in the basic element of our conception—the recurrence of the prosperity-recession-depression-revival sequence.

3. Two Criticisms Considered.

One element in our working concept has been rejected by Dean Arthur B. Adams, who holds:

> It is a mistake to think that cyclical movements are continuous. . . . Each business cycle is, in a large measure, separate and distinct from the one preceding it and the other succeeding it. Considerable time may elapse between the ending of one cycle and the beginning of another.

Adams illustrates this contention by reference to American experience:

> No period of prosperity developed from 1893 until the industrial expansion of 1905-07. Again, following the Panic of 1907 no period of prosperity developed until the World War expansion of 1915-20.

Our annals, on the contrary, and the business indexes with which we have compared them, show between 1893 and 1907 a "submerged cycle" terminated by a recession early in 1896, a second period of somewhat greater activity terminated by a very mild reaction in 1900, and a third movement of expansion ending in the "rich man's panic" of 1903. Between 1907 and 1920, also, our annals and indexes show three cycles, marked off by recessions in 1910, 1913 and 1918.

Yet the difference between Dean Adams' view and the one taken here is more a difference in the use of terms than a difference concerning facts. For Adams recognizes that between 1893 and 1905, and again between 1907 and 1915, there was "some oscillation of prices, credit and profits." He thinks, however, that

> these slight movements occurring within a few months were far too inconsequential to be designated as cyclical fluctuations.

What are here called business cycles of small amplitude, Dean Adams calls "periods of time covered by oscillating business equilibria." [1] In his terminology, no fluctuation is a business cycle unless the prosperous phase develops into a "boom."

Perhaps it does not matter greatly which of these contrasting usages is adopted, so long as the facts are kept in mind. On either view, one must face the problem why some revivals grow into intense and prolonged prosperity, and why in other cases prosperity is mild and brief. But one who takes the trouble to measure the amplitudes of successive fluctuations in many time series throughout considerable periods, finds his observations so distributed about their central tendency that he has no basis for contrasting business cycles and what Dean Adams calls "oscillating business equilibria." [2] Our inquiry will be more orderly if we treat all cyclical oscillations as belonging to one species of phenomena, and inquire into the variations characteristic of the species in respect to amplitudes, duration, and other measurable features.

Professor Irving Fisher doubts the validity of the whole conception with which we are concerned, and asks whether "the" business cycle is not a myth. His chief argument runs as follows:

> if by the business cycle is meant merely the statistical fact that business does *fluctuate* above and below its average trend, there is no denying the existence of a cycle—and not only in business but in any statistical series whatsoever! If we draw any smooth curve to represent the general trend of population, the actual population figures must necessarily rise sometimes above and sometimes below this mean trend line. . . . In the same way weather conditions necessarily fluctuate about their own means; so does the luck at Monte Carlo. Must we then speak of "the population cycle," "the weather cycle" and "the Monte Carlo cycle"?

[1] Arthur B. Adams, *Economics of Business Cycles,* New York, 1925, pp. 195-197, and 213.

[2] See "The Amplitude of Business Cycles" in Chapter III, sections vi, 3 (7).

> I see no more reason to believe in "the" business cycle. It is simply the fluctuation about its own mean. And yet the cycle idea is supposed to have more content than mere variability. It implies a regular succession of *similar* fluctuations, constituting some sort of *recurrence*, so that, as in the case of the phases of the moon, the tides of the sea, wave motion, or pendulum swing, we can forecast the future on the basis of a pattern worked out from past experience, and which we have reason to think will be copied in the future. We certainly cannot do that in predicting the weather, or Monte Carlo luck. Can we do so as to business? Not so long as business is dominated by changes in the price level! [3]

Professor Fisher has rendered a wholesome service to students of business cycles by challenging their basic concept in this vigorous fashion. To discuss the issue in full would involve repeating once again many of the facts set forth in the preceding chapters and summarized in the preceding sections. That is not feasible; but it is well to recall what groups of facts the challenge must face.

Even when economic time series are reduced to percentage deviations from their secular trends adjusted for seasonal variations, the fluctuations in some cases still seem as irregular as the fluctuations of the weather, or of "Monte Carlo luck." But there are many series of which this cannot be said. When charted, the fluctuations of pig-iron production, unemployment percentages, bank clearings, and building permits, to cite but a few examples, prove to be decidedly less irregular than the fluctuations of a weather chart, a chart of net gold shipments, or of potato crops. In no case are the fluctuations highly regular; but in many cases they are far from haphazard, despite the inability of statisticians to free what they call "cyclical" changes from what they call "irregular" perturbations. Further, the cyclical-irregular fluctuations of the series which individually show semblance of regularity are found to have tolerably regular relations with one another in respect to time, duration, and amplitude of movement—relations many of which have been suggested by economic theory. Finally, in timing and direction these inter-correlated fluctuations agree closely with the evidence given by business annals concerning a long-continued and wide-spread recurrence of prosperity, recession, depression and revival.

[3] Irving Fisher, "Our Unstable Dollar and the So-called Business Cycle," *Journal of the American Statistical Association,* June, 1925, vol. xx, pp. 191, 192.

To ascertain how regularly this sequence recurs, to learn all they can about its characteristics, causes, and consequences, is the problem upon which students of business cycles are working. They speak of cyclical fluctuations, instead of periodic fluctuations, just because the first term does not imply strict regularity of recurrence. To them "the cycle idea" does "have more content than mere variability"; but it does not have the content of periodicity. Anyone who makes business forecasts on the basis of a fixed time schedule is not applying their concept, but violating it. What they know about the recurrence does not yet enable them to make consistently successful business forecasts. But in that fact they see reason, not for giving up their work, but for pressing it further.

No competent judge questions the desirability of studying economic fluctuations in an objective fashion. Professor Fisher himself is one of the distinguished workers in the field. But he thinks that the subdivision of this broad problem which is called "business cycles" in America and "trade cycles" in England would flourish better under some other name. Perhaps a new name can be found which is equally apt and less subject to misconstruction. If so, it should be adopted. But no such blanket term as "economic undulations," "industrial fluctuations," "business oscillations," or "theory of conjunctures" will meet the needs of current research. For we have seen that various investigators believe they have discovered several different types of fluctuations in time series—secular trends, "long waves," secondary trends, generating cycles, commercial cycles (the commonest name for inter-crisis changes), business cycles, seasonal variations, irregular perturbations. Probably each of these types which withstands critical examination will become the object of intensive study by economic statisticians and by economic theorists, or better by men who unite these too-often separated interests. As knowledge grows, there will be increasing need of specific names to characterize each type of fluctuations and to differentiate each from the other types. To drop the name now widely used for one of the best established of these types, before a better substitute has been supplied, might cause more confusion than is now caused by misunderstanding of the word "cycles." Meanwhile, the general adoption of this word in other sciences to designate recurrent, but non-periodic, phenomena is familiarizing the intelligent public with its meaning.[4] Perhaps the

[4] See above, Chapter IV, section iii, 2; "Use of the Term 'Cycles.'"

course which will make the least trouble is for critics to observe what those who treat of business cycles mean by that term.

4. A Definition of Business Cycles.

In a systematic investigation of business cycles, all of the characteristics developed in the preceding pages by analyzing business annals, theoretical hypotheses and statistical data should be considered. But it is useful to have a brief definition summarizing those characteristics which show the generic type of the phenomena in question, and those characteristics which mark off business cycles from the other phenomena just mentioned with which they may be confused.

Business cycles are a species of fluctuations in the economic activities of organized communities. The adjective "business" restricts the concept to fluctuations in activities which are systematically conducted on a commercial basis. The noun "cycles" bars out fluctuations which do not recur with a measure of regularity.

The phenomena with which business cycles may be confused are (1) changes in business conditions which occur between the dates of "crises," (2) fluctuations which affect a minor portion of the economic activities of a business community, (3) fluctuations which recur every year, and (4) the less definitely established secondary trends and "long waves." From the first of these related species, business cycles are distinguished by the fact that each cycle includes one wave of rising and falling, or falling and rising activity, whereas the intervals between "crises" often include two and some times include three such waves. From the second species, business cycles are distinguished by their wider inclusiveness. From the third species they are distinguished by not recurring annually. From the fourth species they are distinguished by their briefer time-span.

Following the lines of this analysis, we indicate both the generic features and the distinguishing characteristics of business cycles by saying that they are recurrences of rise and decline in activity, affecting most of the economic processes of communities with well-developed business organization, not divisible into waves of amplitudes nearly equal to their own, and averaging in communities at different stages of economic development from about three to about six or seven years in duration.

Seldom can the interrelated species of social (or natural) phenomena be marked off from one another with such precision as to leave no doubtful cases. Certainly our business annals and statistical indexes show some fluctuations which are difficult to classify on any scheme. If the definition suggested makes clear what is typical of the phenomena in question, it will serve its purpose.

II. Tentative Working Plans.

To give an intelligible account of business cycles, as we have come to conceive them, is the task of the second volume. The cycles with which the discussion will deal are neither the cycles of history, nor the cycles of some speculative construction, but cycles of an intermediate order. We shall seek to find what features have been characteristic of all or of most cycles, and to concentrate attention upon them, paying less attention to features which have been peculiar to one or a few cases. In this respect, our aim will be like that of economic theorists, and different from that of economic historians, commercial journalists, and business forecasters, who are concerned with particular cycles. But our way of finding what is typical and what is exceptional will be the way of the statistician and the historian who ventures to generalize. Of course, concentrating upon what is typical involves considering the way in which the various phenomena treated are distributed around their central tendencies. What this procedure shows to be typical may at times be equivalent to what many economic theorists would call "normal" features of business cycles; but there is no assurance that such correspondence will be common.

Materials for the discussion are supplied by the three collections from which our working conception of business cycles has been derived—the collection of business annals, the collection of statistical series, and the collection of theories. These are formal, objective sources which any student can exploit. In addition, like every other student of economic behavior, I shall draw upon my own store of experiences and observations—a queer mixture of generic and individual elements, the latter determined largely by chance and by personal equation.

The methods employed must be methods which make it possible to weave these diverse materials into a single fabric. We must be ready to consider concrete events such as historians treat; but we must array them in groups after the fashion of statisticians, and interpret them in the light of what we know about economic behavior, after the fashion of economic theorists. Similarly, we must be ready to apply the mathematical technique of statisticians; but we must guide our statistical investigations by rational hypotheses, and eke out our statistical observations by recourse to historical records. So, too, while we must be ready on occasion to analyze imaginary cases with the theorists, these cases should be arranged whenever possible with an eye upon the historical and statistical data by which speculative conclusions may be tested. Of course, it is an error to think that free use of factual materials reduces the need for careful reasoning. In our effort to give an intelligible account of business cycles, reasoning must be our chief concern; but it should be reasoning which deals, and squares, with observations, and the observations should have as wide a sweep as we can get from history, as much precision as we can get from statistics, and as much subtlety as we can get from personal experience.

The concept of business cycles developed in this volume suggests that the leading question of the second volume be put in the form "How do business cycles run their course?" rather than in the form "What causes business cycles?" What we are seeking to understand is a complex of recurrent fluctuations in numerous interrelated processes. To learn what we can about the workings of these processes in their relations to one another and as a whole is the next step. When we have taken that step, it will be time to see what the question about the cause of business cycles means, and in what sense it can be answered.

Meanwhile, we need not hesitate to speak about causal relationships among the numerous factors in the processes whose fluctuations we are tracing, whenever such language seems appropriate. Men phrase their statements concerning economic relations in various ways. One may say that under certain circumstances an increase of orders for goods is followed by a rise of prices, or that it permits sellers to raise prices, or that it tends to produce a rise of prices, or that it occasions a rise, or that it causes prices to rise. Each of these phrases has implications somewhat different from the others—implications of which we seldom stop to think in the midst of our constructive work. The only statement in the list which we can test adequately is the colorless statement that one event is followed by another. We should be on the safest ground if we confined ourselves strictly to tested allegations concerning past sequences. Yet in our searches for sequences to test, and in our thinking about probable future developments, it would be foolish to contend against the settled habit of thinking in terms of cause and effect. Many of our keenest guesses at new truth come to mind in this dubious form, just as many stimulating insights are suggested by analogies. We avail ourselves of analogies both in making investigations and in stating their results, though we all know that analogy is not proof. So we think and write in causal terms, though we admit the impossibility of establishing a necessary connection between antecedent and consequent.

Whatever causal connections we may work into our account of business cycles, that account will remain an analytic description of interrelated processes. Of necessity, the causal relationships will appear most complicated. A phenomenon which crops up first as an effect turns presently into a cause, and since we shall be following a continuous process we must treat it first as the one and then as the other. Even that is a simplified version of the facts: in truth every factor in the situation at every moment is being influenced by, and is influencing, other factors—it is not first cause and then effect, but both cause and effect all the time. Further, we cannot follow single chains of causal influence. The interactions among economic processes are so important that we cannot set them aside. Almost every effect with which we deal will appear to be the joint product of numerous causes, and to be one among several causes of numerous effects. In view of these complications, it will prove more helpful to treat our problem at large in terms of the relations among a number of complex variables, rather than in terms of cause and effect.

A cardinal illustration of our difficulties, and of the way out, is provided by Chapter II. To avoid getting lost in the maze of processes which Chapter I showed we must follow, we sought to find some general scheme for viewing these processes in systematic relation to one another. The scheme suggested was to relate every factor to the current and prospective profits of business enterprises. Profits are net mathematical resultants of many plus and minus items in a computation. We do not analyze profit and loss statements in terms of cause and effect, though we often give causal explanations of changes in certain items. So, when we put the scheme of Chapter II to use in the second volume, we shall concentrate attention upon the net resultants of interrelated changes in many variables and relegate causal analysis to incidental uses.

The best framework for a discussion of how business cycles run their course is that provided by the phases of these cycles—prosperity, recession, depression, and revival. Our collections of business annals and of theories lend themselves readily to this plan; for the annals mark changes in the tides of activity, and most current theories explain crises by what happens in prosperity and revivals by what happens in depression. But statistical time series are continuous. How shall we break them into parts for use in a discussion which treats first all periods of prosperity as a unit, then all periods of recession, and so on?

Most of the statistics which the National Bureau is collecting come from the United States, England, France and Germany—countries included in our volume of *Business Annals*. For each of these countries Dr. Thorp has drawn up a table which marks off, not only successive cycles, but also the successive phases of each cycle. As they stand, or with such modifications as prove advisable when we enter into full detail, his divisions will be used as a basis for breaking up the time covered by each series used, first into cycles, second into periods of prosperity, recession, depression and revival. That is, we plan to analyze all the time series for a given country on the basis of a standard pattern derived from the business annals of that country, not on the basis of the various patterns which might be derived from study of the several series themselves. In most cases we anticipate that the cycles and phases of the individual series will correspond fairly well with the standard patterns of the countries from which they come. But there will be cases of notable divergence in timing—cases which our plan will throw into high relief, and from which we shall learn much of interest.

The cycles with which we are working run from trough to trough; that is, they show a business cycle as a wave which rises, breaks and subsides. We might equally well have taken the cycles from peak to peak, representing each as a decline, followed by a rise. Our chief reason for preferring the former plan is that it may enable us to include a few more recent cases than would its rival.

When a series has been divided into cycles on this basis, we plan to ascertain its mean value in each cycle, and to turn the original figures for every month or quarter of each cycle into relatives on the basis of this mean value as 100. This step will put all the series into comparable form, and give us numerical results which can be used in many ways. Then each cycle in each series will be represented by four charts, one showing its relative fluctuations during the prosperous phase, one during the phase of recession, a third during depression, and a fourth during revival. These charts will be drawn with overlaps at either end; for example, the charts for revivals of activity will include the latter part of the preceding depression and the earlier part of the succeeding prosperity.

Charts drawn in this manner, with logarithmic vertical scales, can be used in many combinations. We can compare the fluctuations of a given series in a given country in successive periods of given phase, and contrast its fluctuations in opposite phases. We can study the movements of similar series from different countries in the same phases of the same cycles. We can take different series from the same country in the same phase of the same cycle. And so on.

By using the average value of each series during each cycle as the base for computing relatives, we eliminate most of the secular trend. Otherwise, the plan involves a minimum of "adjustments" in presenting data. But though simple, it can be elaborated at will. At need, the seasonal variations of series can be ascertained by any of the standard methods, and eliminated. Or a series can be turned into percentage deviations from its secular trend before it is broken up into cycles. Our percentage fluctuations about the mean values of a series in a given cycle can be reduced to multiples of their own standard deviations. Indeed, we can utilize almost any technical device which the work of other investigators, or our own experience, shows to be helpful.

A special advantage of the plan is that it helps us to deal with the most baffling problem encountered in analyzing time series—the problem of segregating cyclical from irregular fluctuations. In no single case will our procedure effect such a segregation; but when we assemble charts showing the movements of some variable during (say) the prosperous phase of numerous cycles in several countries, we should be able to make out with some confidence what changes are characteristic and what are exceptional. In some cases we may be able to go further, and connect deviations from the common course with disturbing factors of which we read in non-statistical sources.

Of course, our fundamental problem in using statistics will be to find out what relations subsist between the cyclical fluctuations characteristic of different economic processes. As pointed out in Chapter III, the possible relationships are of many types. We are accustomed to asking whether it is the total magnitude of one variable which affects a second, a change in the direction of its movement, or the amount of change from one date to the next, or the percentage rate of change. We are learning to ask whether it is the changes accumulated over a period of time that should be looked into, or the amount of the variable in excess of a critical range, or its ratio to some other variable. These are but a few of the possibilities which statisticians may soon be considering. Moreover, the effects upon the second variable may be changes in total amount, in direction of movement, in amount of movement, in percentage rise or fall, or in any of the other indefinitely numerous possibilities. Again, a given variable may affect a second variable in one way while it affects a third and fourth in other ways. So, too, a given variable may be affected in unlike ways by two or more processes which bear upon it. All these problems are further complicated by the need of finding how promptly an effect is exercised, how that effect is distributed through time, and whether the effect is constant in character through all phases of business cycles, or whether it changes from phase to phase.

There are important problems relating to business cycles which cannot be treated within the framework which has been sketched. Hence the analysis of what happens in periods of prosperity, recession, depression and revival must be supplemented by discussions in which certain hypotheses are tested with reference to long periods of time, in which business annals are considered in their wider sweep, and in which statistical series are taken as wholes instead of in segments. But these problems will stand out far more clearly after the successive phases of business cycles have been analyzed in detail than they do at present.

No group of workers in the present generation can hope to cover the field marked out by these suggestions. The task of finding, case by case, the best form of stating the relations among different economic processes is a task on which an increasing number of increasingly skillful investigators will be working for a long time to come —how long no one can guess. But what our successors can accomplish will depend upon the stage at which we pass on the problem. Our task is to use as best we can the means at our disposal—the insights given by economic theory as it now stands, the statistical and historical data now available, and all the suggestions we can get.